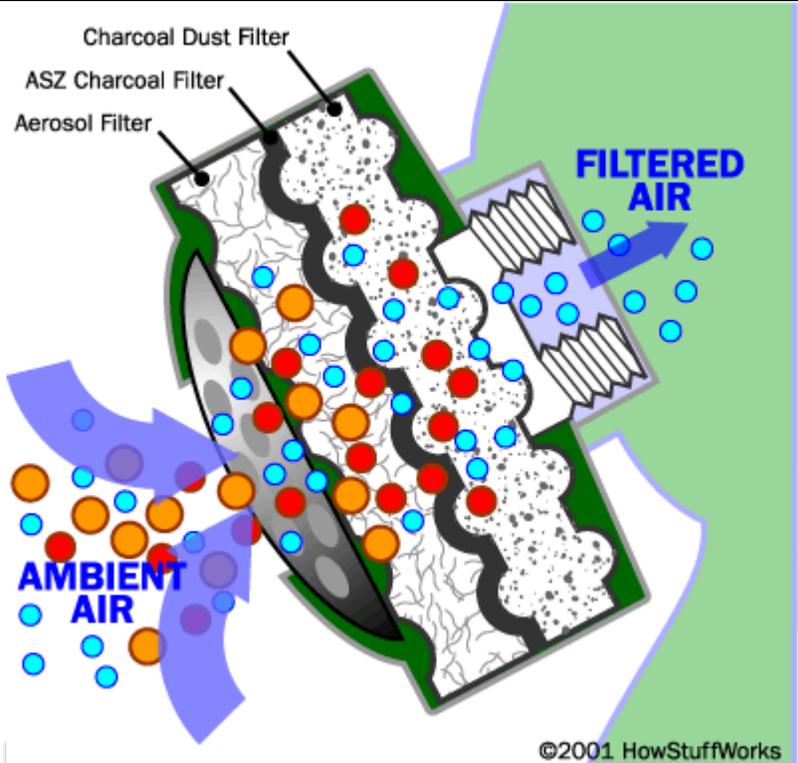


Gas Masks-Respirators-SCBAs and Escape Hoods Info (as of Feb 2012)

Type	Use	Info	Source
Gas Mask	How Gas Masks Work	<p>How Gas Masks Work by Marshall Brain</p>  <p>Any time there is a threat of biological or chemical attack, the first thing you hear about is gas masks. Gas masks -- more generically known as respirators -- are also an important part of industrial safety on a daily basis. They protect workers against everything from flour dust in a grain elevator to the damaging organic chemicals in paint spray. In this edition of HowStuffWorks, we will look at the technology behind gas masks so you can understand how they work, and when they won't.</p> <p>4.</p>	<p>http://science.howstuffworks.com/gas-mask.htm</p>

Type	Use	Info	Source
		 <p>A typical full-face air-purifying respirator, used here with a hood and suit for extra protection</p> <p>Types of Gas Masks</p> <p>When most people think about gas masks or respirators, what they usually envision is a tight-fitting plastic or rubber face mask with some sort of filter cartridge. The mask covers the nose and mouth. These are called half-mask air-purifying respirators. Depending on the chemical or biological agents in the environment, a half mask may not be sufficient because the eyes are very sensitive to chemicals and offer an easy entry point for bacteria. In this case, a full-face respirator is called for. It provides a clear face mask or clear eye pieces that protect the eyes as well.</p> <p>Air-purifying respirators have two advantages:</p> <ul style="list-style-type: none"> <li>• They are the least-expensive option. <li>• They are the least-complicated option. <p>The problem with air-purifying respirators is that any leak in the mask makes them ineffective. The leak could come from a poor fit between the mask and the user's face, or from a crack or hole somewhere on the mask.</p> <p>Two other types of respirator systems solve the leak problem. The supplied-air respirator uses the same sort of filter cartridge found in an air-purifying respirator. However, instead of placing the filter directly on the mask and requiring the user's</p>	

Type	Use	Info	Source
		<p>lungs to suck air through it, the filter attaches to a battery-operated canister. The canister uses a fan to force air through the filter, and then the purified air runs through a hose to the mask. The advantage is that the air coming into the mask has positive pressure. Any leak in the mask causes purified air from the canister to escape, rather than allowing contaminated air from the environment to enter. Obviously, positive pressure creates a much safer system, but it has two disadvantages:</p> <ul style="list-style-type: none"> • If the batteries die, so do you. • The constant air flow through the filter means that the filter does not last as long. <p>However, for infants and children this may be the only option because their small faces make masks difficult to fit reliably.</p> <p>The best system is called an SCBA (self-contained breathing apparatus) system. If you have ever seen a firefighter wearing a full-face mask with an air tank on his or her back, then you have seen an SCBA system. The air tank contains high-pressure purified air and is exactly like the tank used by a SCUBA diver. The tank provides constant positive pressure to the face mask. An SCBA provides the best protection, but has the following problems:</p> <ul style="list-style-type: none"> • The tanks are heavy and bulky. • The tanks contain only 30 or 60 minutes of air. • The tanks have to be refilled using special equipment. • SCBA systems are expensive. <p>For firefighting, an SCBA system makes a lot of sense. The smoke is thick, dangerous and contains an unknown mix of poisonous gases. The fire may consume most or all of the oxygen in the air. The fire engine can carry extra tanks or refilling equipment, and a firefighter spends a limited time in the burning building. For civilians or for soldiers on the battlefield, however, an SCBA system is nearly impossible to manage because of the expense and the limited air time.</p> <p>4.</p>	

Type	Use	Info	Source
		 <p>A typical disposable filter cartridge for a respirator: When you inhale, air flows through the inlet on the left, through a particulate filter, through an activated charcoal filter, through another particulate filter (to trap charcoal dust) and through the outlet on the right into the mask. When the particulate filter clogs or the activated charcoal becomes saturated, you must replace the cartridge.</p> <p>How Filters Work</p> <p>Because of the problems with SCBA systems, any respirator that you are likely to use will have a filter that purifies the air you breathe. How does the filter remove poisonous chemicals and deadly bacteria from the air?</p> <p>Any air filter can use one (or more) of three different techniques to purify air:</p> <ul style="list-style-type: none"> • Particle filtration • Chemical absorption or adsorption • Chemical reaction to neutralize a chemical <p>Particle filtration is the simplest of the three. If you have ever held a cloth or</p>	

Type	Use	Info	Source
		<p>handkerchief over your mouth to keep dust out of your lungs, you have created an improvised particulate filter. In a gas mask designed to guard against a biological threat, a very fine particulate filter is useful. An anthrax bacteria or spore might have a minimum size of one micron. Most biological particulate filters remove particle sizes as small as 0.3 microns. Any particulate filter eventually clogs, so you have to replace it as breathing becomes difficult.</p> <p>A chemical threat needs a different approach, because chemicals come as mists or vapors that are largely immune to particulate filtration. The most common approach with any organic chemical (whether it be paint fumes or a nerve toxin like Sarin) is activated charcoal.</p> <p>Charcoal is carbon. (See this Question of the Day for details on how charcoal is made.) Activated charcoal is charcoal that has been treated with oxygen to open up millions of tiny pores between the carbon atoms. According to Encyclopedia Britannica:</p> <p>The use of special manufacturing techniques results in highly porous charcoals that have surface areas of 300-2,000 square metres per gram. These so-called active, or activated, charcoals are widely used to adsorb odorous or coloured substances from gases or liquids.</p> <p>The word adsorb is important here. When a material adsorbs something, it attaches to it by chemical attraction. The huge surface area of activated charcoal gives it countless bonding sites. When certain chemicals pass next to the carbon surface, they attach to the surface and are trapped.</p> <p>Activated charcoal is good at trapping carbon-based impurities ("organic" chemicals), as well as things like chlorine. Many other chemicals are not attracted to carbon at all -- sodium and nitrates, to name a couple -- so they pass right through. This means that an activated-charcoal filter will remove certain impurities while ignoring others. It also means that, once all of the bonding sites are filled, an activated charcoal filter stops working. At that point you must replace the filter. Sometimes, the activated charcoal can be treated with other chemicals to improve its adsorption abilities for a specific toxin.</p> <p>The third technique involves chemical reactions. For example, during chlorine gas attacks in World War I, armies used masks containing chemicals designed to react with and neutralize the chlorine.</p> <p>Destruction by chemical reaction was adopted in some of the earliest protective equipment such as the 'hypo helmet' of 1915 (chlorine was removed by reaction</p>	

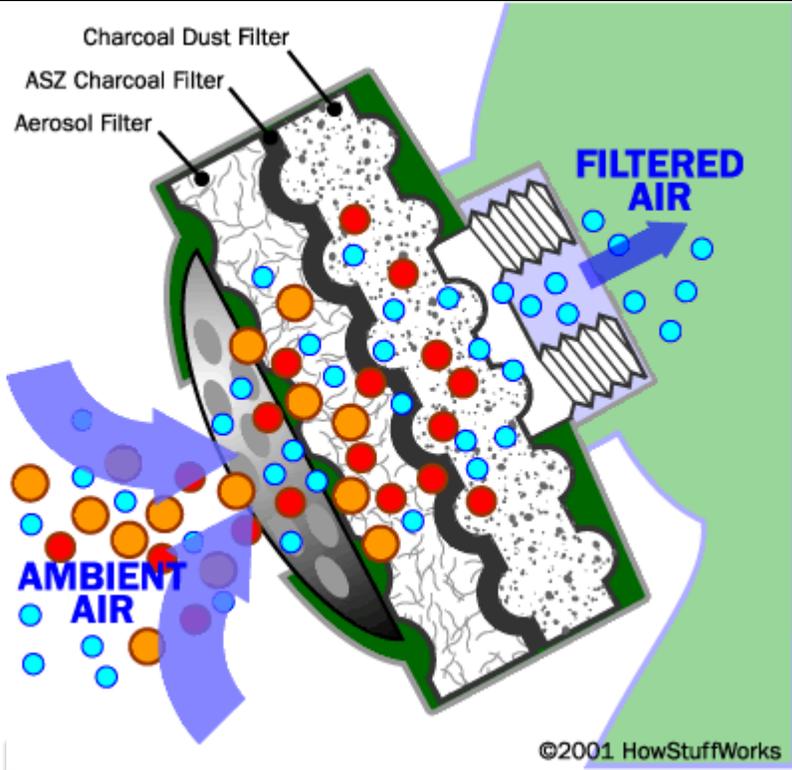
Type	Use	Info	Source
		<p>with sodium thiosulfate) and in the British and German masks of 1916 (phosgene was removed by reaction with hexamethyltetramine).</p> <p>In industrial respirators, you can choose from a variety of filters depending on the chemical that you need to eliminate. The different filters are color coded by NIOSH standards for things like acids and ammonia. See this page for details.</p> <p>Lots More Information</p> <p>Related HowStuffWorks Links</p> <ul style="list-style-type: none"> • How SARS Works • How Biological and Chemical Warfare Works • How Nuclear Bombs Work • How Cruise Missiles Work • How Military Camouflage Works <p>Other Great Links</p> <p>Gas Masks</p> <ul style="list-style-type: none"> • Respirators (in particular the Millenium Chemical-Biological Mask) • Civilian Gas Mask.com • Quick Mask • Respirator Selection • NIOSH Pocket Guide to Chemical Hazards <p>Protective Clothing</p> <ul style="list-style-type: none"> • Chemical Defense Equipment • Protection from Chemical and Biological Warfare • Protection against terror weapons • Chemical Protective Equipment Components • Chemical and Biological Warfare: Are the United States Navy and Marine Corps prepared? 	
Gas Mask	What You Should Know About Gas Masks	<u>What You Should Know About Gas Masks</u>	http://www.copsplus.com/chembioinfo.php

Type	Use	Info	Source
		<div> </div> <p>It is natural that with the threat of biological or chemical terrorism comes a lot of talk about gas masks. Before making the decision to buy and use a gas mask it is important to understand the technology behind the different types of available equipment. It is also important to understand that a gas mask alone will not give adequate protection from biological or chemical contamination. Even the use of a protective suit will only give some protection from airborne contaminants. The only way to be fully protected is to use a suit that entirely covers the user and seals air tight, which means the use of SCBA gear is required. Unfortunately, this type of gear is very expensive and is not practical for civilian use (see discussion below). You should not expect to be able to stay in an affected area for any period of time without this type of gear.</p> <p><u>A Look at the Different Types of Gas Masks</u></p> <p>The least effective type of gas mask is known as a half-mask air-purifying respirator. These cover the nose and mouth allowing the user to breathe through the filtration system of the mask. However, many chemical and biological agents use the eyes as an entry point, causing contamination.</p> <p>A more effective type of mask is known as a full-face air-purifying respirator. These provide a clear face mask or clear eye pieces that</p> <div> </div> <p>Full-Face Air-Purifying Respirator</p>	

Type	Use	Info	Source
		<p>protect the eyes, as well as the nose and mouth. The issue with these air-purifying respirators is that they may leak from either a poor fit or from a crack or hole on the mask.</p> <p>Solving the leak problem is the supplied-air respirator. These use the same sort of filter attached to a battery-operated canister with a fan forcing air through it. The advantage is the positive pressure created by the system ensuring that any leak in the mask releases purified air rather than allowing contaminated air from the environment to enter. This is often the only option for infants and children because their small faces make masks difficult to fit reliably. Anyone considering using this type of gas mask should consider that the constant flow of air through the filter means that the filter needs more frequent replacement. Also consider that if the batteries wear out, the system will no longer operate.</p> <p>The most effective system is known as an SCBA, or Self-Contained Breathing Apparatus. In an SCBA system, the air tank contains high-pressure purified air providing constant positive pressure to the face mask. While providing the best protection, an SCBA system is expensive and impractical for civilian use. The tanks are heavy and bulky and only contain, at best, 60 minutes of air. They may make sense for diving or firefighting, but for civilians or soldiers on the battlefield, an SCBA system is nearly impossible to manage.</p> <div> <p>This is a typical disposable filter cartridge for a respirator.</p> </div> <div> <p>Firefighter Wearing SCBA System</p> </div> <p>How the Filtration Works</p> <p>Because of the problems with SCBA</p>	

Type	Use	Info	Source
		<p>systems, the respirator you are most likely to use will have a filter that purifies the air you breathe. Air filters can use one (or more) of three techniques of removing poisonous chemicals and deadly bacteria from the air.</p> <p>Particle filtration is the simplest of the three. Holding a cloth or handkerchief over your mouth to keep from breathing dust is an example of an improvised particulate filter. In a gas mask designed to guard against a biological threat, a very fine particulate filter is useful. An anthrax bacteria or spore might have a minimum size of 1 micron. Most biological particulate filters remove particle sizes as small as 0.3 microns.</p> <p>A chemical threat requires a different approach due to the fact that chemical mists or vapors are largely immune to particulate filtration. The most common approach with any organic chemical is activated charcoal. Activated charcoal is charcoal that has been treated with oxygen to open up pores between the carbon atoms. These so-called active, or activated, charcoals are widely used to absorb odorous or colored substances from gases or liquids. When certain chemicals, such as paint fumes or nerve toxins like Sarin, pass next to the carbon surface, they attach to the surface and are trapped. Activated charcoal is good at trapping these organic chemicals, but many other chemicals are not attracted to carbon at all and pass right through. This means that an activated-charcoal filter will remove certain impurities, while ignoring others. It also means that once all of the activated charcoals bonding sites are filled, the filter stops working and must be replaced.</p> <p>The third technique involves destruction by chemical reaction. This technique was adopted in some of the earliest protective equipment. In industrial respirators, you can choose from a variety of filters, depending on the chemical that you need to eliminate. The different filters are color coded by NIOSH standards for things like acids and ammonia. It may be difficult to decide which filtration to use, since in an attack, the chemical used is unknown beforehand.</p>	
Gas Masks and Respirators	1. Moderator	Gas Masks and Respirators	http://www.zombiepreparedness.org/node/292

Type	Use	Info	Source
		 <p>Author: NORILIS zione on Sun, 2011-07-24 07:37</p> <p>MODERATOR</p> <p>In hostile situations you sometimes find yourself faced with airborne diseases, chemical fumes, smoke, and dust, and in any danger the first step to safety is prior preparation. Gas masks and respirators provide the most effective protection against these threats. However, they are not a guarantee of safety; the most important aspect of protection is still timing. If a terrorist organization or rival army releases a chemical weapon chances are you will not know about it until it is already too late. You cannot wear an air filter 24/7, it would interfere with your daily life and you would have to carry a large supply of replacement filters with you. In addition to being somewhat restrictive, the systems need to be cared for and maintained. You should take the time to receive some training in using the system you purchase. After you are comfortable with your knowledge of your chosen system, it is important to regularly check your equipment and practice donning it efficiently and effectively.</p>	
Gas Masks and Respirators	2. Filters and how they work	Filters and how they work	http://www.zombiepreparedness.org/node/292

Type	Use	Info	Source
		 <p>©2001 HowStuffWorks Image Courtesy</p> <p>of How Stuff Works.</p> <p>Particulate Filter A particulate filter works by having finely woven fibers that have gaps as small as .3 microns wide. This is large enough to allow the passage of air, but blocks small and large particulate matter. However, against smaller hazards such as bacteria and viruses such as anthrax, it provides insufficient protection.</p> <p>Chemical Absorption Filter This works by absorbing the contaminant before it passes into our airflow; the most common form of this is activated charcoal, an extremely high-porosity version of charcoal, capable of absorbing many chemicals while still allowing the passage of air.</p> <p>Chemical Reaction Filter This filter works by supplying a chemical that reacts with the contaminant to</p>	

Type	Use	Info	Source
		<p>neutralize it. Notably the first time use against a biological threat in war was in WWI when some enterprising Canadians discovered that the ammonia from urine negated the effects of chlorine gas used as a chemical weapon by the central powers. [1]</p>	
<p>Gas Masks and Respirators</p>	<p>3a. Types of Respirators</p>	<p>Disposable Dust/Particulate Respirators</p>  <p>Image Courtesy of Jamestown Distributors.</p> <p>Description These respirators are made of various recyclable materials such as wool, glass, plastic, and cellulose these masks bond to the harmful materials prohibiting them from entering into you. Multiple levels of effectiveness are available, but the only ones worth purchasing from the standpoint of hazard protection are those that provide 95% protection against small particles and even some viruses. [1]</p> <p>Pros Weighs virtually nothing and the low price and easy availability make this a quick and simple way to protect your self from low level pathogens.</p> <p>Cons It only increases you chances of fighting pathogens and does not fully prevent them from getting to you, due to an incomplete seal. May become harder to acquire and replace post apocalypse, although they are sold in bulk. Their partial face coverage and incomplete seal prevents them from providing full protection against the dangers you may encounter.</p> <p>Maintenance No Maintenance is needed for these. Throw them away when they become difficult to breathe through.</p> <p>Initial Costs for a Case Cases of 20 go for around 40 dollars.</p>	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>Directions for use Pull the lower elastic band over your head, and place it below your ears. Do the same with the upper elastic band, leaving it above ear level. Ensure that the mask fits tightly.</p>  <p>Image Courtesy of New Pig Corporation.</p>	
<p>Gas Masks and Respirators</p>	<p>3b. Types of Respirators</p>	<p>Half-Mask Air-Purifying Respirators</p>  <p>Image Courtesy of Global Safety Co.</p> <p>Description The basic unit consists of a rubber material that fits snugly over the nose and under the chin. These masks use several different types of filters to protect from various threats.</p> <p>Filters</p> <ul style="list-style-type: none"> ○ HEPA filter: Protects against small particulate matter, such as asbestos and some airborne radio ○ Pesticide: Protects from low levels of water-vapor borne toxic contaminants, such as pesticides. ○ Mercury Cartridge: Protects from low levels of metallic vapors such as 	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>mercury.</p> <ul style="list-style-type: none"> ○ Organic Vapor Cartridge: This filter provides protection from organic based vapors such as nail polish remover (acetone) and some paints. ○ Acidic Gas\Mist Cartridge: This filter protects from low levels of natural gas vapors, gasses, and other slightly acidic airborne contaminants. ○ Combination Cartridge: This filter is for protection in an environment that may contain various types of hazards. <p>[4]</p> <p>Pros Light weight, low initial and maintenance cost. Easy to care for and maintain. Protects against low level airborne pathogens.</p> <p>Cons While it filters better then the disposable dust particulate respirators it will only protect from low-level hazards and particulate. It provides no protection for the skin or eyes, and like all filters partially restricts breathing.</p> <p>Maintenance</p> <ul style="list-style-type: none"> ○ Mask itself: Remove the filters, cartridges, and attachments from the mask and then immerse the mask into warm water and soap. Scrub the equipment and then rinse with water. The mask should come with a list of safe disinfectants to use. Use them after each use and then either let the mask air dry or dry it with a lint free Cloth. <p>[4]</p> <p>Initial Costs for a decent unit It costs around 35-50\$ for the respirator with an additional 50-100 dollars for the filters.</p> <p>Directions for use It is important that the mask be donned before entering the hazardous environment. Place the bottom straps over your head and hook them around your neck with the top strap secured in place at the top of your head. It is important to ensure you have a good seal against the face, but avoid causing bruising. A common technique for testing the seal is a "breath test". First you should cover the exhalation valve with your hand or a piece of paper and then blow into the respirator and the mask should lift or pull away from the face before the air comes out. For the second portion of the test, cover the respirator and inhale gently and the mask should collapse slightly onto the face. If during the exhalation test air</p>	

Type	Use	Info	Source
		<p>escapes without the mask moving or deforming, or during the inhalation test you can breathe in without deforming the mask, the seal is incomplete. These checks should be performed before every foray into a hazardous environment. While these tests are not a guarantee of a perfect seal, they are sufficient for protection against hazardous environments.</p>  <p>Image Courtesy of Federal Highway Administration</p>	
Gas Masks and Respirators	3c. Full Face Mask Air-Purifying Respirators	<p>Full Face Mask Air-Purifying Respirators</p>  <p>Image Courtesy of Lab Safety.</p> <p>Description Similar to the Half Mask Air-purifying respirator, it differs in the addition of an upper faceplate to cover the eyes as well. It fits snugly under the chin and ends above the forehead. [6] Different brands come in different designs, varying from single-piece faceplates to individual eyeholes in an opaque frame. The full face mask uses the same filters as the half face mask, with the added protection of the faceplate allowing for the creation of a better seal and also protecting the delicate eyes.</p>	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>Pros Provides greater protection from splashing fluid and airborne contaminants, including viruses and bacteria. The eyes often serve as an entry for disease, even when the respiratory entryways are blocked.</p> <p>Cons Heavier than the half mask, the full mask is more costly and some wearers may experience increased irritation due to the increased coverage. It takes longer and can be more difficult to don than a half mask, and users will encounter difficulties when trying to put this style of mask on over prescription glasses, as the glasses frame will prevent the mask from forming a good seal.</p> <p>Maintenance</p> <ul style="list-style-type: none"> ○ Mask itself: Remove the filters, cartridges, and attachments from the mask and then immerse the faceplate into warm water and soap. Scrub the equipment and then rinse with water. The mask should come with a list of safe disinfectants to use. Clean after each use and then either let the mask air dry or hand-dry it with a lint free cloth. Vinegar works well to clean the face plate of any imperfections or solid build-up. <p>Initial Costs for a Decent Unit Average price for a mask ranges from \$150 to \$350, plus the approximately \$100 cost of future filters and cartridges.</p> <p>Directions for use It is important that the mask be donned before entering the hazardous environment. If you are wearing glasses, remove them prior to placing the mask over your head. Place the bottom straps over your head and hook them around your neck with the top strap secured in place at the top of your head. It is important to ensure you have a good seal against the face, but avoid causing bruising. Just like the half mask, a common technique for testing the seal is the "breath test". First you should cover the exhalation valve with your hand or a piece of paper and then blow into the respirator and the mask should lift or pull away from the face before the air comes out. For the second portion of the test, cover the respirator and inhale gently and the mask should collapse slightly onto the face. If during the exhalation test air escapes without the mask moving or deforming, or during the inhalation test you can breathe in without deforming the mask, the seal is incomplete. These checks should be performed before every foray into a hazardous environment. While these tests are not a guarantee of a perfect seal,</p>	

Type	Use	Info	Source
		<p>they are sufficient for protection against the majority of hazardous environments.</p>  <p>Image Courtesy of Federal Highway Administration.</p>	
<p>Gas Masks and Respirators</p>	<p>3d. Powered Air Purifying Respirators</p>	<p>Powered Air Purifying Respirators</p>  <p>Image Courtesy of Safety Saves Administration.</p> <p>Description Powered Air Purifying Respirators work similarly to the manual respirators with one large difference. Powered units contain a fan that pulls air through the filter and into the mask. The filter is placed in front of the fan. [7]</p> <p>Pros Powered respirators are much easier to breathe in than non-powered ones. The fan keeps a constant stream of air passing through the filter, cleaner than the air from non-powered masks.</p> <p>Cons The battery adds some substantial weight, and if the battery dies while you are wearing the mask you risk suffocation if you cannot reach a safe area fast enough.</p> <p>Maintenance</p>	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<ul style="list-style-type: none"> ○ Mask itself: Remove the filters, cartridges, and attachments from the mask and then immerse the faceplate into warm water and soap. Scrub the equipment and then rinse with water. The mask should come with a list of safe disinfectants to use. Use them after each use and then either let the mask air dry or dry it with a lint free cloth. Vinegar works well to clean the face plate of any imperfections. Use a long brush to clear the hose of any dirt and grime with more warm water. ○ Battery: Some systems use commonly available replaceable batteries, while others have rechargeable batteries. ○ Fans: While fans do not needed to be changed quite as frequently as batteries and filters or cartridges, it is still a good idea to clean it at least once a week, or once a day for the more cautious. <p>Initial Costs for a decent unit: Prices range from \$350 to \$550 for the initial unit, plus costs for future filters which could run from \$50 to \$100 each.</p> <p>Directions for use As with all atmospheric protection, the mask must be donned before you encounter the threat. Hook the bottom strap around your neck and secure the top strap at the top of your head, making sure to pull your hair back to prevent it from breaking the seal. If you wear prescription glasses make sure to take them off before putting on the mask. Adjust the straps after placing it on your head until it is snug on your face. Make sure the hose connected to the battery unit is not kinked and place it either on your belt or on another area specified on the unit. [7]</p>	

Type	Use	Info	Source
		 <p>Image Courtesy of OSHA Administration</p>	
Gas Masks and Respirators	3e. SCBA (Self Contained Breathing Apparatus)	<p>SCBA (Self Contained Breathing Apparatus)</p> <p>Description Providing the user air from a pressurized tank on their back, SCBA units consist of an air tank connected to a full face mask by a long hose. Because of this, SCBA units do not need filters. This is what firefighters use when they enter burning buildings.</p> <p>Pros Provides the greatest protection from air contaminants, by relying on a source of pure air rather than filtering the contaminated air. If properly sealed, little or no air should enter the mask from the outside.</p> <p>Cons Weight, cost, and maintenance time are all higher than other options. SCBA systems will only provide you with a maximum of one hour of air, even with the larger canisters.</p> <p>Maintenance</p> <ul style="list-style-type: none"> ○ Mask and Hose: Check to ensure that all parts are present. Carefully inspect each separate part for dirt, cracks, cuts, tears, abrasions, deterioration and heat or chemical damage. Once you are sure all parts are present and in good condition, verify the faceplate has a good seal by placing it against your face and breathing in. The mask should tighten against your face when you breathe in. Check the regulator hose and connection for any obvious damage. ○ Canister and Harness: Verify the canister retention system and harness 	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>hold the canister firmly in place and that the harness straps are set so that it can be quickly and easily pulled on. It is very important that the canister be charged to the manufacturer’s levels. Anything under 95 % of this level and you should replace it with a different canister. If possible assure that the canister has recently (within the last 3 -5 years depending on the manufacturers preference) had its hydrostatic test (In a hydrostatic test the cannister is filled with a dyed liquid at the proper pressure and checked for leaks. See here). Inspect the canister itself for damage including dents, cuts, blemishes, weakened areas, cracks, and indications of heat or chemical damage. Check the composite hoop wrapped material for any damage and if you discover any immediately dispose of the canister as the wrapping gives it its strength. Ensure the cylinder valve hand wheel is tightened; If it is loose you may damage the O-ring. Perform a pressure test by fully charging the system and then comparing the canisters pressure gauge to the remote pressure gauge and ensuring they read within 10% of each other. Next open the bypass valve to ensure it works properly and close it after checking. If the system has a PASS system on it (a system used by firefighters that emits a high pitched audio alert if they do not move for a certain amount of time) check it for errors, replacing batteries as necessary.</p> <p>[3] Initial Costs for a decent unit Initial costs range from \$1500 to \$1800. Directions for use Open the canisters flow valves and then pull tank and harness onto back, snapping it into place.Ensure that there is little to no wiggle room to it. Pull the mask over your face with the lower straps lying comfortably at the nape of your neck, and place the top straps at the top of the back of your head. Ensure the hose isn’t kinked, and you’re ready to go. [3] For a video depiction of how to use an SCBA system, see How to use a SCBA at Wonder How To.</p>	
Gas Masks and Respirators	3f. Rebreathers	Rebreathers	http://www.zombiepreparedness.org/node/292

Type	Use	Info	Source
		 <p>Image Courtesy of DiveBuddy.com.</p> <p>Description</p> <p>Similar to SCBA units, rebreathers are notably different in the fact that they can recycle some of the exhaled air back into breathable oxygen, to augment the air stored in the tanks. ([9]) This makes it possible to breathe clean air for longer, with the same size tank.</p> <p>Pros</p> <p>Lighter then an SCBA unit for the same breathing time, but provides the same amount of protection.</p> <p>Cons</p> <p>Rebreathers still weigh and cost substantially more compared to the other methods available.</p> <p>Maintenance</p> <p>For the most part, maintenance is the same as the SCBA. However, you may wish to check some additional things. To check for a positive pressure leak fill the system until the relief valve releases then let the system sit and ensure no air leaks out. For a negative air leak, evacuate all of the gas from the breathing tube then kink it. Leave it alone for five minutes and if it unkinks on its own you have a negative air leak. [9]</p> <p>Initial Costs for a decent unit</p> <p>The initial price for a rebreather ranges from \$5000 to \$12,000.</p> <p>Directions for use</p> <p>After verifying that the rebreather is properly prepared, pull the tanks onto your back like a backpack and open the flow valve. Take a couple of breaths through the mouth piece (face mask if using a full face mask variety) to ensure air is flowing and then the rebreather is ready for use.</p>	

Type	Use	Info	Source
Gas Masks and Respirators	3g. Self Contained Self Rescuer	<p>Self Contained Self Rescuer</p>  <p>Image Courtesy of Alphanr.</p> <p>Description</p> <p>Relatively small in size and light in weight, SCSRs provide the same degree of protection as a SCBA without the downside of of limiting your movement. Similar to the SCBA, an SCSR provides the user with around 1 hour of oxygen. [10]</p> <p>Pros</p> <p>Light weight and compact design does little to limit your movement, while still providing the same level of protection as an SCBA.</p> <p>Cons</p> <p>Still pricey at around 800-1200 dollars a unit, with a required refill after an hour of use.</p> <p>Maintenance</p> <p>Every 30 days you should visually inspect the SCSR for any cracks or broken parts. When not in use, the SCSR should be kept in an environment of moderate temperature within the manufacturer’s guidelines. [10]</p> <p>Initial cost of the unit</p> <p>The cost of an SCSR runs between \$800 and \$1200, plus any future maintenance.</p> <p>Directions for use</p> <p>An SCSR can be activated in a few easy steps.</p> <ul style="list-style-type: none"> <li>○ Step one: Activate the oxygen supply <li>○ Step two: Remove the plug and insert the mouthpiece into your mouth. 	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<div> </div> <ul style="list-style-type: none"> <li>○ Step three: Place nose clips over your nose. <div> </div> <ul style="list-style-type: none"> <li>○ Step four: Place goggles on head and place strap around your neck, ensuring that the mouthpiece fits securely and does not move. The SCSR is now ready for use. 	

Type	Use	Info	Source
		 <p>Images Courtesy of MSHA and NIOSH organizations.</p> <p>[11]</p>	
<p>Gas Masks and Respirators</p>	<p>4. Critical Maintenance Checklist</p>	<p>Critical Maintenance Checklist</p> <p>Filters and Cartridges</p> <p>Some filters and cartridges come with meters that let you know when they need to be replaced. However, for those that do not come with a way of checking their viability, you should replace them by or before their ETE(estimated time of expiration). While in use, if it becomes excessively difficult to breath through the mask you should immediately replace the filter or cartridge.</p> <p>Fogging</p> <p>With all full face respirators you will face the problem of fogging. Fogging occurs when the heat inside the mask differs from the outside, causing condensation to form and obscure your view. There are a few solutions to this problem.</p> <ul style="list-style-type: none"> ○ Anti-fogging solution, e.g. Aquasphere Antifog Solution ○ Saliva can be used to temporarily prevent fogging, but must be reapplied often. ○ Some shampoos can be used to prevent fogging, e.g. Johnsons No Tear Baby Shampoo ○ A solution of white (distilled) vinegar and hot water can serve as a home-made anti-fogging solution when rubbed on the lens. ○ Detergents can be used for anti-fogging, however not all agree on this. Detergents are water soluble and thus can smear, decreasing visibility through the lens. <hr/> <p>Limitations</p>	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>Gas masks and respirators are not without their limitations. Young children and people with facial hair, such as beards and side burns, will not be able to use a system as they will be unable to form a proper seal on their face. For facial hair, this can be solved by shaving and for young children some companies make special masks, however some of these are not as effective as full-sized adult masks. It is unlikely that you will be able to find a mask sized for an infant. The most important limitation is that you cannot wear a system 24/7, and thus you can only use a system to its full potential if you know of the danger ahead of time, giving you the time you need to don your mask.</p> <p>Additional Notes Improvised Filters While making an improvised filter out of damp cloth can provide temporary protection against some contaminants, it is not viable for long-term use or protection against small contaminants, such as biological or chemical hazards. This type of filter will only work temporarily, and only provides protection against large particle contaminants. If using this method for smoke or dust it is recommended to make the cloth as damp as possible and not waste any time leaving the contaminated area.</p>	
Gas Masks and Respirators	5. Surplus Masks	<p>Surplus Masks</p> <p><i>This section represents the opinion of a the author and a number of users of respirators and gas masks. While it is not to be taken as the absolute truth, it is better to be safe than sorry. If you have a surplus mask and can prove that it is functional, then there is no reason not to use it. If you don't have any other choice, a surplus mask (even untested) is better than no protection at all.</i></p> <p>Three words are all that are needed when considering buying a surplus gas mask for cheap: Don't Do It. Surplus masks are sold as such because they are either cheaper, lower quality, have been discontinued because they are not as good as the ones currently on the market, or the product has some defect in it that makes it less desirable. When you are shopping for a gas mask you need to consider that this is going to be protecting you from contaminants in the air all around you. You wouldn't skimp on getting cheaper airbags for your car, so don't skimp on your gas mask.</p> <p>Work Cited</p>	<p>http://www.zombiepreparedness.org/node/292</p>

Type	Use	Info	Source
		<p>1: Types of Gas Masks: http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm</p> <p>2: Product sales numbers (prices): http://www.highperformancesafetyproducts.com/50416-00000.html</p> <p>3: Proper Maintenance on a SCBA: http://dev2000.firefighternation.com/article/firefighter-safety-and-heal...</p> <p>4: Half-Mask Air-Purifying respirators: http://ehs.unl.edu/sop/RPP_SOP_APHalfMask.pdf</p> <p>5: Image showing how to use the Half-Mask Air-Purifying Respirator: http://www.cdph.ca.gov/programs/olppp/Documents/respirator.pdf</p> <p>6: Full Face-Mask Air-Purifying Respirators: http://ehs.unl.edu/sop/RPP_SOP_APFullFaceMask.pdf</p> <p>7: Powered Air Purifying Respirators: http://ehs.unl.edu/sop/RPP_SOP_PAPR.pdf</p> <p>8: Supplied Air Respirators: http://ehs.unl.edu/sop/RPP_SOP_SAR.pdf</p> <p>9: Rebreather Maintenance: http://www.technologyindepth.com/sentinel/Sentinel%20Rebreather%20Mainte...</p> <p>10: Self-Contained Self-Rescue Kit http://bestcoaltrading.blogspot.com/2010/09/self-contained-self-rescuers...</p> <p>11: Self-Contained Self-Rescue Kit Instruction Manual http://www.msha.gov/S&HINFO/USERNOTE/PORTPAK.pdf</p>	
Gas Mask	1. Four Basic Types of Gas Masks for Your Stockpile	<p>Oct 02 Four Basic Types of Gas Masks for Your Stockpile</p> <ul style="list-style-type: none"> • Defense, • Health and Medical, • Preparedness <p>by Travis Waack</p>	http://www.catastrophenetwork.org/?p=414
Gas Mask	2. Surgical Mask	<p>Surgical Mask – Surgical masks provide very little protection from outside contaminants. I do not recommend using surgical masks in a catastrophe for any purpose other than for making a sick person wear them to contain coughs and aerosolized saliva particles from contaminating the surrounding air. In a pandemic, you might consider making anyone from the outside that enters your home or gets</p>	http://www.catastrophenetwork.org/?p=414

Type	Use	Info	Source
		<p>close to you wear a surgical mask just as a precaution. You should also make them use a alcohol based sanitizer on their hands after putting on the mask. Remember, surgical masks prevent someone from contaminating others by providing a physical barrier over the mouth. They do not prevent others from being contaminated. A box of 50 surgical masks can usually be found in the pharmacy or medical section of stores for about \$10 per box.</p>	
Gas Mask	3. N95 Mask	<p>N95 Mask – An N95 mask closely resembles a “dust mask” or “surgical mask,” but provides far superior filtration and forms a seal around your face when worn properly. Although this mask provides the lowest degree of protection of the three masks listed here, they are also the cheapest and the most minimally invasive. However, many people often complain they are hot to wear and inhibit breathing. In addition, N95 masks do not provide eye protection. I recommend purchasing a box of 20 masks per person in your catastrophe network to carry around in various kits for quick, interim protection. A box of 20 masks can usually be found in the painting or safety section of most hardware stores for around \$20 per box.</p>	<p>http://www.catastrophenetwork.org/?p=414</p>
Gas Mask	4. Half-Face Respirator	<p>Half-Face Respirator – A half-face respirator mask provides adequate respiratory protection in most situations, especially when equipped with filters specifically designed for nuclear, chemical, or biological use. Respirators use detachable and replaceable filters that are designed for specific purposes. Respirators are much more comfortable to wear because they allow more moisture to escape and thus, do not become as hot as an N95. They are also generally easier to breathe in. The only two downsides are cost and that they do not provide eye protection. I recommend having a half-face or full-face respirator for each member of your network with extra filters. A single half-face respirator can usually be found in the painting or safety section of most hardware stores for around \$30 per mask with extra filter sets usually costing about \$15 per set.</p>	<p>http://www.catastrophenetwork.org/?p=414</p>
Gas Mask	5. Full-Face Respirator	<p>Full-Face Respirator – The only real difference between a half-face and full-face respirator is that a full-face respirator provides eye protection. The best way to acquire a full-face respirator is through an army surplus dealer. I recommend buying Israeli citizen (child & adult versions) or military surplus masks as they are generally in new condition and have been manufactured relatively recently as</p>	<p>http://www.catastrophenetwork.org/?p=414</p>

Type	Use	Info	Source
		<p>opposed to the WWII era masks sold on many sites. Israeli masks also generally come with a NATO nuclear, chemical, and biological filter. In addition, Israeli masks are cheap and plentiful!</p> <p>A single Israeli citizen gas mask is about \$20 and an Israeli military gas mask is about \$35 with replacement NATO filters costing about \$10. A new, commercial full-face respirator will cost about \$250 per mask.</p>	
Gas Mask	6.	 <p><i>The information, concepts, or opinions from CatastropheNetwork.org are intended for informational purposes only and must be evaluated by the reader, in consultation with a professional, to ensure viability for their individual situation.</i></p> <p>Tags: Gas Mask, Pandemic, Preparedness, SHTF</p>	http://www.catastrophenetwork.org/?p=414
Respirator	Types of Respirators	<p style="text-align: center;">Types of Respirators</p> <hr/> <p>Following is a description of the various types of respirators available for use at UCSC. Included in the discussion is a brief overview of the advantages, disadvantages, limitations, applications and assigned protection factors for each class of respirator.</p>	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Respirator	A. Disposable Dust/Particulate Respirators	<p>A. Disposable Dust/Particulate Respirators</p> <ol style="list-style-type: none"> 1. Description: Most single use disposable particle masks (double strapped types) are designed to protect the lungs from nuisance 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm

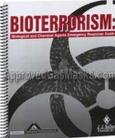
Type	Use	Info	Source			
		<p>particals as well as certain pneumoconiosis, fibrosis-producing dusts and mists. Currently the Natural Sciences Stockroom sells 3M 8710 and 3M 9913 type masks. The Campus Facilities Store sells Moldex 2300 and 3M 8710 masks.</p> <ol style="list-style-type: none"> 2. Advantages: Respirators are lightweight, disposable, relatively comfortable, and inexpensive. 3. Limitations: Disposable dust respirators offer minimal protection due to poor sealing characteristics. They cannot be used by personnel with facial hair which comes between the respirator and the skin. These types of respirators are frequently misused therefore EH&S or your supervisor should be consulted prior to use. 4. Applications: Low concentrations of nuisance dusts, mists, pollen, and animal dust as well as some pneumoconiosis and fibrosis-producing dusts and mist such as coal dust. 5. Assigned Protection Factor = 3 - 5 (Each style of mask identified above is approved for protection against dusts and mists whose Permissible Exposure Level is \geq 0.05 mg/m³. However, under some circumstances, these masks have been shown to be as little as 35% efficient. Therefore be sure them with caution and full understanding of the respiratory hazard) <p>Particulate Respirators - N. R. P. Series</p> <p>Description: Effective July 1995 new performance criteria were established for particulate respirators. The new criteria eliminates classification of particulate filters according to hazard such as "dust mist fume" and provides for three levels of filter efficiency (95%, 99%, 99.97%). These efficiencies are available in a series of filter types known as N, R, and P (see the table below). These new respirators will afford a higher level of protection to a variety of workers including hospital employees needing protection from infectious tuberculosis, carpenters, painters, and farmers. NIOSH has established a three year transition period for instituting the new regulation. After July 10, 1998 all particulate respirators will have to be certified under the new criteria.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Efficiency</td> <td style="width: 33%;">NaCl Test Aerosol</td> <td style="width: 33%;">DOP Test Aerosol (oil</td> </tr> </table>	Efficiency	NaCl Test Aerosol	DOP Test Aerosol (oil	
Efficiency	NaCl Test Aerosol	DOP Test Aerosol (oil				

Type	Use	Info	Source
		<p style="text-align: right;">resistant)</p> <p style="text-align: center;">95% N95 R95</p> <p style="text-align: center;">99% N99 R99</p> <p style="text-align: center;">100(99.97%) N100 R100</p> <p>Be sure to contact EH&S if you need more information on these types of respirators</p>	<p style="text-align: center;">oil resistant)</p> <p style="text-align: center;">P95</p> <p style="text-align: center;">P99</p> <p style="text-align: center;">P100</p>
Respirator	B. Air Purifying Half Mask Respirators	<p>A. Air Purifying Half Mask Respirators</p> <ol style="list-style-type: none"> 1. Description: Air purifying, half mask respirators have a rubber face seal which fits over the nose and under the chin. It is fitted with cartridges which purify the air as the wearer breathes. Different types of cartridges are available for different types of air contaminants. 2. Advantages: Relatively lightweight and offer good protection from many air contaminants. 3. Limitations: Air purifying respirators cannot be used for all types of air contaminants and are limited by the type and capacity of the filters/cartridges used. Protection factors offered by these masks is not as good as that provided by a full facepiece air purifying respirator nor do they provide eye protection. Proper fit is essential and many factors may effect the face to facepiece seal. They cannot be used in oxygen-deficient atmospheres, or in atmospheres which have high concentrations of contaminants. Breathing may become difficult because of the additional effort required to draw air through the purifying media. 4. Applications: Air purifying respirators can be used for protection from a wide variety of respiratory hazards. Cartridges and filters are designed to provide protection against a specific type of hazard. The most common types of cartridges are: <ol style="list-style-type: none"> a. HEPA Cartridge - for low level concentrations of certain toxic dusts including asbestos, radionuclides and silica. b. Organic Vapor Cartridge - are approved for concentrations not to exceed 1000 ppm for many organic solvents, petroleum distillates, and alcohols. c. Acid Gas/Mist Cartridge - for atmospheres containing low levels of mineral acid gas or mist. 	<p>http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm</p>

Type	Use	Info	Source
		<ul style="list-style-type: none"> d. Pesticide - for low levels of pesticide vapors or mists. e. Combination Cartridge - for environments with more than one contaminant present (e.g. organic vapors, acid gasses, and particulates. f. Mercury Cartridge - for protection against low levels of metallic mercury vapors. <p>5. Assigned Protection Factor = 10</p>	
Respirator	C. Air Purifying Full Facepiece Respirators	<p>A. Air Purifying Full Facepiece Respirators</p> <ul style="list-style-type: none"> 1. Description: Air-purifying full facepiece respirators work on the same principal as the half-mask respirators described above. The facepiece extends around the entire face, covering the eyes, nose, chin and mouth. 2. Advantages: Full facepiece respirators provide a better seal and therefore, more protection than half-mask air-purifying respirators. They also protect the eyes and face from irritating vapors, mists, and splashed chemicals. 3. 3. Limitations: Full face respirators are heavier than half-masks and often less comfortable for the wearer. Full face air purifying respirators cannot be used for all types of air contaminants and are limited by the type and capacity of the filters and cartridges used. Eyeglass wearers must assure that temple bars do not interrupt the face to facepiece seal. They cannot be used in oxygen-deficient atmospheres, or in atmospheres which have high concentrations of contaminants. Breathing may become difficult because of the additional effort required to draw air through the purifying media. 4. Applications: Full face respirators are used where a greater degree of respiratory protection is needed or where eye and face protection is desirable. 5. Assigned Protection Factor = 50. 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Respirator	D. Powered Air Purifying Respirators (PAPR)	<p>A. Powered Air Purifying Respirators (PAPR)</p> <ul style="list-style-type: none"> 1. Description: This class of respirators feature a battery powered, portable fan which draws air through a particulate or chemical filter and blows it to the facepiece. The fan and filter unit may be 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm

Type	Use	Info	Source
		<p>an integral part or the facepiece or mounted on the wearer's back or belt. Full and half-mask facepieces are available as well as a variety of helmets and hoods.</p> <ol style="list-style-type: none"> 2. Advantages: Major advantages are derived from the positive pressure provided by the fan forcing air into the facepiece, hood or helmet. This eliminates difficulty in breathing provided by negative pressure respirators and reduces the importance of a good facial fit. 3. Limitations: Units are relatively expensive to purchase and maintain. Use is restricted to battery life and the fan and battery pack must be carried by the wearer at all times. They cannot be used in atmospheres deficient in oxygen or other IDLH atmospheres. Heavy exertion (breathing) may create negative pressure inside the facepiece reducing the respirator's effectiveness. 4. Assigned Protection Factor = 25 - 100. 	
Respirator	E. Airline Respirators (Pressure Demand or Continuous Flow)	<p>A. Airline Respirators (Pressure Demand or Continuous Flow)</p> <ol style="list-style-type: none"> 1. Description: These respirators provide clean, fresh air to the wearer from a stationary source such as a compressor or compressed air cylinders. They may be equipped with a half or full facepiece, helmet, or hood. Breathing air must be high quality and meet regulatory specifications. Air-line respirators have limited application on the UCSC Campus. The use of this type of respirator shall be approved on a case by case basis by EH&S. 2. Advantages: Airline respirators may be used for long periods of time and provide a high degree of protection from a variety of air contaminants. they provide minimal breathing resistance and discomfort, are light weight, low bulk, moderate initial cost and low operating costs. These respirators can be used in oxygen deficient and other IDLH atmospheres when used in conjunction with a 5 minute self-contained air supply (escape respirator). 3. Limitations: Loss of the source of air eliminates all protection to the user. Air must be delivered to the mask or hood through a hose which can be awkward to maneuver and may easily tangle or 	<p>http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm</p>

Type	Use	Info	Source
		crimp. 4. Applications: These respirators can be used for protection from most all air contaminants. Assigned Protection Factor = up to 10,000	
Respirator	F. Self-Contained Breathing Apparatus (SCBA)	A. Self-Contained Breathing Apparatus (SCBA) 1. Description: SCBA's provide the user with clean air from a high pressure cylinder carried on the wearer's back. They are equipped with a full facepiece and are operated in the pressure demand mode. SCBA's provide the maximum degree of protection available from airborne contaminants. 2. Advantages: Users carry their air supply with them allowing comparatively free movement over an unlimited area. 3. Limitations: SCBA units are expensive to purchase and maintain; require the wearer to carry 20 to 30 pounds of equipment on their backs, and provide no more than 40 minutes of continuous use. Personnel with facial hair which comes between the respirator sealing surface and the wearer's face cannot use SCBA equipment.	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Gas Mask	evo5000	User Manual evo5000-Approved Gas Masks	http://approvedgasmasks.com/evolution5000manual.pdf
Escape Hoods	Escape Hoods (Unpowered)	<p style="text-align: center;">Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p style="text-align: center;">Escape Hoods (Unpowered)</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Evolution 1000 \$139.50</p> </div> <div style="text-align: center;">  <p>MSA CBRN Safe Escape \$159.80</p> </div> </div>	http://approvedgasmasks.com/mask-gas.htm

Type	Use	Info	Source
		 <p>ER2000 CBRN \$234.50</p>	
Gas Mask	Accessories and Supplies	<p>Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p>Gas Mask Accessories and Supplies</p>  <p>Gas Mask Filters</p>  <p>Gas Mask Bags</p>  <p>Guidebooks</p>  <p>Complete Kits</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>
Gas Masks	Full Face Gas Mask and Filter Kits	<p>Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p>Full Face Gas Mask and Filter Kits</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>

Type	Use	Info	Source
		 <p>DP (Domestic Preparedness) \$159.50</p> <p>Tactical DP (Domestic Preparedness) \$169.50</p> <p>And much more</p>	
<p>Gas Masks/Respirators/Suits & More</p>		<p>AGM supplies hundreds of Police Departments and Fortune 500 companies with gas masks, gas mask filters, and all types of survival gear from NBC protective suits to Potassium Iodide and medical kits. Before you purchase a cheap, used mask take a look at our new masks from MSA, SGE and more. Many popular civilian gas masks are modeled after military units, like the MSA Advantage 1000. We offer brand new military masks like the MSA Millennium. For complete Nuclear, Biological, and Chemical protection we have new and surplus NBC suits, hoods, gloves, boots and more. Order online or call AGM anytime for all your safety supplies</p>  <p>Chemical Suit</p>  <p>Chemical Gloves</p>  <p>Full Safety Kits</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>

Type	Use	Info	Source
		 <p>Riot Control / Police</p> <p>Complete Kits Gas Mask Selection Escape Hoods Gas Filters Chemical Suits Boots Gloves</p> <p>Police / SWAT Equipment Emergency Management Detectors/ Meters First Aid Emergency Supplies</p> <p>Legal Info Old Mask/Filter Info Mask Buying Guide Shipping Info View Cart / Checkout Site Map</p>	
Respirators	Half Masks and Light Protection	<p>Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p>10 models from \$11.94 to 54.80</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>
Respirators	PAPR (Powered Air Purifying Respirator) Gas Mask and Powered Hood Systems	<p>Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p>10 models from \$239.50 to \$2495.00 (room size)</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>
Respirators	SCBA (Self Contained Breathing Apparatus Supplied Air) Systems	<p>Gas Mask Price Guarantee - We'll beat the price from any gas mask dealer Call (301) 931-6700 for Bulk Discounts</p> <p>SCBA (Self Contained Breathing Apparatus Supplied Air) Systems</p> <p>4 models</p>	<p>http://approvedgasmasks.com/mask-gas.htm</p>
Respirator	G. Disposable Dust/Particulate Respirators	<p>A. Disposable Dust/Particulate Respirators</p> <ol style="list-style-type: none"> 1. Description: Most single use disposable particle masks (double strapped types) are designed to protect the lungs from nuisance particulates as well as certain pneumoconiosis, fibrosis-producing dusts and mists. Currently the Natural Sciences Stockroom sells 3M 8710 and 3M 9913 type masks. The Campus Facilities Store sells Moldex 2300 and 3M 8710 masks. 2. Advantages: Respirators are lightweight, disposable, relatively 	<p>http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm</p>

Type	Use	Info	Source						
		<p>comfortable, and inexpensive.</p> <ol style="list-style-type: none"> 3. Limitations: Disposable dust respirators offer minimal protection due to poor sealing characteristics. They cannot be used by personnel with facial hair which comes between the respirator and the skin. These types of respirators are frequently misused therefore EH&S or your supervisor should be consulted prior to use. 4. Applications: Low concentrations of nuisance dusts, mists, pollen, and animal dust as well as some pneumoconiosis and fibrosis-producing dusts and mist such as coal dust. 5. Assigned Protection Factor = 3 - 5 (Each style of mask identified above is approved for protection against dusts and mists whose Permissible Exposure Level is \geq 0.05 mg/m³. However, under some circumstances, these masks have been shown to be as little as 35% efficient. Therefore be sure them with caution and full understanding of the respiratory hazard) <p>Particulate Respirators - N. R. P. Series</p> <p>Description: Effective July 1995 new performance criteria were established for particulate respirators. The new criteria eliminates classification of particulate filters according to hazard such as "dust mist fume" and provides for three levels of filter efficiency (95%, 99%, 99.97%). These efficiencies are available in a series of filter types known as N, R, and P (see the table below). These new respirators will afford a higher level of protection to a variety of workers including hospital employees needing protection from infectious tuberculosis, carpenters, painters, and farmers. NIOSH has established a three year transition period for instituting the new regulation. After July 10, 1998 all particulate respirators will have to be certified under the new criteria.</p> <table border="0" style="width: 100%; margin-top: 20px;"> <tr> <td style="text-align: center;">Efficiency</td> <td style="text-align: center;">NaCl Test Aerosol</td> <td style="text-align: center;">DOP Test Aerosol (oil resistant)</td> </tr> <tr> <td style="text-align: center;">95%</td> <td style="text-align: center;">N95</td> <td style="text-align: center;">R95</td> </tr> </table>	Efficiency	NaCl Test Aerosol	DOP Test Aerosol (oil resistant)	95%	N95	R95	
Efficiency	NaCl Test Aerosol	DOP Test Aerosol (oil resistant)							
95%	N95	R95							

Type	Use	Info	Source
		<p>levels of mineral acid gas or mist.</p> <ul style="list-style-type: none"> d. Pesticide - for low levels of pesticide vapors or mists. e. Combination Cartridge - for environments with more than one contaminant present (e.g. organic vapors, acid gasses, and particulates. f. Mercury Cartridge - for protection against low levels of metallic mercury vapors. <p>5. Assigned Protection Factor = 10</p>	
Respirator	I. Air Purifying Full Facepiece Respirators	<p>A. Air Purifying Full Facepiece Respirators</p> <ul style="list-style-type: none"> 1. Description: Air-purifying full facepiece respirators work on the same principal as the half-mask respirators described above. The facepiece extends around the entire face, covering the eyes, nose, chin and mouth. 2. Advantages: Full facepiece respirators provide a better seal and therefore, more protection than half-mask air-purifying respirators. They also protect the eyes and face from irritating vapors, mists, and splashed chemicals. 3. 3. Limitations: Full face respirators are heavier than half-masks and often less comfortable for the wearer. Full face air purifying respirators cannot be used for all types of air contaminants and are limited by the type and capacity of the filters and cartridges used. Eyeglass wearers must assure that temple bars do not interrupt the face to facepiece seal. They cannot be used in oxygen-deficient atmospheres, or in atmospheres which have high concentrations of contaminants. Breathing may become difficult because of the additional effort required to draw air through the purifying media. 4. Applications: Full face respirators are used where a greater degree of respiratory protection is needed or where eye and face protection is desirable. 5. Assigned Protection Factor = 50. 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Respirator	J. Powered Air	A. Powered Air Purifying Respirators (PAPR)	http://ehs.ucsc.edu/industrial_h

Type	Use	Info	Source
	Purifying Respirators (PAPR)	<ol style="list-style-type: none"> 1. Description: This class of respirators feature a battery powered, portable fan which draws air through a particulate or chemical filter and blows it to the facepiece. The fan and filter unit may be an integral part or the facepiece or mounted on the wearer's back or belt. Full and half-mask facepieces are available as well as a variety of helmets and hoods. 2. Advantages: Major advantages are derived from the positive pressure provided by the fan forcing air into the facepiece, hood or helmet. This eliminates difficulty in breathing provided by negative pressure respirators and reduces the importance of a good facial fit. 3. Limitations: Units are relatively expensive to purchase and maintain. Use is restricted to battery life and the fan and battery pack must be carried by the wearer at all times. They cannot be used in atmospheres deficient in oxygen or other IDLH atmospheres. Heavy exertion (breathing) may create negative pressure inside the facepiece reducing the respirator's effectiveness. 4. Assigned Protection Factor = 25 - 100. 	ygiene/pubs/resp/resptype.htm
Respirator	K. Airline Respirators (Pressure Demand or Continuous Flow)	<p>A. Airline Respirators (Pressure Demand or Continuous Flow)</p> <ol style="list-style-type: none"> 1. Description: These respirators provide clean, fresh air to the wearer from a stationary source such as a compressor or compressed air cylinders. They may be equipped with a half or full facepiece, helmet, or hood. Breathing air must be high quality and meet regulatory specifications. Air-line respirators have limited application on the UCSC Campus. The use of this type of respirator shall be approved on a case by case basis by EH&S. 2. Advantages: Airline respirators may be used for long periods of time and provide a high degree of protection from a variety of air contaminants. they provide minimal breathing resistance and discomfort, are light weight, low bulk, moderate initial cost and low operating costs. These respirators can be used in oxygen deficient and other IDLH atmospheres when used in conjunction with a 5 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm

Type	Use	Info	Source
		<p>minute self-contained air supply (escape respirator).</p> <ol style="list-style-type: none"> 3. Limitations: Loss of the source of air eliminates all protection to the user. Air must be delivered to the mask or hood through a hose which can be awkward to maneuver and may easily tangle or crimp. 4. Applications: These respirators can be used for protection from most all air contaminants. 5. Assigned Protection Factor = up to 10,000 	
Respirator	L. Self-Contained Breathing Apparatus (SCBA)	<p>A. Self-Contained Breathing Apparatus (SCBA)</p> <ol style="list-style-type: none"> 1. Description: SCBA's provide the user with clean air from a high pressure cylinder carried on the wearer's back. They are equipped with a full facepiece and are operated in the pressure demand mode. SCBA's provide the maximum degree of protection available from airborne contaminants. 2. Advantages: Users carry their air supply with them allowing comparatively free movement over an unlimited area. 3. Limitations: SCBA units are expensive to purchase and maintain; require the wearer to carry 20 to 30 pounds of equipment on their backs, and provide no more than 40 minutes of continuous use. Personnel with facial hair which comes between the respirator sealing surface and the wearer's face cannot use SCBA equipment. 	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Respirator	Types of Respirators	<p style="text-align: center;">Types of Respirators</p> <hr/> <p>Following is a description of the various types of respirators available for use at UCSC. Included in the discussion is a brief overview of the advantages, disadvantages, limitations, applications and assigned protection factors for each class of respirator.</p>	http://ehs.ucsc.edu/industrial_hygiene/pubs/resp/resptype.htm
Gas Mask	Gas Mask	Gas mask	http://en.wikipedia.org/wiki/Gas_mask

Type	Use	Info	Source
		<p>A gas mask is a mask put on over the face to protect the wearer from inhaling airborne pollutants and toxic gases. The mask forms a sealed cover over the nose and mouth, but may also cover the eyes and other vulnerable soft tissues of the face. Some gas masks are also respirators, though the word <i>gas mask</i> is often used to refer to military equipment (e.g. Field Protective Mask, etc.) (The user of the gas mask is not protected from gas that the skin can absorb.)</p> <p>Airborne toxic materials may be gaseous (for example the chlorine gas used in World War I) or particulate (such as many biological agents developed for weapons such as bacteria, viruses and toxins). Many gas masks include protection from both types. During riots where tear gas or CS-gas is employed by riot police, gas masks are commonly used by police and rioters alike.</p> <p>Aside from serving their functional purposes, gas masks are also used as emblems in industrial music, by graffiti taggers because the mask protects them from the graffiti canister's toxic fumes, and by Urban Explorers venturing into environments where hazardous materials, such as asbestos, may be present.</p> <p>The traditional gas mask style with two small circular eye windows originated when the only suitable material for these eye windows was glass or acrylic; as glass is notoriously brittle, glass eye windows had to be kept small and thick. Later, discovery of polycarbonate allowed gas masks with a big full-face window. Some have one or two filters attached to the face piece; others have a large filter connected to the face piece by a hose.</p> <p>Safety of old gas masks</p> <p>Gas masks have a limited useful lifespan that is related to the absorbent capacity of the filter. Once the filter has been saturated with hazardous chemicals, it ceases to provide protection and the user may be injured. Most gas masks use sealing caps over the air intake to prevent the filter from degrading before use, but the protective abilities also degrade as the filter ages or if it is exposed to moisture and heat. Very old unused gas mask filters from World War II may not be effective at all in protecting the user, and can even potentially cause harm to the user due to long-</p>	

Type	Use	Info	Source
		<p>term changes in the filter chemical composition.</p> <p>World War II gas masks contained blue asbestos in their filters, and this material continued to be used until at least 1956. Breathing blue asbestos in the factories resulted in the death of 10% of the workforce due to pleural and peritoneal mesothelioma. This rate was between 2.5 and 3.2 times the normal incidence of lung or respiratory cancers.^[1] Some of the gas masks known to contain asbestos are the British MK4 and MK5 respirators which were issued to the majority of the British army during World War II. Current advice is never to wear any gas mask of uncertain military origin.</p> <p>Many scare stories have originated from various Russian gas masks and their filters that are now common in surplus stores; the GP-5 was often considered to have an asbestos filter, however like most cold-war masks it only contains activated charcoal.</p> <p>Modern gas masks are quite safe and do not use asbestos, but it is still important to be careful when using a modern gas mask. Typically masks using 40mm connections are more recent design. Rubber also degrades with time so new in box "Modern type" masks can be cracked and leak.</p>	
Respirator	Respirator	Respirator	http://en.wikipedia.org/wiki/Respirator

Type	Use	Info	Source
		 <p>A half face particulate (air-purifying) mask is generally worn to protect the wearer from dust and paint fumes.</p> <p>A respirator is a device designed to protect the wearer from inhaling harmful dusts, fumes, vapors, or gases. Respirators come in a wide range of types and sizes used by the military, private industry, and the public. Respirators range from cheaper, single-use, disposable masks to reusable models with replaceable cartridges.</p> <p>There are two main categories: the <i>air-purifying respirator</i>, which forces contaminated air through a filtering element, and the <i>air-supplied respirator</i>, in which an alternate supply of fresh air is delivered. Within each category, different techniques are employed to reduce or eliminate noxious airborne contents.</p> <p>Air-purifying respirators are used against particulates (such as smoke or fumes), gases, and vapors that are at atmospheric concentrations less than immediately dangerous to life and health. The air-purifying respirator class includes:</p> <ul style="list-style-type: none"> • negative-pressure respirators, using mechanical filters and chemical media • positive-pressure units such as powered air-purifying respirators (PAPRs) • Escape Only respirators or hoods such as Air-Purifying Escape Respirators (APER) for use by the general public for Chemical, Biological, Radiological, and Nuclear (CBRN) terrorism incidents. <p>Full hood, half- or full-facepiece designs of this type are marketed in many varieties</p>	

Type	Use	Info	Source
		<p>depending on the hazard of concern. They use a filter which acts passively on air inhaled by the wearer. Some common examples of this type of respirator are single-use escape hoods and filter masks. The latter are typically simple, light, single-piece, half-face masks and employ the first three mechanical mechanisms in the list below to remove particulates from the air stream. The most common of these is the disposable white N95 variety. The entire unit is discarded after some extended period or a single use, depending on the contaminant. Filter masks also come in replaceable-cartridge, multiple-use models. Typically one or two cartridges attach securely to a mask which has built into it a corresponding number of valves for inhalation and one for exhalation.</p>	
Respirator	Respirators Differences Based on Potential Dangers	<p><u>Respirators Differences Based on Potential Dangers</u></p> <p>Industrial and medical respirators, many of which look similar, have the same function but perform their duties differently. If your work environment involves breathing otherwise harmless airborne particles (dust, pollen, sawdust, etc.), simple disposable dust masks are usually sufficient. If you are surrounded by auto spray paint, asbestos, or lower risk medical situations, a higher grade dust respirator that has a more effective rating at eliminating airborne threats is recommended. A good respirator mask will protect against a variety of dangers faced by the wearer. For example, painting respirators are very effective in eliminating both the particles and fumes generated by spray painting projects.</p> <p>Air purifying respirators are appropriate when the airborne dangers are more potent and numerous. For instance, even with all the governmental controls placed on insect control in recent years, a good pesticide respirator is important to people working around these substances. A full face respirator, while sometimes uncomfortable, provides excellent protection against airborne threats that are very pervasive.</p> <p>If you face a variety of potential threats, an air purifying respirator that accepts different respirator cartridges might be the best choice. For example, your current job site indicates you need a mold respirator as the air is filled with mold spores.</p>	<p>http://safetyproducts.lifetips.com/cat/60449/respirators/index.html</p>

Type	Use	Info	Source
		<p>However, soon you will move to a site that requires you to have a pesticide respirator. 3M respirators even offer you respirator selection software to help you select the correct device for the hazards you might face. With the ability to analyze over 700 different chemicals, the software can lead you to the right respirator selection.</p> <p>If the threats you face are even more serious, an air supplied respirator is often recommended. By having their own pathogen free air supply, these models, either full face or half face respirators, further ensure that your oxygen is clean. Formerly used primarily by the military and the police, these usually dual cartridge respirator designs are now often used by medical personnel in proximity to serious airborne pathogens, like SARS (Severe Acute Respiratory Syndrome), firefighters, and emergency response personnel in dangerous situations.</p> <p><u>Monitoring Employee Exposure to Particulate Matter</u></p> <p>T.A.S.C.O. Tip: Some air pollution created in the workplace, especially by manufacturing facilities, is made up of particulate matter. Some sources of particulate pollution are dust and chemicals. Small pieces of particulate matter are considered the most hazardous type of pollution exposure. When larger particulates are inhaled, the lungs can often remove them by coughing. Small particulates can stay in the lungs causing numerous long-term health problems including asthma, emphysema and allergies.</p> <p>Because there are a variety of exposure dangers in workplaces, companies must purchase a specific type of respirator depending on the job at hand and length of exposure to pollutants. However, getting employees to comply with constantly wearing masks at work is likely to be easier if those masks are more comfortable.</p> <p>Newer designs, offered by Texas America Safety Company (TASCO) have comfort features built in. Some 3M respirators have patented filter media with advanced electrostatic-charged microfibers making breathing cooler while still protecting against small particulate matter. They also feature adjustable noseclips that reduce the fogging of eyewear. Additionally, the most advanced 3M respirators offered by TASCO feature new braided headbands with staple-free attachments so they are</p>	

Type	Use	Info	Source
		<p>less bothersome to wear.</p> <p><u>3M Respirators Create Better Breathing Environments</u></p> <p>If you thought 3M respirators simply kept the dust out of the way, you'd be surprised to learn that they do much more. 3M respirators are designed to create the ideal breathing environment in areas that have high debris and dust. For instance, the 8000 3M respirator has an electrostatic charged filter media design which enhances breathability during use, as well as keeps the mask cooler. Features like an adjustable nose clip on the 8000 respirator helps to reduce fogging in goggles when worn with this mask. Practical applications for 3M respirators include areas where workers engage in construction activities or deal with material handling where a high level of dust occurs.</p> <p><u>Proper Fitting of a 3M Respirator is Critical</u></p> <p>T.A.S.C.O. Tip: An employer can buy the most advanced 3M respirator on the market but, if it does not fit properly, its protection features are wasted. Some products are designed to test the fit of respirators. Some of these fit products work by utilizing a bitter taste that indicates that a respirator has a leak or break. Others use banana oil (ISO Amyl Acetate) ampoules to test the reliability of respirators.</p> <p>It's critical to point out that even though workplace respirators on the market meet established federal guidelines and state laws where applicable, it is the employer's responsibility to ensure respirators are properly selected and properly fitted. These decisions are based on the type of contaminants found in a given workplace as well as the concentration level present while employees carry out their jobs. Other site-specific conditions might also require consideration, and you can learn more about those at both OSHA's and the CDC's respective websites.</p> <p>As a facility manager, you are also required to read all warnings and use instructions that accompany respirators products. It's best to purchase all workplace safety products from a reputable company that offers customer service support regarding the use of 3M respirator products and other similar safety items.</p>	

Type	Use	Info	Source
		<p><u>3M Company Respirators</u></p> <p>The 3M Company, well-known by consumers and professionals alike, offers excellent choices in particulate and chemical respirators. An added feature of 3M respirators can be very valuable to those new to the use of these items or those unsure of the correct unit for their situation. 3M offers free respirator selection software (you run it on the Internet) that can analyze over 700 chemicals and guide you to picking the best respirator for your situation. They also give you access to a 55-page respirator selection guide you can download (in PDF format) from the web to further educate potential users.</p> <p>The 3M N95 respirator is one of, if not the most widely used dust mask. A 3M particulate respirator, like the N95 version, protects against many common airborne irritants (dust, pollen, sweeping, grinding, sawing, etc.) and some liquid (non oil-based) produced by sprays. This 3M respirator mask eliminates at least 95% (hence the numerical designation) of airborne particulates in the categories covered by its design. This low cost protection should NOT be used if you face gases, fumes, oil-based aerosols, asbestos, etc. as they are not designed for this level of protection.</p> <p>3M does offer a full line of air purifying and air (atmosphere) supplied half and full face respirators to eliminate many, often more dangerous airborne particulates. In addition, they have recently replaced metal cartridges with plastic ones to eliminate some weight from their respirators and give you a higher level of comfort.</p> <p>3M is not alone in the respirator and there are other companies offering effective OSHA respirators. For instance, the AO Safety respirator line is highly respected in the industry. From an excellent line of N95 respirator masks to homeland security approved “escape hoods” with their own self-powered fan to recirculate clean oxygen, AO is another excellent choice for protection against airborne threats.</p> <p><u>Workplace Respirator Terms</u></p> <p>T.A.S.C.O Tip: When workplaces subject employees to harmful gasses, air particles,</p>	

Type	Use	Info	Source
		<p>chemicals, dust and debris, federal law requires employer law to make approved respirators available. Not providing such safety products could result in stiff fines and penalties by OSHA. Do not confuse respirators with ventilators, which actually assist in breathing. Rather, respirators force air through a specially designed filter before it is inhaled. Other times, respirators provide an alternate source of clean air. The design of respirators differs based on what harmful matter they are designed to protect employees against. OSHA offers some important terminology that will help both employers and employees understand respirators technology:</p> <ul style="list-style-type: none"> • Assigned Protection Factor: This is the workplace level of respiratory protection that a class of respirators is expected to provide employees in a variety of work situations. • Canister (or Cartridge): This is a container with a filter, sorbent or catalyst that removes contaminants from air passed through this container. • Loose-fitting facepiece: This is an inlet covering that forms a partial seal to the face, as opposed to a tight-fitting one whereby the air pressure inside the respirator is negative during inhalation. • HEPA filter: This filter can remove at least 99.97% of monodisperse particles of .3 micrometers in diameter. <p>The Importance Of Well Fitting Dust Masks</p> <p>Dust masks can provide the necessary filters from air borne dust particles from working with clays, gypsum, limestone and other materials. However, in order for dust masks to work properly, you need to make sure that you select the proper equipment and check for a well-fitted seal on the wearer. It's important to note that in some cases, it's possible that workers may not be able to effectively wear dust masks. For instance, in cases where workers have beards or sideburns, there could be an inadequate seal on the dust masks, making them ineffective from filtering dust particles. To help ensure the proper fit of dust masks, read all the accompanying literature regarding the use and precautions for the equipment.</p> <p>Check out NIOSH or OSHA</p> <p>There are a lot of hazardous airborne contaminants, vapors, fumes, viruses that can</p>	

Type	Use	Info	Source
		<p>make your lungs, and your body, very unhappy. The kind of respirator you choose will depend on what nastiness you find yourself working in. The filtering capacity of respiratory masks varies according to the nature of the hazard. It is recommended that you buy respirators approved by the National Institute for Occupational Safety and Health (NIOSH) for the particular contaminants to which you are exposed. For more details about respirators, check out NIOSH www.cdc.gov/niosh/homepage.html or OSHA www.cdc.gov/niosh/database.html websites.</p> <p>Safe air supply</p> <p>Supplied-air respirators (SARs) supply clean air from a compressed air tank or through an air line. This air is not from the work room area. The air supplied in tanks or from compressors must meet certain standards for purity and moisture content (e.g., CSA Standard Z180.1-00: Compressed Breathing Air and Systems). Supplied-air respirators may have either tight-fitting or loose-fitting respiratory inlets. Respirators with tight-fitting respiratory inlets have half or full face pieces. Types with loose-fitting respiratory inlets can be hoods or helmets that cover the head and neck, or loose-fitting face pieces with rubber or fabric side shields. These are supplied with air through airlines.</p> <p>A Mask By Any Other Name</p> <p>It can be confusing shopping for respirators. The fact is, there are a lot of different types of PPEs that go by the name respirator. Some act simply as dust masks and keep the dust out while others cover the whole head and filter out the noxious and toxic. The short list includes: respiratory masks, gas masks, respiratory protection, breathing masks, breathing apparatus, niosh respirators, 3m respirators, msa respirators, respirator masks, full face respirators, fresh air respirators, supplied air respirator, respirator cartridge, air respirators, osha respiratory protection, n95 respirator masks. Whatever you call them, respirators are a vital piece of personal protective equipment.</p> <p>Breathing easy made easier</p>	

Type	Use	Info	Source
		<p>There are respirators and there are respirators. The kind we are referring to here are not the high-tech medical apparatus that assist very ill patients to breathe. We're talking about the respirator mask worn over the nose and mouth that is used to protect the throat and lungs. Made from different filtration material these PPEs strain out the bad stuff that's in the air allowing you to breathe easier—and safer. The next time you are hard at work, or play, and you sense there's “something in the air”, you might want to reach for a respirator.</p> <p><u>Breathing easy made easier</u></p> <p>There are respirators and there are respirators. The kind we are referring to here are not the high-tech medical apparatus that assist very ill patients to breathe. We're talking about the respirator mask worn over the nose and mouth that is used to protect the throat and lungs. Made from different filtration material these PPEs strain out the bad stuff that's in the air allowing you to breathe easier—and safer. The next time you are hard at work, or play, and you sense there's “something in the air”, you might want to reach for a respirator.</p> <p><u>Keeping out the bad air</u></p> <p>An estimated 5 million workers are required to wear a respirator in 1.3 million workplaces throughout the United States. Respirators protect workers against insufficient oxygen environments, harmful dusts, fogs, smokes, mists, gases, vapors, and sprays. These hazards may cause cancer, lung impairment, other diseases, or death. Respirators protect the user in two basic ways. The first is by the removal of contaminants from the air. Respirators of this type include particulate respirators, which filter out airborne particles; and "gas masks" which filter out chemicals and gases. Other respirators protect by supplying clean respirable air from another source. Respirators that fall into this category include airline respirators, which use compressed air from a remote source; and self-contained breathing apparatus (SCBA), which include their own air supply. Respirators should only be used as a "last line of defense" when engineering control systems are not feasible. Engineering control systems, such as adequate ventilation or scrubbing of</p>	

Type	Use	Info	Source
		<p>contaminants should be used to negate the need for respirators.</p> <p>Go to the head of the class</p> <p>Here's the skinny from OSHA on respirator classes.</p> <p>The two main types are air-purifying respirators (APRs) and supplied-air respirators (SARs).</p> <p>Air-purifying respirators can remove contaminants in the air that you breathe by filtering out particulates (e.g., dusts, metal fumes, mists, etc.). Other APRs purify air by adsorbing gases or vapors on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms:</p> <p>mouth bit respirator (fits in the mouth and comes with a nose clip to hold nostrils closed - for escape purposes only) quarter-mask (covering the nose and mouth), half-face mask (covering the face from the nose to below the chin), or full facepiece (covering the face from above the eyes to below the chin). Respirators with a full facepiece also protect the eyes from exposure to irritating chemicals.</p> <p>Respirator and Dust Mask Differences</p> <p>The easiest distinction you could make: A dust mask, regardless of its sophistication, is a purely passive device while a respirator is an active instrument. A mask can be manufactured to eliminate common airborne particles (dust, pollen, paint specks, insulation, etc.) or enhanced to eliminate more serious particulates and even liquid hazards. Most of these are disposable respirators and are simple, low cost safety solutions.</p> <p>Air purifying respirators are more complicated and provide higher level protection. Chemical respirators eliminate numerous harmful airborne materials. You can use either full face respirators or half face respirators to control these hazards. Many forms of paint also present breathing dangers and using a paint respirator can save</p>	

Type	Use	Info	Source
		<p>you from both current and, often, future breathing problems. Asbestos has proven, over time, to be a very dangerous substance to humans. Asbestos respirators are available to protect removal workers better than a mere dust mask.</p> <p>Using an air purifying respirator or an air supplied respirator allows the proper respirator cartridge, possibly combined with your own self contained air supply, to more actively eliminate dangerous particles, gases, fumes, or chemicals from entering your lungs. However, whether using a passive dust mask or active respirator, the object is to trap harmful substances and allow cleaner oxygen to enter your body. The “quality” of the potential hazard is the key ingredient to your decision on what level of respirator mask to use.</p> <p><u>What Safety Respirators Do</u></p> <p>Like all other personal protective equipment (PPE), respirators differ greatly depending on the level of hazards faced by the wearer. For example a disposable dust mask is a totally different product than a military-issue, dual cartridge respirator designed to protect against chemical warfare. There are three basic respirator formats:</p> <ul style="list-style-type: none"> • <i>Dust masks</i> – the generic term for nose and mouth covers that eliminate dust, pollen, and other airborne particulates. Those used in the medical profession offer additional protection against some pathogens and liquid penetration, particularly useful to safeguard against bodily fluid transfer. • <i>Air purifying respirators</i> – contain filters using inherent or infused substances that specifically purify the surrounding air being breathed by the wearer. • <i>Air supplied respirators</i> – contain their own self-contained purified air to further protect the user against airborne hazards that are difficult to eliminate from even purified air. <p>Most dust masks are disposable and NIOSH (National Institute for Occupational Safety & Health) has issued simple ratings and approved standards for dust respirator efficiency. Their ratings range from N, R, and P 95 to 100. The letter designations relate to the mask's resistance to oil, with N being the least and P</p>	

Type	Use	Info	Source
		<p>being the most. A numerical designation of “99” indicates that the mask eliminates 99% of all airborne particles.</p> <p>Air purifying respirators are more effective than dust masks as they are offered with cartridges and/or filters that can eliminate specific particles, gases, fumes, or other airborne threats. Some designs will accept different cartridges/filters if you face a variety of hazards.</p> <p>Air supplied respirators, often affectionately called “gas masks”, are designed for the most dangerous hazards, where purifying the surrounding air might still carry the risk of allowing pathogens to find their way through the process. Some of these might even have their own “power” in the form of a fan to help air flow. All respirators, from the simple particulate respirator to the most sophisticated chemical respirators, impose some level of breathing difficulty as compared to normal. Consequently, those with lung deficiencies, very young children, elderly people, etc. should use these devices with great care.</p>	
Gas Mask		NBC-NUCLEAR/BIOLOGICAL/CHEMICAL MASK FIT AND LIQUID HAZARD SIMULANT TRAINING AIR FORCE MANUAL 32-4006 OCTOBER 1 1999	http://www.af.mil/shared/media/epubs/AFMAN32-4006.pdf
Respirator Gas Masks	3M 5101 Organic Vapor Half-Face Respirator Gas Mask	 <p>Price: \$22.50 Sale price: \$20.99, 10 For \$203.60, 40 For \$789.20</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 5103 Organic Vapor / Acid Gas Half-Face Respirator Gas Mask	 <p>Price: \$24.99 Sale price: \$14.09, 10 For \$136.70, 40 For \$529.60</p>	http://www.allergybegone.com/gasmasks.html

Type	Use	Info	Source
Respirator Gas Masks	3M 51P71 Organic Vapor / P95 Respirator Gas Mask	<p>3M 51P71 Organic Vapor / P95 Respirator Gas Mask</p>  <p>Price: \$33.89 Sale price: \$24.49, 10 For \$237.60, 40 For \$920.80</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 6100, 3M 6200, 3M 6300 Half-Face Reusable Respirator Gas Mask, Medium	<p>3M 6100, 3M 6200, 3M 6300 Half-Face Reusable Respirator Gas Mask, Medium</p>  <p>Price: \$19.95 Sale price: \$12.95, 10 For \$125.60, 40 For \$486.80</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 6291 P100 Reusable Respirator Gas Mask, Medium	<p>3M 6291 P100 Reusable Respirator Gas Mask, Medium</p>  <p>Price: \$23.99 Sale price: \$14.99, 10 For \$145.40, 40 For \$563.60</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 6700, 3M 6800, 3M 6900 Full Facepiece Respirator Gas Mask	<p>3M 6700, 3M 6800, 3M 6900 Full Facepiece Respirator Gas Mask</p>	http://www.allergybegone.com/gasmasks.html

Type	Use	Info	Source
		 <p>Price: \$124.95 Sale price: \$109.95, 2 For \$199.90</p>	
Respirator Gas Masks	3M 6700PF, 3M 6800PF, 3M 6900PF Powerflow Powered Air Purifying Respirator (PAPR)	<p>3M 6700PF, 3M 6800PF, 3M 6900PF Powerflow Powered Air Purifying Respirator (PAPR)</p>  <p>Price: \$499.99 Sale price: \$449.99, 10 For \$4,364.90, 40 For \$16,919.60</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 7001S / 7003S Half Facepiece Silicone Respirator	<p>3M 7001S / 7003S Half Facepiece Silicone Respirator</p>  <p>Price: \$29.99 Sale price: \$23.69, 10 For \$229.80, 40 For \$890.80</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M 7501, 3M 7502, 3M 7503 Ultimate ReUsable Half Facepiece Respirator	<p>3M 7501, 3M 7502, 3M 7503 Ultimate ReUsable Half Facepiece Respirator</p> 	http://www.allergybegone.com/gasmasks.html

Type	Use	Info	Source
		Price: \$24.99 Sale price: \$19.99, 10 For \$193.90, 40 For \$751.60	
Respirator Gas Masks	3M 7800S Full Facepiece Respirator Gas Mask	<p>3M 7800S Full Facepiece Respirator Gas Mask</p>  <p>Price: \$299.99 Sale price: \$278.87, 10 For \$2,705.00, 40 For \$10,485.60</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	3M Accessories for Respirator Gas Masks	<p>3M Accessories for Respirator Gas Masks</p> 	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	How to Set Up a Respiratory Protection Program Manual by Inovel	<p>How to Set Up a Respiratory Protection Program Manual by Inovel</p>  <p>Price: \$99.99 Sale price: \$89.99, 10 For \$872.90, 40 For \$3,383.60</p>	http://www.allergybegone.com/gasmasks.html
Respirator Gas Masks	Israeli Civilian Childrens Gas Mask w/ Nato Filter	<p>Israeli Civilian Childrens Gas Mask w/ Nato Filter</p>	http://www.allergybegone.com/gasmasks.html

Type	Use	Info	Source
		 <p>Price: \$79.95 Sale price: \$42.99, 10 For \$417.00, 40 For \$1,616.40</p>	
Respirator Gas Masks	Israeli Civilian Gas Mask w/ Nato Filter	<p>Israeli Civilian Gas Mask w/ Nato Filter</p>  <p>Price: \$89.99 Sale price: \$22.90, 10 For \$222.10, 40 For \$861.20</p>	<p>http://www.allergybegone.com/gasmasks.html</p>
Respirator Gas Masks	Israeli M15 Military Gas Mask w/ Nato Filter	<p>Israeli M15 Military Gas Mask w/ Nato Filter</p>  <p>Price: \$129.99 Sale price: \$59.90, 10 For \$581.00, 40 For \$2,252.40</p>	<p>http://www.allergybegone.com/gasmasks.html</p>
Respirator Gas Masks	Replacement NATO Gas Mask Cartridge Filter	<p>Replacement NATO Gas Mask Cartridge Filter</p> 	<p>http://www.allergybegone.com/gasmasks.html</p>

Type	Use	Info	Source
		Price: \$49.90 Sale price: \$7.95, 2 For \$15.10, 10 For \$71.60	
Respirator Gas Masks	Respirator Gas Masks	These masks are used for serious air purifying applications such as for medical, scientific and construction purposes and during asbestos removal.	http://www.allergybegone.com/gasmasks.html
Gas Masks	Gas Masks	<div> </div> <p style="text-align: center;">Protect yourself from airborne irritants</p> <p> If you are in the public protection industry, such as firefighters and police, you know the importance of gas masks to protect you from irritants such as tear gas and other vapors. With the threat of terrorist attacks coming in every day it is important to have your own gas mask with the rest of your emergency kit. Gas masks are no different than safety devices already common place in most homes, such as fire extinguishers, smoke detectors, and first-aid kits. We are enabling people to alleviate their fears by doing something smart and productive: preparing to overcome that which they most fear. </p> <p style="text-align: center;">General Information...</p> <p>First Response</p> <p> As a civilian, homeland security should be a huge concern to you. If and when there is another terrorist attack, you and your family could be at risk for </p>	http://www.breathepureair.com/gas_masks.html

Type	Use	Info	Source
		<p>exposure to many things; such as, smoke, tear gas, or even biological irritants like anthrax. A personal gas mask, also called a respirator, could protect your respiratory system from being victim to these irritants. Do not fight the crowds if a threat of national security happens, prepare ahead and don't face the scare of shopping only to find a sold out sign on each respirator.</p> <p>Also, in the same hand, police officers and firefighters use gas masks in their everyday line of duty of protecting civilians. Their job comes in contact regularly with harmful smoke and tear gases. Gas masks are a part of the protection industry's everyday activities.</p> <p>How do gas masks work?</p> <p>Anytime there is a threat of biological or chemical attack, the first thing you hear about is gas masks. Gas masks -- more generically known as respirators -- are also an important part of industrial safety on a daily basis. They protect workers against everything from flour dust in a grain elevator to the damaging organic chemicals in paint spray. Many people think of a gas mask that only covers the nose and mouth, which is called a half-mask gas mask or respirator, but because it may be unknown what kind of contaminant you may be dealing with, a half-mask may not be sufficient. A full mask is better suited for an unknown contaminant because it also protects your eyes and skin of your face. All gas masks work on the same concept that air is pulled into a canister and filtered using active charcoal or another carbon and is then pulled through the mask to your respiratory system.</p> <p>Types of gas masks..</p> <p>Gas masks that rely on its wearer to use their own breathing to pull the air through the canister can be prone to leaks and therefore be inefficient. Supplied air respirators use a battery operated fan to pull air through the filter canister, therefore creating a positive pressure that keeps the gas mask pulled tightly to your face, think of consistently sucking a cup around your mouth, that is how they work! A disadvantage is that the fan constantly is pulling air through the filter so the filter will run out more quickly, another is that if the batteries die, so do you. Another style is a self contained breathing apparatus or SCBA. These gas masks have a tank of air hooked up to the mask. The tank</p>	

Type	Use	Info	Source
		<p>is worn on your back similar to a scuba diver's. These systems can be bulky and the tanks can run out of air in 30 to 60 minutes. Choose a gas mask respirator based upon your specific needs. For more information go to respirators.</p>	
Gas Masks, Rope, Biners	8150 P100 Disposable Respirator	8150 P100 Disposable Respirator Reg. Price: \$59.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	Dust Masks	Dust Masks - Pack of 5 Our Price: \$1.14	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	Emergency Escape Gas Mask	Emergency Escape Gas Mask Reg. Price: \$179.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	Gas Masks, Rope, Biners	<p>F.A.Q. about POTOMAC Emergency Escape Mask / Gas Mask Russian Military Gas Mask (Protective Mask) GP-5 Halloween Costume Gas Mask Drinking Tube with New Canteen Reg. Price: \$34.95 Gas Mask New Canteen (No Drinking Tube) Reg. Price: \$29.50 PVC Hood Gas Mask Accessory Reg. Price: \$54.40 Optical Lens Support Reg. Price: \$22.00 Silver Multipurpose Filter Reg. Price: \$44.60 ME.ST.EL Mask Information & Manuals Pro Knot Cards - Outdoor 6 pack, Be Prepared Our Price: \$4.37 And much more</p>	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	Gas Masks, Rope, Biners	<p>A Gas Mask Could Save Your Life!</p> <p>In the event of chemical or biological attack, would you prepared? The chemical absorbent in gas masks, which works like a sponge for chemicals, could potentially save your life! Keep in mind, however, that the experts point out that there's more to using a gas mask than just putting it on. It's important to receive proper training and maintenance.</p> <p>A gas mask is a device that is worn to reduce the amount of contamination in the air that you breathe. There are different types. Some cover your nose and mouth; some cover your entire face; and some positive air systems have hoods. All gas masks have filters.</p>	http://www.campingsurvival.com/gasmasks.html

Type	Use	Info	Source
		<p>According to Stephen Rose, author of <i>The Coming Explosion of Silent Weapons</i>, there are two reasons the U.S. Government has not issued gas masks to its citizens. One, because the issue is too unsavory and difficult to handle, especially in time of peace. The leaders of the country do not want to alarm the citizens with this threat. Two, politicians who approve and vote on the budget would have a hard time voting for an 80 billion dollar expense (which is what Rose estimates it would cost to supply every citizen of the United States with a gas mask and protective gear) to fight a heretofore invisible threat.</p> <p>The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) is seeking to expand its capacity for fit testing avian influenza emergency response personnel for the N95 respirator mask in the event of a wide-scale outbreak. If an animal health emergency such as avian influenza H5N1 occurs in U.S. poultry populations, the mobilization of substantial numbers of personnel to manage the emergencies is the responsibility of APHIS. In the past, those emergencies have been strictly livestock or poultry disease issues.</p> <p>Avian influenza poses a threat to poultry and wild birds, but it is also capable of infecting a small number of people working in close contact with infected birds (i.e. processors, producers and animal health emergency responders). It is estimated that many veterinary personnel and other responders would be needed to eradicate this disease, should it appear in America. APHIS may request assistance from the fire fighting community to identify fit testing equipment and personnel to ensure more than adequate surge capacity in the event of a worst case scenario.</p> <p>The N95 respirator masks are indicated for use in an avian influenza environment. The equipment required for those tests as prescribed by the APHIS medical officer is the TSI PortaCount Respiration Fit Test Unit with the N95 Companion Unit for that mask.</p> <p>Please note: gas masks are not returnable</p>	
Gas Masks, Rope, Biners	Israeli Civilian Adult Model Gas Mask	Israeli Civilian Adult Model Gas Mask Reg. Price: \$129.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	Israeli Civilian Youth Model Gas Mask	Israeli Civilian Youth Model Gas Mask Reg. Price: \$174.95	http://www.campingsurvival.com/gasmasks.html

Gas Masks-Respirators-SCBAs and Escape Hoods Info - Continued

Type	Use	Info	Source
Gas Masks, Rope, Biners	Israeli M-15 Military Model Gen 11 NBC Gas Mask	Israeli M-15 Military Model Gen 11 NBC Gas Mask Brand New Reg. Price: \$174.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	M13A-PD Gas Mask Package	M13A-PD Gas Mask Package Reg. Price: \$174.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	M15-PD Gas Mask Package	M15-PD Gas Mask Package Reg. Price: \$163.95	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	NBC Mask Filter for Gas Mask	NBC Mask Filter for Gas Mask Brand-new Reg. Price: \$44.90	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	North 7130 N95 mask Non-Oil Particulate Respirator	North 7130 N95 mask Non-Oil Particulate Respirator 20/Box Reg. Price: \$29.50	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	SGE 150 Gas Mask	SGE 150 Gas Mask - S/M Reg. Price: \$125.00 SGE 150 Gas Mask - M/L Reg. Price: \$125.00	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	SGE 400 Gas Mask	SGE 400 Gas Mask - S/M Reg. Price: \$198.00 SGE 400 Gas Mask - S/M w/ Int & Ext Drinking Device to Bottle Reg. Price: \$275.95 SGE 400 Gas Mask - S/M w/ Int & Ext Drinking Device & Canteen Reg. Price: \$349.75 SGE 400 Gas Mask - M/L Reg. Price: \$198.00 SGE 400 Gas Mask - M/L w/ Int & Ext Drinking Device to Bottle Reg. Price: \$274.95 SGE 400 Gas Mask - M/L w/ Int & Ext Drinking Device & Canteen Reg. Price: \$349.75	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	SGE 400/3 BB Gas Mask	SGE 400/3 BB Gas Mask - S/M Reg. Price: \$234.00 SGE 400/3 BB Gas Mask - M/L Reg. Price: \$234.00	http://www.campingsurvival.com/gasmasks.html
Gas Masks, Rope, Biners	SGE 400/3 Gas Mask	SGE 400/3 Gas Mask - S/M Reg. Price: \$212.00 SGE 400/3 Gas Mask - S/M w/ Int & Ext Drinking Device to Bottle Reg. Price: \$289.10 SGE 400/3 Gas Mask - S/M w/ Int & Ext Drinking Device & Canteen Reg. Price: \$360.45 SGE 400/3 Gas Mask - M/L Reg. Price: \$212.00 SGE 400/3 Gas Mask - M/L w/ Int & Ext Drinking Device to Bottle Reg. Price: \$289.10 SGE 400/3 Gas Mask - M/L w/ Int & Ext Drinking Device & Canteen Reg. Price: \$360.45	http://www.campingsurvival.com/gasmasks.html

Type	Use	Info	Source
Respirators	Respirator Selection - Are there some things that you should know before you choose a respirator?	<p>Are there some things that you should know before you choose a respirator?</p> <p>Employers should have a written respirator program that describes the proper procedures for selecting and operating respiratory protective equipment. The correct use of a respirator is just as important as selecting the proper respirator. Parts of the respirator program deal with finding out what hazards are present and how much protection that the workers will need. Other parts should describe how to wear and look after the respirator.</p> <p>Without a complete respiratory protection program, people will probably not receive the best protection from a respirator even if it is the correct choice for a specific job. A respiratory protection program includes several components such as:</p> <ul style="list-style-type: none"> • hazard identification and control • exposure assessment • respirator selection • respirator fit-testing • training program • inspection and record keeping • cleaning and sanitizing respirators • repairing and maintaining respirators • proper storage of respirators • health surveillance • standard operating procedures (available in written form) • program evaluation. <p>A physician should examine the medical and psychological fitness of workers. This should be done before they are assigned to work in areas where respirators may be required. The workers must be physically fit to carry out the work while wearing respiratory equipment. They must also be psychologically comfortable (e.g., not claustrophobic) about wearing respirators.</p> <p>Workers with beards, long sideburns, or even a two-day stubble may not wear respirators because the hair breaks the seal between the skin and the respirator</p>	<p>http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html</p>

Type	Use	Info	Source
		<p>mask. Wearing eyeglasses would also break the respirator seal. This means that the respirator mask will "leak" and will not provide the needed respiratory protection. Also, if a worker has facial scars or an acne problem, the facial skin may not be able to form a good seal with a respirator mask.</p>	
Respirators	Respirator Selection - How do you select the right respirator?	<p>How do you select the right respirator?</p> <p>Choosing a respirator is a complicated matter. Experienced safety professionals or occupational hygienists, who are familiar with the actual workplace environment, are the staff who should select the proper respirator. They can choose a suitable respirator only after they have evaluated all relevant factors. This includes considering the limitations of each class of respirator.</p> <p>Before the proper respirator can be selected for a job, be sure you have already:</p> <ul style="list-style-type: none"> • identified the respiratory hazard. • evaluated the hazard. • considered whether engineering controls are feasible. <p>There are too many types of situations to cover them all fully here. However, the following questions represent part of "decision logic" that a safety professional or occupational hygienist can use when selecting a respirator:</p> <ul style="list-style-type: none"> • Is it to be used in firefighting or emergencies? • Is it to be used in oxygen-deficient atmospheres (less than 18% oxygen in air; some jurisdictions say below 19.5%)? • What is the nature of the hazard (chemical properties, concentration in the air, warning properties)? • Is the airborne contaminant a gas, vapor or particulate (mist, dust or fume)? • Are the airborne levels below or above the exposure limit, or are they above levels that could be immediately dangerous to life or health? • What are the health effects of the airborne contaminant (carcinogenic, 	<p>http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html</p>

Type	Use	Info	Source
		<p>potentially lethal, irritating to eyes, absorbed through the skin)?</p> <ul style="list-style-type: none"> • What are the characteristics of the operation or the process (e.g., hot temperature, confined space)? • What activities will the worker be doing while wearing the respirator (e.g., strenuous work)? • How long will the worker need to wear the respirator? • Does the selected respirator fit the worker properly? • Where is the nearest safe area that has respirable air? <p>The CSA Standard Selection, Use and Care of Respirators Z94.4-02 outlines a respirator selection decision logic model in more detail.</p>	
Respirators	Respirator Selection - How should you control respiratory hazards?	<p>How should you control respiratory hazards?</p> <p>Respiratory hazards can include airborne contaminants such as dusts, mists, fumes, and gases, or oxygen-deficient atmospheres. Well designed and maintained engineering controls are the preferred methods of controlling worker exposure to hazardous contaminants in the air. These control methods include:</p> <ul style="list-style-type: none"> • mechanical ventilation • enclosure or isolation of the process or work equipment • proper control and use of process equipment, and • process modifications including substitution of less hazardous materials where possible. <p>Administrative controls may be used in addition to engineering controls. Administrative controls limit workers' exposures by scheduling reduced work times in contaminant areas or by implementing other such work rules. These control measures have many limitations because the hazard is not removed. Administrative controls are not generally favoured because they can be difficult to implement, maintain and are not reliable.</p>	<p>http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html</p>

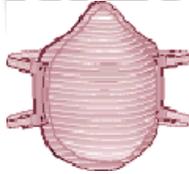
Type	Use	Info	Source
Respirators	Respirator Selection - What are the different classes of respirators?	<p>What are the different classes of respirators?</p> <p>The two main types are air-purifying respirators (APRs) and supplied-air respirators (SARs).</p> <p>Air-purifying respirators can remove contaminants in the air that you breathe by filtering out particulates (e.g., dusts, metal fumes, mists, etc.). Other APRs purify air by adsorbing gases or vapours on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms:</p> <ul style="list-style-type: none"> • mouth bit respirator (fits in the mouth and comes with a nose clip to hold nostrils closed - for escape purposes only) • quarter-mask (covering the nose and mouth), • half-face mask (covering the face from the nose to below the chin), or • full facepiece (covering the face from above the eyes to below the chin). <p>Respirators with a full facepiece also protect the eyes from exposure to irritating chemicals.</p> <p>Supplied-air respirators (SARs) supply clean air from a compressed air tank or through an air line. This air is not from the work room area. The air supplied in tanks or from compressors must meet certain standards for purity and moisture content (e.g., CSA Standard Z180.1-00: Compressed Breathing Air and Systems).</p> <p>Supplied-air respirators may have either tight-fitting or loose-fitting respiratory inlets. Respirators with tight-fitting respiratory inlets have half or full facepieces. Types with loose-fitting respiratory inlets can be hoods or helmets that cover the head and neck, or loose-fitting facepieces with rubber or fabric side shields. These are supplied with air through airlines.</p> <p>Examples of these classes of respirators include:</p> <p>Air-purifying respirators (APRs):</p>	<p>http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html</p>

Type	Use	Info	Source
		<ul style="list-style-type: none"> • particulate respirators (previously called dust, fume, and mist respirators or masks), • chemical cartridge respirators that can have a combination of chemical cartridges, along with a dust prefilter: this combination provides protection against different kinds of contaminants in the air • gas masks (contain more adsorbent than cartridge-type respirators and can provide a higher level of protection than chemical cartridge respirators) • powered air-purifying respirators (PAPRs). <p>Supplied-air respirators (SARs):</p> <ul style="list-style-type: none"> • self-contained breathing apparatus (SCBA), • airline supplied-air respirators, • protective suits that totally encapsulate the wearer's body and incorporate a life-support system. <p>There are some combinations of airline respirators and SCBAs that allow workers to work for extended periods in oxygen-deficient areas or where there are airborne toxic contaminants. The auxiliary or backup SCBA source allows the worker to escape with an emergency source of air if the airline source fails.</p> <p>There are also combination air-purifying and atmosphere supplying respirators. These will offer worker protection if the supplied-air system fails, if the appropriate air-purifier units are selected. These cannot be used in oxygen-deficient areas or where the air concentration of a contaminant exceeds the IDLH level (i.e., immediately dangerous to life or health).</p>	
Respirators	Respirator Selection - When should a respirator be used?	<p>When should a respirator be used?</p> <p>Workers should use respirators for protection from contaminants in the air only if other hazard control methods are not practical or possible under the circumstances. Respirators should not be the first choice for respiratory protection</p>	<p>http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html</p>

Type	Use	Info	Source
		<p>in workplaces. They should only be used:</p> <ul style="list-style-type: none"> • when engineering or administrative controls are not technically feasible • while engineering controls are being installed or repaired • when emergencies or other temporary situations arise (e.g., maintenance operations). 	
Respirators	Respirator Selection - Where can I get more information?	<p>Where can I get more information?</p> <p>Contact the governmental occupational health and safety officials in your jurisdiction to obtain additional information on regulatory requirements for respiratory protection. In addition, Canadians can also contact the Canadian Standards Association (CSA) at 416-747-4000 or 1-800-463-6727 (in Rexdale, Ontario) to purchase the CSA Standard Selection, Use, and Care of Respirators (CSA Standard Z94.4-02).</p>	http://www.ccohs.ca/oshanswers/prevention/ppe/respslct.html
Gas mask	Gas mask	NIOSH GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION	http://www.cdc.gov/niosh/docs/87-116/pdfs/87-116.pdf
Gas Masks, Respirators, Suits & More	Certified Equipment List	<p>Certified Equipment List</p> <p>Changes to the Certified Equipment List</p>	http://www.cdc.gov/niosh/nppt/topics/respirators/cel/default.html http://www.cdc.gov/niosh/nppt/topics/respirators/cel/celchanges.html
Respirator	1. Respirator Fact Sheet - What You Should Know in Deciding	<p>Respirator Fact Sheet</p> <p>What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work</p> <p>NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>	http://www.cdc.gov/niosh/nppt/topics/respirators/factsheets/respfact.html

Type	Use	Info	Source
		<p>Some employers and consumers are considering purchasing escape hoods or other respirators to protect themselves against potential terrorist threats, including biological and chemical substances. This guidance will provide information on what respirators are, how they work, and what is needed for a respirator to provide protection.</p> <p>Is buying an escape hood or other type of respirator the best way to protect myself, my family, and/or my employees?</p> <p>If available and used correctly, a respirator can selectively reduce the exposure you might otherwise receive. Respirators have been used for many years in the workplace, where employers have programs to make sure the proper masks are selected and that the respirator fits. When consumers use respirators, they don't have such support, so this fact sheet includes lots of background information to help consumers understand the limitations and cautions that need to be considered. The goal is to avoid unintended problems that might occur through lack of understanding or a false sense of security.</p> <p>As a first step, plan how to respond if an emergency happens. A respirator is only one small part of that plan. There may be situations in which it's simply best to stay where you are and avoid any uncertainty outside, a process known as "shelter-in-place," as a means of survival. Use available information to assess the situation. If you see large amounts of debris in the air, or if local authorities say the air is badly contaminated, you may want to take this kind of action. The US Department of Homeland Security offers information on shelter-in-place and other emergency planning recommendations on its Internet site (http://www.ready.gov/), and through a toll-free number, 1-800-BE-READY.</p> <p>Respiratory protection is effective only if:</p> <ul style="list-style-type: none"> • the correct respirator is used, • it's available when you need it, • you know when and how to put it on and take it off, and • you have stored it and kept it in working order in accordance with the 	

Type	Use	Info	Source
		<p>manufacturer's instructions</p> <p>Each type of respirator can come in several varieties, each with its own set of cautions, limitations, and restrictions of use. Some respirators require testing to ensure a tight fit to the face, and should not be used with facial hair. Others use a nose clip and mouthpiece, which is clenched between your teeth, similar to a snorkel. Some respirators prevent the user from talking while others have speaking capabilities. Every respirator contaminated with hazardous chemicals should be decontaminated and disposed of properly.</p> <p>All respirators require training to be properly used. Sometimes you can practice using your own respirator. Some escape respirators come in a package that must remain sealed until use, so you need to be trained using a special "practice" version. Training is extremely important in regard to the storage, maintenance, use, and discarding of the respirator. This information is provided by the supplier of the respirator (i.e. seller, distributor, or manufacturer).</p> <p><i>If you do not use a respirator correctly, it is very likely that it will not protect you and may even hurt you.</i></p> <p>The following information will help you understand what a respirator is, and how it should be used.</p>	
Respirator	2. What a respirator is:	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>What a respirator is:</i></p> <p>A respirator is a device to protect you from inhaling dangerous substances, such as chemicals and infectious particles. There are several different types of respirators, as described below.</p>	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>

Type	Use	Info	Source
Respirator	3. Escape respirators	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p>Escape respirators are designed to be used only in an emergency, and only to escape from a dangerous area to a safe area. There are several escape respirators on the market. Many of them use a hood with a neck seal instead of a facepiece. They are typically designed for one-time use for a short period, typically 15 minutes to 1 hour. They may be available in a variety of sizes and will fit most adults. Individuals with small or very large neck sizes may not be able to use some escape hood designs—check the supplier product information before purchasing.</p> 	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>
Respirator	4. Particulate respirators	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>  <p>Particulate respirators are the simplest, least expensive, and least protective of the respirator types available. These respirators only protect against particles. They do not protect against chemicals, gases, or vapors, and are intended only for low hazard levels. The commonly known "N-95" filtering facepiece respirator is one type of particulate respirator, often used in hospital to protect against infectious agents. Particulate respirators are "air-purifying respirators" because they clean particles out of the air as you breathe. Even if you can't see the particles, there may be too many in the air for this respirator to provide adequate protection.</p>	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>

Type	Use	Info	Source
Respirator	5. Chemical Cartridge/Gas Mask respirator	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p>Chemical Cartridge/Gas Mask respirator. Gas masks are also known as "air-purifying respirators" because they filter or clean chemical gases and possibly particles out of the air as you breathe. This respirator includes a facepiece or mask, and a filter/cartridge (if the filter is in a metal shell it is called a "canister"). Straps secure the facepiece to the head. The cartridge may have a filter to remove particles (such as a biological weapon), charcoal (to remove certain chemicals), both, or other parts. When the user inhales, air is pulled through the filter.</p> 	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	6. cartridge or filter	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p>Gas Masks are effective only if used with the correct cartridge or filter (these terms are often used interchangeably) for a particular biological or chemical substance. Selecting the proper filter can be a complicated process. There are cartridges available that protect against more than one hazard, but there is no "all-in-one" filter that protects against all substances. You need to know what hazards you will face in order to be certain you are choosing the right filters.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	6a. Powered Air-Purifying Respirator	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/r

Type	Use	Info	Source
	(PAPR)	<p>Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>  <p>Powered Air-Purifying Respirator (PAPR). Powered air-purifying respirators use a fan to blow air through the filter to the user. They are easier to breathe through and they need a fully charged battery to work properly. They use the same filters as gas masks, so you need to know what the hazard is, and how much of it is in the air.</p>	<p>espfact.html</p>
Respirator	6b. Self-Contained Breathing Apparatus (SCBA)	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p>Self-Contained Breathing Apparatus (SCBA) is the respirator commonly used by firefighters. These use their own air tank to supply clean air, so you don't need to worry about filters. They also protect against higher concentrations of dangerous chemicals. However, they are very heavy (30 pounds or more), and require very special training to use and to maintain them. Also, the air tanks typically last an hour or less depending upon their rating and how hard you are breathing.</p> 	<p>http://www.cdc.gov/niosh/nppt/topics/respirators/factsheets/respfact.html</p>
Respirator	7. Q & A	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being</p>	<p>http://www.cdc.gov/niosh/nppt/topics/respirators/factsheets/respfact.html</p>

Type	Use	Info	Source
		<p>maintained or updated.</p> <p>The following questions and answers provide additional information for use in selecting and using gas mask and escape respirators. At the end of this Fact Sheet, you will find a list of questions you should ask before purchasing a Gas Mask or Escape Respirator.</p>	
Respirator	7a. Q & A - Can I buy any Gas Mask or Escape Respirator and expect it to protect me from anything that might happen?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Can I buy any Gas Mask or Escape Respirator and expect it to protect me from anything that might happen?</i></p> <p>These respirators must be selected for protection against a specific hazard. The cautions, limitations and restriction of use provided with the respirator must be strictly followed. If your mask does not make a tight seal all the way around your face when you inhale, you may breathe contaminated air that leaks around the edges of the face seal. Anything that prevents the face mask from fitting tightly against your face, such as a beard or long sideburns, may cause leakage. Some respirators come in different styles and sizes, and fit different people differently because people's faces have different shapes. You also need training to know how to correctly put the mask on and wear it correctly. This information should be provided by the supplier of the respirator.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	7b. Q & A - If I have the right cartridges/filters for a certain hazard, and my mask fits, will they always protect me	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html

Type	Use	Info	Source
	against that hazard?	<p><i>If I have the right cartridges/filters for a certain hazard, and my mask fits, will they always protect me against that hazard?</i></p> <p>Gas Masks and Escape Respirators reduce exposure to the hazard, but if the exposure is such that it goes beyond what the filter is capable of handling (either because the amount of toxic gas or particles is more than what the filter is designed to handle, or because the exposure lasts longer than what the filter is designed to handle), the filter may not be effective in providing required protection. Also, there may be a small amount of leakage even if the fit of the respirator has been tested. If so, and if there is large amount of a toxic chemical in the outside air, even that small leakage can be dangerous.</p>	
Respirator	7c. Q & A - Can anyone wear a respirator mask?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Can anyone wear a respirator mask?</i></p> <p>Breathing through a respirator is harder than breathing in open air. People with lung diseases such as asthma or emphysema, elderly people, and others may have trouble breathing. Some people with claustrophobia may not be able to wear a mask or hooded respirator. Some people with vision problems may have trouble seeing while wearing a mask or hood (there are special masks for people who need glasses).</p>	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>
Respirator	7d. Q & A - Will a gas mask protect children?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>

Type	Use	Info	Source
		<p><i>Will a gas mask protect children?</i></p> <p>There are a variety of problems with fit and use of respirators for children, especially small children and infants. For example, currently available masks are unlikely to fit the faces of small children and infants. As with respirator use by anybody, fit-testing, training, and proper use and maintenance are essential.</p>	
Respirator	7e. Q & A - Will my cartridge/filter and respirator mask protect forever?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Will my cartridge/filter and respirator mask protect forever?</i></p> <p>Cartridges, filters, and masks get old. Cartridges can have a limited life. If the filter cartridges that attach to the mask are outdated, have been open to the air or are damaged, you are not protected. Cartridges that contain charcoal or other chemicals for filtering the air should be in air-tight packages. If cartridges are open or not packed in air-tight packaging, they should not be used. Even cartridges in original packaging have expiration dates that should be checked before purchase. Also, over time your mask can get old and break down. Keep your mask in a clean, dry place, away from extreme heat or cold. Inspect it according to the manufacturers instructions.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	7f. Q & A - If I wear a Gas Mask correctly, am I completely safe?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html

Type	Use	Info	Source
		<p><i>If I wear a Gas Mask correctly, am I completely safe?</i></p> <p>The filter cartridges protect against only certain inhaled airborne substances. Some dangerous chemicals are absorbed through the skin. Properly selected and worn gas masks and escape respirators must be combined with protective clothing to completely prevent injury from these chemicals.</p>	
Respirator	7g. Q & A - Will a Gas Mask protect me if there is not enough oxygen in the air?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Will a Gas Mask protect me if there is not enough oxygen in the air?</i></p> <p>Gas Masks do not provide oxygen. If used in an environment with low oxygen levels, such as a fire, you are in danger of suffocation.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	7h. Q & A - Will a Gas Mask protect me if there is a fire?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Will a Gas Mask protect me if there is a fire?</i></p> <p>It's important to read the manufacturer's information if your main concern is to be able to escape from a smoke-filled building. Smoke particles can rapidly clog gas mask filters, and filters with special chemicals are needed to protect against carbon monoxide and other gases that may occur in a fire. Not all gas masks and escape respirators protect against these hazards. Some components, including hoods and</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html

Type	Use	Info	Source
		facepieces, of many of the gas masks and escape respirators may melt if exposed to a fire.	
Respirator	7i. Q & A - Once I put on my Gas Mask or Escape Respirator, how long will it last?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>Once I put on my Gas Mask or Escape Respirator, how long will it last?</i></p> <p>That depends on how much filtering capacity the respirator has and the amount of hazard in the air - the more chemical or biological hazard in the air (higher concentration), the shorter the time your filter will last. There is no absolute time limit, and it will vary by each respirator model's capacities. That's why your emergency plan must include some idea of how to get to a safe area before the filtering capabilities of the mask runs out.</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html
Respirator	7j. Q & A - How do I know a respirator will protect me against the hazards it claims to protect against?	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p><i>How do I know a respirator will protect me against the hazards it claims to protect against?</i></p> <p>No agency in the U.S. tests and certifies respirators for use by the general public, however, the National Institute for Occupational Safety and Health (NIOSH) part of the Centers for Disease Control and Prevention (CDC), tests and certifies respirators for use by workers to protect against workplace hazards. Respirators certified by NIOSH will say "NIOSH Approved" and may have a certification number. However, NIOSH only certifies respirators against specific hazards. Just because a respirator is</p>	http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html

Type	Use	Info	Source
		<p>certified does not mean it will protect against ALL hazards. NIOSH-certified respirators are supplied with Approval Labels that identify the hazards that the respirator is approved to protect against. If you are buying a respirator, you should check the Approval Label to be sure that it has been certified against the hazards you want protection against.</p>	
Respirator	8. Questions to ask before purchasing	<p>Respirator Fact Sheet What You Should Know in Deciding Whether to Buy Escape Hoods, Gas Masks, or Other Respirators for Preparedness at Home and Work NOTE: This page is archived for historical purposes and is no longer being maintained or updated.</p> <p>THE QUESTIONS YOU SHOULD ASK ABOUT ANY RESPIRATOR YOU ARE CONSIDERING PURCHASING:</p> <ol style="list-style-type: none"> 1. What protection (which chemicals and particles, and at what levels) does the escape hood provide? 2. Is there more than one size? 3. How do I know if the gas mask or escape hood will fit? 4. What type of training do I need? 5. Has the escape hood been tested against claims for protection such as biological agents, chemical warfare agents, toxic industrial chemicals, and radioactive dust particles? 6. Who performed the testing, what were the tested levels, and test durations? 7. Is the escape hood certified by an independent laboratory or government agency? 8. Are there any special maintenance or storage conditions? 9. Will I be able to talk while wearing the respirator? 10. Does the hood restrict vision or head movement in any way? 11. Can I carry the device in the trunk of my automobile? 12. Is a training respirator available? 13. Can I use the escape hood more than one time? 	<p>http://www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respfact.html</p>

Type	Use	Info	Source
		<p>14. Can children wear the escape hood and get the expected protection?</p>	
Respirators	Respirator Types and Ratings Explained	<p>Respirator Types and Ratings Explained</p> <p>Picking the right respirator can seem like a daunting challenge. This guide has been developed to help explain the four most common types of air purifying respirators and the ratings in which they are certified.</p> <p>Types of Air-Purifying Respirators:</p> <ul style="list-style-type: none"> • Particulate Respirators (Dust Masks) • Combination Respirators • Gas & Vapor Respirators 	<p>http://www.coopersafety.com/respiratortypes.aspx</p>
Respirators	Types of Air-Purifying Respirators - Combination Respirators	<p>Combination Respirators</p> <p>Combination respirator cartridges are design to provide users with both vapor and particulate protection in single cartridge. Combination respirators require the use of either a half-mask respirator or full-face respirator mask. Most respirator manufacturers including 3M respirators, North respirators and MSA respirators all offer combination cartridges. When heavy particulate filtration is required, users may consider using a standard gas or vapor respirator cartridge along with a respirator pre-filter rather than a combination cartridge. This configuration will allow the wearer to replace the particulate filter as frequently as needed without having to also replace the gas and vapor cartridge. This configuration is commonly used in applications involving spray paint or pesticides.</p>	<p>http://www.coopersafety.com/respiratortypes.aspx</p>
Respirators	Types of Air-Purifying Respirators - Gas & Vapor Respirators	<p>Gas & Vapor Respirators</p>	<p>http://www.coopersafety.com/respiratortypes.aspx</p>

Type	Use	Info	Source
		<p>Gas & Vapor respirators are designed specifically to protect wearers against harmful gases and vapor and require the user to wear either a half-mask or full-mask respirator along with respirator cartridges. Gas and Vapor respirators do not protect wearers from particulates. For environments that contain both harmful particulates and gas and vapors, wearers must use combination respirators. Selection of the appropriate respirator cartridge will depend on the gas or vapor that is present. The most common respirator cartridge is typically an organic vapor cartridge. For more information on selecting the proper respirator cartridge for your application please see our respirator selection guide.</p>	
Respirators	Types of Air-Purifying Respirators - Particulate Respirators	<p>Particulate Respirators</p> <p>Disposable dust masks and particulate respirators are not designed to be washed or cleaned. Because of their cloth-like construction disposable respirator masks should be disposed of if they become wet and/or damaged.</p> <p>In 1995 The National Institute for Occupational Safety and Health (NIOSH) released a testing certification for particulate respirators with the intention of creating a standard in which respirator users could understand and follow in practice. The 42 CFR Part 84 has created the following particulate certifications:</p> <p>N-Series (N95, N99 and N100)</p> <p>N-Series particulate respirators are NOT resistant to oil and provide protection against solids and liquid aerosol particulates that do NOT contain oil. The difference between an N95, N99 and N100 respirators is simply the filter’s efficiency level. The higher the efficiency the more particulates the respirator will filter out.</p> <p>N95 respirators are the most commonly used N-Series particulate respirators and are commonly used to protect wearers from particles or “dust” such as those from grinding, sanding, sweeping, sawing, bagging or processing minerals such as coal, iron ore, flour, metal, wood and pollen. N95 respirators may also be used to filter</p>	<p>http://www.coopersafety.com/respiratortypes.aspx</p>

Type	Use	Info	Source
		<p>against liquid or non-oil based particles from sprays that do NOT also admit oil aerosols or vapors. N-Series respirators have a non-specific service life and can be used as long the mask is not damaged or breathing resistances is not detected.</p> <p>R-Series (R95)</p> <p>R-Series particulate respirators are resistant to oil and provide protection against both solid and liquid aerosol particulates that may contain oil. R95 respirators are commonly used to protect wearers from particles or “dust” such as those from processing minerals such as coal, iron ore, flour, metal, wood and pollen. R-series respirators are only certified for use for up to 8 hour of service life. R-Series particulate respirators are the least common type of particulate respirator due to the respirators specific service life.</p> <p>P-Series (P100, P99, P95)</p> <p>P-Series particulate respirators are similar to the R-series and provide protection against both solid and liquid aerosol particulates that may contain oil. However, P-Series respirators have a non-specific service life and can be used as long the mask is not damaged or breathing resistances is not detected.</p> <p>P100 respirator masks are commonly referred to as HEPA filters or HEPA face masks.</p>	
Gas mask	Gas mask	CHIN-TYPE GAS MASKS-MSA 3100	http://www.degeschamerica.com/docs/ProductInfo/MSA%203100.pdf
Gas Mask	Respirators (gas masks)	<p><i>Respirators (gas masks)</i></p> <p>The respirator is the most important piece of equipment used for the protection of persons working with fumigants. When fumigation is carried out regularly, it is advisable for each of the operators to be supplied with his own respirator so that he himself is responsible for its care and upkeep, for his own personal protection.</p>	http://www.fao.org/docrep/x5042e/x5042E05.htm

Type	Use	Info	Source
		<p>The only respirators that should be purchased for fumigation work are those approved for the purpose by a recognized government authority, such as the mines or public health departments, in the country of purchase or manufacture. Such approval usually extends only to a complete assembly. If a certain make of respirator is purchased, the canisters used with it should be obtained from the same manufacturer.</p> <p>The term respirator is used in many English-speaking countries to describe a device whereby the entire face is covered, or the nose and mouth alone are enclosed, so that the wearer may breathe only filtered air from the surrounding atmosphere; these devices are also called gas masks. Breathing takes place through a filter, which is designed to remove certain contaminants, or through a hose that draws fresh air from outside the space being fumigated. There are also two types of closed circuit respirator available:</p> <ul style="list-style-type: none"> - a self-contained unit, using compressed air, carried on the person in one or more small cylinders (bottles); - a type of self-generating apparatus whereby the oxygen is evolved from a special canister by the action of moisture from the breath. <p>For most fumigation work the most convenient type of respirator is one that employs a Filter-type canister. This is usually referred to as the industrialtype respirator or gas mask; one type is shown in Figure 8. The canister on this type of mask gives adequate protection for a certain length of time from gases that do not exceed a concentration of 2 percent by volume in air (0.5 percent for phosphine); it contains a chemical or physical adsorbent designed to remove contaminant gases from the air being breathed. Canisters are designed to prevent the passage of a particular gas or group of gases. It is most important to check before each fumigation that the canister on the respirator is the right one for use with the specific gas or mixture of gases that will be used for that particular job.</p> <p>When an operator is applying fumigants and is likely to be working close to the point of emergence of the fumigant from the container, it is good practice to wear the canister on the back, as in Figure 8. This is particularly important when using</p>	

Type	Use	Info	Source
		<p>liquid-type fumigants, as illustrated.</p> <p>In certain types of fumigation work, such as the spraying of liquid fumigants over large masses of bulk grain, the self-contained types of breathing apparatus, air line masks or the safety blouses (shown in Figure 9), which draw fresh air from outside the building, may be used.</p> <p>Cartridge-type respirators are small devices with one or two small chemical cartridges attached to the nosepiece. These are usually designed to give protection only against gases up to 0.1 percent by volume. They should not be used in any phase of fumigation work. Also, respirators designed as dust filters, or for use with insecticidal or fungicidal aerosols, afford no protection whatsoever against fumigants. The specific types of canisters recommended for use with particular fumigants or groups of fumigants are listed in Table 8.</p> <p>When wearing a respirator, a person with punctured eardrums may draw fumigant vapours in through his ears as a result of creating a slight negative pressure during inhalation. Any fumigant drawn this way will be exhaled into the inside of the respirator facepiece, and a poisonous concentration may build up inside the respirator. It is usually possible for persons with this defect to obtain complete protection by using cotton earplugs covered with oil.</p> <p>Men with beards usually cannot fit respirators tightly enough to the face for adequate protection.</p> <p><u>Use and Care</u></p> <p>Detailed instructions for adjusting, putting on and checking respirators are supplied with each unit purchased. These printed instructions are usually placed inside the lid of the carrying case or in some other convenient place. They should be carefully studied at the time of purchase and read over again before the respirator is used. Supervisors should give new operators detailed instructions on the proper use of the respirators. If a person has not worn a mask before, a regular daily drill should be undertaken to rehearse the proper procedure and movements. This drill should be continued until the new fumigator can demonstrate full familiarity with the</p>	

Type	Use	Info	Source																																				
		<p>correct handling and use of the respirator.</p> <p>Table 8. - TYPES OF CANISTERS USED WITH RESPIRATORS RECOMMENDED FOR RESPIRATORY PROTECTION AGAINST FUMIGANTS.</p> <table border="1"> <thead> <tr> <th><u>Compound</u></th> <th><u>Designation of Canister Type</u></th> <th><u>Remarks</u></th> </tr> </thead> <tbody> <tr> <td>Acrylonitrile</td> <td>OVAG</td> <td>skin penetrant</td> </tr> <tr> <td>Carbon dioxide</td> <td>AG</td> <td>oxygen in atmosphere should r than 16 percent</td> </tr> <tr> <td>Carbon disulphide</td> <td>OV</td> <td>skin penetrant</td> </tr> <tr> <td>Carbon tetrachloride</td> <td>OV</td> <td>skin penetrant</td> </tr> <tr> <td>Chloropicrin</td> <td>OV</td> <td>skin penetrant</td> </tr> <tr> <td>Dichlorvos</td> <td>OV</td> <td>skin penetrant</td> </tr> <tr> <td>Ethylene dibromide</td> <td>OV</td> <td>avoid skin contact</td> </tr> <tr> <td>Ethylene dichloride</td> <td>OV</td> <td></td> </tr> <tr> <td>Ethylene oxide</td> <td>OV</td> <td></td> </tr> <tr> <td>Methyl bromide</td> <td>OV</td> <td>skin penetrant</td> </tr> <tr> <td>Naphthalene</td> <td>OV</td> <td></td> </tr> </tbody> </table>	<u>Compound</u>	<u>Designation of Canister Type</u>	<u>Remarks</u>	Acrylonitrile	OVAG	skin penetrant	Carbon dioxide	AG	oxygen in atmosphere should r than 16 percent	Carbon disulphide	OV	skin penetrant	Carbon tetrachloride	OV	skin penetrant	Chloropicrin	OV	skin penetrant	Dichlorvos	OV	skin penetrant	Ethylene dibromide	OV	avoid skin contact	Ethylene dichloride	OV		Ethylene oxide	OV		Methyl bromide	OV	skin penetrant	Naphthalene	OV		
<u>Compound</u>	<u>Designation of Canister Type</u>	<u>Remarks</u>																																					
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Type	Use	Info			Source
		Trichloroethylene	OV		
		1,1,1 - Trichloroethane (Methyl chloroform)	OV		
		Hydrogen cyanide	AG	absorbed through skin	
		Sulphur dioxide	AG		
		Hydrogen phosphide	PHOV	not to exceed 200 ppm; above this level supplied air to be used	
<p>Notes: AG - Acid gases OV - Organic vapours OVAG - Organic vapours and acid gases PHOV - Phosphine, organic vapours</p> <p>THE CANISTER</p> <p>The canister is that part of the respirator that actually removes the poison from the air breathed in. Therefore its use and limitations must be understood.</p> <p><u>Contents and Capacity</u></p> <p>Industrial types of canisters which are recommended for fumigation work may contain three kinds of materials:</p> <ol style="list-style-type: none"> 1. Activated charcoal to adsorb organic vapours, such as methyl bromide, ethylene dichloride and carbon tetrachloride. 2. Chemicals to react with certain gases; for instance, soda lime, which neutralizes 					

Type	Use	Info	Source
		<p>acid gases such as HEN and sulphur dioxide.</p> <p>3. Cotton or other filters to remove dust.</p> <p>As mentioned above, the manufacturers state on each canister that it is not to be worn in concentrations above 2 percent by volume of the gas in the air. With phosphine, however, the maximum concentration is 200 ppm.</p> <p>At or near this maximum concentration, which is above fumigant concentrations normally used, the canister will not afford protection for more than 10 minutes. When fumigants such as HCN and chloropicrin, which have a distinct smell, are being used, the operator is warned of the exhaustion of the canister by a slight odour characteristic of the fumigant. Methyl bromide has no odour at comparatively low concentrations and the special precautions needed are included in the discussion of this fumigant.</p> <p>The possibility of the revivication of canisters containing the activated charcoal used for organic vapours is discussed at the end of this section.</p> <p><u>Use and Care</u></p> <p>When a canister is new its top and bottom are sealed. Manufacturers stamp an expiry date on the label in order to indicate when the canister must be discarded even if the seals have not been broken.</p> <p>The supply of canisters should be stored in a cool, dry, well-ventilated place away from contamination by any gases. Before use the following precautions should be observed:</p> <ol style="list-style-type: none"> 1. When the canister is attached to the respirator after the top seal is removed, the date should be recorded. This is best done by writing the date on a small linen label, which can be tied to the respirator harness near the canister. This label can be used to record the exposure of the canister to the fumigant. 2. If the canister is not exposed to poison gas after the cork is removed, it may be 	

Type	Use	Info	Source
		<p>retained in the respirator for one year - but not longer - if stored as above.</p> <p>3. Before the respirator can be used, it is necessary that the cap or seal over the air inlet valve of the canister be removed. Again, at this time the date should be marked on the label. Once this seal is removed, even if there is no exposure to fumigant, the canister should be replaced after a lapse of six months.</p> <p>4. After every fumigation operation in which there has been exposure to the gas, the canister should immediately be discarded. When high fumigant concentrations are encountered in the work, application and aeration should be considered as separate operations, and after each, a fresh canister should be put on the respirator.</p> <p>On exposure to lower concentrations, which might be encountered during the aeration or inspection of fumigated structures, the canister should be replaced after two hours, as shown by the label. A wide margin of safety should be allowed in estimating exposure times. Canisters cost little in terms of the health of the individual. If there is any doubt about the exposure life of the canister it should be discarded (see special considerations for methyl bromide in Chapter 6).</p> <p>5. In addition, canisters should be discarded when any of the following conditions prevail:</p> <ul style="list-style-type: none"> - external damage - a severe blow may cause displacement of the contents, permitting contaminated air to pass through to the wearer; - detection of increased resistance to inhalation - excessive moisture uptake by the canister can impede air flow; - if lens fogging occurs and fails to clear on inhalation; - the expiry date is past. <p>6. Immersion of the canister in water renders it useless. Water may enter the canister through the facepiece, so care should be taken that no water enters the</p>	

Type	Use	Info	Source
		<p>hose connexion while the respirator is being cleaned or disinfected.</p> <p>7. When canisters are discarded, all labels on them should be clearly marked with indelible pencil or black wax pencil "Exhausted" or "Used up". They should be destroyed and immediately sent to the refuse dump under conditions which will prevent them from being picked up and used again.</p> <p>FINAL CHECKS ON RESPIRATOR</p> <p>Before any person enters a space where the atmosphere contains a fumigant or undertakes any procedure calling for the use of the respirator, several important points should be checked; these are enumerated below. Also, 8 thorough physical check should be carried out on the proper working of the respirator.</p> <p><u>Important Points to Check</u></p> <ol style="list-style-type: none"> 1. Is the right canister being used? 2. Is the highest expected fumigant concentration within the absorbing capacity of the canister? (As already stated, industrial canisters are designed for use in gas concentrations not exceeding 2 percent by volume in air. In the tables accompanying the more important fumigants, this value is given in terms of g/m³ or oz/1 000 ft³). 3. Is the canister in fresh enough condition to give the protection desired? The answer to this should be provided by the record kept on the tag tied to the canister. 4. Even if proper respiratory protection is being given, is there a possibility of gas absorption through the skin? (This consideration was discussed above. Among fumigants, it applies principally to HCN but is also considered later when the different fumigants are discussed). 5. Is there enough oxygen present in the atmosphere to be entered to support normal respiration? 	

Type	Use	Info	Source
		<p>6. Are there other noxious gases in addition to the fumigants? (The ordinary industrial-type canisters used for fumigants will give no protection against carbon monoxide and illuminating gases).</p> <p><u>Check for Gas Tightness</u></p> <p>After the respirator is put on for actual use with a fumigant, the final check on tightness and proper fit is most important. This is performed as follows:</p> <p>Place the hand lightly over the air intake at the bottom of the canister and take a deep breath. If the respirator is properly adjusted, a strong draught of air will be felt as it enters the canister.</p> <p>If the canister is connected to the facepiece by a hose, pinch the hose off tightly with the hand. If the facepiece is fitting tightly and properly and there are no air leaks, the wearer will not be able to breathe.</p> <p>If there is no hose, place the hand firmly over the canister intake so that no air can enter. If the respirator is fitted properly the wearer will not be able to breathe.</p> <p>REGENERATION OF EXHAUSTED CANISTERS</p> <p>In some countries fresh respirator canisters may be difficult to obtain on account of the problems of supply or foreign exchange. On general principles, as stated above, new canisters should be used for each fumigation job but in an emergency canisters containing activated charcoal only to remove the fumigant from the inspired air may be revived by a regeneration process (Muthu et al, 1964; Maggs and Smith, 1975). If the regeneration process is carefully followed with appropriate testing, it is considered that revived canisters are safe and may be reused for methyl bromide and possibly other fumigants. With the passage of time, however, the activation of charcoal in the canisters may decline and therefore it is again necessary to stress the importance of adequate testing. For information on regeneration procedures and precautions, the reader should refer to Muthu et al (1964) and Maggs and Smith (1975).</p>	

Type	Use	Info	Source
Respirator	Safety precautions and protective devices	<p>3. Safety precautions and protective devices</p> <p>Fumigants are toxic to humans as well as to insects. The claim may occasionally be made by unqualified or irresponsible persons that a certain fumigant is poisonous to insects but harmless to humans. From their very nature as volatile, penetrating and toxic chemicals, all materials used as fumigants can, if not used with proper precautions, poison human beings. Any exposure before, during or after a fumigation treatment can be harmful; hence anyone using fumigants should have some knowledge of their toxic properties and should take every precaution to avoid exposure to them. Nevertheless, if proper care is taken, the work is no more hazardous than any other industrial or domestic technique that uses potentially harmful chemicals.</p> <p>In this chapter some of the hazardous features of toxic gases are discussed together with general precautions for handling them and protective measures and equipment used to avoid hazards and detect their presence. Special precautions or considerations applicable to individual fumigants or fumigation procedures are given in the pertinent sections of this manual (particularly Chapter 6).</p> <p><i>Threshold limits</i></p> <p>When handling and applying fumigants it is essential to know for each fumigant the level of concentration above which it is not safe to subject workers and also the maximum periods of exposure, including repeated exposures during normal working hours. Such concentrations are widely known as threshold limits and are usually, and most usefully, expressed in terms of parts per million by volume in air (see Chapter 2 for discussion of methods of expressing concentrations). These threshold limits are published from time to time by responsible authorities or professional organizations in different countries. A comprehensive list for repeated daily exposure is published periodically in the United States by the American Conference of Government Hygienists and may also be found in journals, for example the Archives of Environmental Health, published bimonthly by the</p>	<p>http://www.fao.org/docrep/x5042e/x5042E05.htm</p>

Type	Use	Info	Source
		<p>American Medical Association.</p> <p>The purpose and useful interpretation of these limits may best be explained by direct quotation from the most recently published list (ACGIH, 1981):</p> <p>"Threshold limit values refer to air-borne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect. Because of wide variation in individual susceptibility, however, a small percentage of workers may experience discomfort with some substances at concentrations at or below the threshold limit; a small percentage may be affected more seriously by aggravation of a pre-existing condition or by development of an occupational illness."</p> <p>Threshold limits are based on the best available information from industrial experience, from experimental human and animal studies and, when possible, from a combination of the three. The limits should be used as guides in the control of health hazards and should not be regarded as fine lines between safe and dangerous concentrations. The pertinent threshold limits set by this American Conference are given in Table 7 along with a summary of odour thresholds for a number of commonly used fumigants.</p> <p>Two categories of threshold limit values are given in the Table:</p> <p><u>Threshold Limit Value-Time Weighted Average (TLV-TWA)</u>, i.e. the timeweighted average concentration for a normal eight-hour work-day or 40-hour work-week, to which nearly all workers may be repeatedly exposed, day after day, without adverse effects.</p> <p><u>Threshold Limit Value-Short Term Exposure Limit (TLV-STEL)</u> - the maximum concentration to which workers can be exposed for a period up to 15 minutes continuously without suffering from irritation, chronic or irreversible tissue change or narcosis of a sufficient degree to increase accident proneness, impair self-rescue, or materially reduce work efficiency, provided that no more than four excursions per day are permitted, with at least 60 minutes between exposure periods, and provided that the daily TLV-TWA also is not exceeded. The STEL should be</p>	

Type	Use	Info	Source										
		<p>considered a maximum allowable concentration, or ceiling, not to be exceeded at any time during the 15minute excursion period. The TWA-STEL should not be used as engineering design criterion or considered as an emergency exposure level.</p> <p>It is important to realize that if any TLV is exceeded, a potential hazard from that substance is presumed to exist.</p> <p>Under some conditions, chloropicrin may be used effectively as a prewarning gas in structures, such as ships, where stowaways may be concealed, or in large buildings that are difficult to inspect completely. The prewarning gas is applied separately between 15 to 30 minutes in advance of the main fumigant. A dosage recommended for chloropicrin as a prewarning gas is 6 g/100m³ (1 oz/15 000 ft³). It may be applied by soaking the required amount in a cotton or glass wool pad in a glass or metal pan placed in front of a circulating fan to hasten evaporation.</p> <p>The corrosive and phytotoxic properties of chloropicrin may be important even with the small amounts used for warning purposes.</p> <p><i>Acute and chronic hazards</i></p> <p>Harmful effects from exposure to a toxic gas may fall into two general categories - acute and chronic.</p> <p>Acute effects can result from a single exposure to high levels of a fumigant, with symptoms generally appearing within a few minutes or hours. The symptoms will vary with different fumigants and different individuals may be affected differently.</p> <p>Table 7. - ESTIMATES OF ODOUR THRESHOLD AND MAXIMUM EXPOSURES BELIEVED SAFE FOR HUMAN SUBJECTS (values given in ppm).</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Approx odour threshold</th> <th colspan="2">TLV</th> </tr> <tr> <th>TWA</th> <th>STEL</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Approx odour threshold	TLV		TWA	STEL					
	Approx odour threshold	TLV											
		TWA	STEL										

Type	Use	Info			Source
		Acrylonitrile(2)	20	(2)	-
		Carbon disulphide	< 1	10	-
		Carbon tetrachloride ³	60-70	5	20
		Chloroform(3)	200	10	50
		Chloropicrin	1-3	0.1	0.3
		Dichlorvos	-	0.1	0.3
		Ethyl formate	-	100	150
		Ethylene dibromide(2)	25	()	-
		Ethylene dichloride	50	10	15
		Ethylene oxide(3)	300-1500	(5)	-
		Hydrogen cyanide	1-5	10	-
		Methyl bromide	none	5	15
		Naphthalene	-	10	15
		Phosphine	< 14	0.3	1
		Sulphuryl fluoride	none	5	10

Type	Use	Info	Source
		<p>1 Data on threshold of odour from different sources often differ considerably because evaluation of smell is subjective and somewhat variable. The data on odour threshold should be regarded only as a guide.</p> <p>2 Listed as human carcinogens by the American Conference of Governmental Industria Hygienists (ACGIH, 1981). Parentheses indicate proposed values.</p> <p>3 Listed as "substances suspect of carcinogenic potential for man" (ACGIH, 1981).</p> <p>4 The odour associated with phosphine appears to be caused by impurities, which can be separated from phosphine under some conditions(Bond and Dumas, 1967; Dumas and Bond, 1974).</p> <p>Chronic or long-term effects may result from an overdose on a single exposure to a toxic gas or from exposure to low levels over a period of time. The effects may not appear until long after exposure and in some cases they may not be easily associated with the poison. It has been demonstrated that certain of the fumigants can produce cancer in test animals under experimental conditions. More detailed information on these and other hazardous properties of individual fumigants are given with each fumigant in Chapter 6.</p> <p>Some fumigants can be absorbed through the skin (including mucous membranes and the eyes) either from the gas or more particularly by direct contact with the substance. When materials are absorbed in this way the threshold limit values given in Table 7, which refer to airborne concentrations of substances, may be invalidated (ACGIH, 1981).</p> <p>General precautions</p> <p>General precautions for the handling and use of all fumigants may be considered under four main headings: preliminary, those taken during application, those taken during the exposure period and post-treatment.</p> <p>PRELIMINARY PRECAUTIONS</p>	

Type	Use	Info	Source
		<p>Under this heading may be listed advance precautions of a more general or permanent nature and also preliminary measures applying specifically to each fumigation job.</p> <p>In any fumigation, large or small, no person should work alone. Because poisonous gases are being used, serious consequences may ensue if a fumigator becomes sick or faint and is unable to finish or control the operation. No matter how small the dosage or the scale of the work, at least one other person should be present in case of emergency.</p> <p>PRECAUTIONS DURING APPLICATION</p> <p>In addition to proper respiratory protection, scrupulous care should be taken to ensure that fumigant formulations or liquids do not come into contact with the skin. If clothing or footwear becomes contaminated, it should be removed immediately and affected areas of the skin washed thoroughly with soap and water.</p> <p>PRECAUTIONS DURING EXPOSURE PERIOD</p> <p>Every precaution should be taken to avoid exposure to escaping fumigant and to prevent unauthorized entry into treated space. Warning signs that indicate the type of fumigant in use and the date of the treatment should be put in appropriate places. They should be removed after the treatment is completed.</p> <p>POST-TREATMENT PRECAUTIONS</p> <p>After adequate aeration of the treated area, gas detection equipment should be used to ascertain that all fumigant has been removed. As the process of desorption can vary greatly with different fumigants, different commodities and different environmental conditions, precautions should be taken to ensure that harmful levels of gas do not subsequently accumulate where personnel could be exposed.</p> <p><i>First aid training</i></p>	

Type	Use	Info	Source
		<p>All members of fumigation crews should be thoroughly trained in basic first aid, with additional emphasis placed on artificial respiration techniques for gas poisoning. Such training is valuable not only for its immediate practical purpose, but also because it serves to emphasize the need for care in all aspects of fumigation.</p> <p>FIRST AID KIT</p> <p>All persons engaged in pest control work should carry with them, or have access to, an adequately provisioned first aid kit. Included in this kit should be pertinent information on the nature of poisoning by fumigants or other pesticides used, together with suggestions for remedies. This information would be especially useful to a physician called in to treat an emergency case.</p> <p><i>Medical supervision</i></p> <p>It is essential that those regularly engaged in fumigation be under proper medical supervision. The physician should be fully informed of the chemicals used and the manner of their application. Regular medical examinations will check the general health of the operators and reveal the appearance of conditions that may require affected personnel to be removed from this type of work either temporarily or permanently.</p> <p>INFORMATION FOR PHYSICIANS</p> <p>It cannot be overemphasized that physicians concerned should be supplied in advance with details of the fumigants used and their toxic effects. The preliminary symptoms of poisoning by toxic gases may be the same as for other common complaints. In addition, occurrences of fumigant poisoning are rare and the average physician is glad to be informed in advance of symptoms and remedies for a condition not ordinarily encountered in common practice.</p> <p>HOSPITAL FACILITIES</p>	

Type	Use	Info	Source
		<p>In cities or areas where public hospital facilities are available, it is usually possible to advise the hospital authorities of the possibility of accidental poisoning by fumigants. The staff of the emergency departments may then make arrangements for suitable antidotes to be on hand.</p> <p>POISON CONTROL CENTRES</p> <p>Poison control centres are being organized in some countries, and in future they will no doubt become increasingly available in all parts of the world. These centres have been created primarily to deal with the alarming increase in the number of accidents, especially among young children, caused by swallowing the many poisonous substances now available to the public. However, their services may be utilized in emergencies arising out of industrial procedures, such as fumigation work. From these centres physicians may obtain current information on the symptoms and treatment of poisoning. These centres may stock antidotes and even give emergency treatments. In providing for proper medical supervision of their work, fumigators should ascertain, either directly or through their own physician, if there is such a contra situated in their own area and, if so, the nature and extent of the service provided.</p> <p>ANTIDOTES</p> <p>If antidotes are recommended as first aid measures for any of the poisons used, they should be purchased and carried in the first aid kit. Even if the antidote may be administered only by a qualified physician, it should be placed in the kit together with any needed accessories, such as sterile hypodermic needles and up-to-date information on the amounts of antidote required, and at what intervals of time. Specific treatments are discussed in detail in Chapter 6. General first aid measures in case of accidents caused by the inhalation or spilling of fumigants are given in Appendix 3.</p>	
Respirator	1. How to Select a Respirator	How to Select a Respirator	http://www.gemplers.com/tech/sresp.htm

Type	Use	Info	Source
		<div> </div> <p>Before you select a respirator, there are some general questions you will need to answer. See the tabs below for important questions you need to ask yourself before choosing a respirator.</p> <p>Additional Resources:</p> <ul style="list-style-type: none"> • Putting on (Donning) Your Respirator • Types of Respirators and Cartridges • Fit Checking Your Respirator • How to Fit Test Your Respirator <p>Are you using pesticides?</p> <p><i>If YES</i>, look on the pesticide warning label to see what respiratory protection is required. (For more information see the "How do I know what type of a respirator to use for spraying pesticides").</p> <p><i>If NO (you are using another type of chemical)</i>, call your local safety supplier for a suggestion on the type of respirator you should be using.</p> <p>Does the substance irritate your skin or eyes?</p> <p><i>If YES</i>, you may choose to wear a full-face respirator.</p> <p><i>If NO</i>, you can use a half-mask respirator.</p> <p>Is the hazard immediately dangerous to life and health (IDLH) or is there a lack of oxygen?</p> <p>(In IDLH atmospheres the concentrations are high enough or the substance is</p>	

Type	Use	Info	Source												
		<p>dangerous enough that exposure could kill you.)</p> <p>If YES, you should avoid entering the area whenever possible. If you must enter, you will need a respirator that supplies breathable air, such as a self-contained breathing apparatus (SCBA) unit, which consists of a portable tank of air; or a supplied air system (with an emergency escape bottle), which supplies air via a pump or an air compressor. (You should also monitor the air to determine the level of contaminants present.)</p>													
Respirator	2. Particulate respirators, filters and pre-filters - What is the difference between a particulate filter and a chemical cartridge?	<p>What is the difference between a particulate filter and a chemical cartridge?</p> <p>Particulate respirators, filters and pre-filters - trap solid and liquid particles such as dusts, mists and fumes. They can be found in the form of a disposable respirator, or in the form of a "pre-filter", which can be used in conjunction with a chemical cartridge. The filters should be changed according to the manufacturer's instructions or when you experience excessive breathing resistance.</p>	http://www.gemplers.com/tech/sresp.htm												
Respirator	3. Chemical cartridges - What is the difference between a particulate filter and a chemical cartridge?	<p>What is the difference between a particulate filter and a chemical cartridge?</p> <p>Chemical cartridges - (Gas and/or Vapor-removing Cartridge-type Respirators) are filled with specially treated activated carbon which will adsorb certain gases and/or vapors. You should change the cartridges when you taste or smell a substance, or your eyes, throat or respiratory system become irritated. It's best to schedule a cartridge "change-out" before you notice that you are being exposed to the contaminant.</p> <table border="1"> <thead> <tr> <th colspan="2">Chemical Cartridge Color Coding</th> </tr> <tr> <th colspan="2"><i>All manufacturers use the same color coding for gas/vapor protection</i></th> </tr> <tr> <th>Color</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>White</td> <td>Acid Gas</td> </tr> <tr> <td>Black</td> <td>Organic Vapors</td> </tr> <tr> <td>Green</td> <td>Ammonia Gas</td> </tr> </tbody> </table>	Chemical Cartridge Color Coding		<i>All manufacturers use the same color coding for gas/vapor protection</i>		Color	Type	White	Acid Gas	Black	Organic Vapors	Green	Ammonia Gas	http://www.gemplers.com/tech/sresp.htm
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(A HEPA is a particulate filter; all others are used for gases and/or vapors.)											
Respirator	3. What are pre-filters and when should you use them?	<p>What are pre-filters and when should you use them? Pre-filters are used with cartridges. While the cartridges adsorb the gas or vapor, the pre-filters trap the dust and mist particulates. Pre-filters work well for activities like pesticide and paint spraying because they trap the liquid particles.</p>	http://www.gemplers.com/tech/sresp.htm								
Respirator	4. How do I choose a particulate (dust/mist/fume) respirator, filter or pre-filter?	<p>How do I choose a particulate (dust/mist/fume) respirator, filter or pre-filter? To choose the appropriate respirator, you will need to review the following 4 questions.</p> <p>A) Which respirator do I choose if I'm working around dusts, mists, fumes or agricultural molds? You can wear an N95 in almost any dust situation. Exceptions: If you are welding a highly toxic metal that requires a HEPA (high efficiency) respirator, you should wear an N100 or a P100. Examples of highly toxic metals are lead and cadmium. OSHA also has certain substances that it has always required a HEPA respirator for, such as asbestos and lead.</p> <p>B) What does 95 and 100 refer to in the N95 and P100 designations for particulate respirators? The numbers refer to the efficiency of the filter. The 95% filters are used for most applications and the nearly 100% efficient filters are used in place of the old HEPA filters for the more toxic particulate situations.</p> <p>C) Are you spraying a pesticide or chemical? <i>If YES</i>, you will need to choose a pre-filter. Is the pesticide or chemical oil-based?</p> <p><i>If NO</i>, you can use a non-oil pre-filter, such as N95.</p> <p><i>If YES</i>, you must use an "Oil Proof or Oil Resistant" pre-filter, such as a P100. The R, P and HE filters can be used for aerosolized oil-based chemicals and pesticides. R</p>	http://www.gemplers.com/tech/sresp.htm								

Type	Use	Info	Source								
		<p>means "Resistant to Oil" and P stands for "Oil Proof." The R filters last up to eight hours when used with oil; the P filters may last longer - follow the manufacturer's recommendations. N filters are "Not Resistant" to oil. If your chemical or pesticide does not contain oil, you may use an N, R, P or HE filter.</p> <p>Note: If you are unsure which particulate filter to choose, the P100 offers the highest level of protection against both oils and non-oils.</p> <table border="1"> <tr> <td>N =</td> <td>Not to be used with oil.</td> </tr> <tr> <td>R =</td> <td>R means "resistant to oils." Can be used for eight hours with chemicals and pesticides that contain oil.</td> </tr> <tr> <td>P =</td> <td>P means "oil proof." Can be used with oil and non-oil hazards; may be able to use longer than eight hours.</td> </tr> <tr> <td>HE =</td> <td>High Efficiency, the filter used on a PAPR (Can be used with oils.) Check with manufacturer's instructions for time restrictions; or change when you notice a decrease in airflow.</td> </tr> </table> <p>D) Which particulate filter do I use if I am using a Powered Air-Purifying Respirator (PAPR), such as Kasco? You will use an HE, or high efficiency filter. The PAPRs use a HEPA filter for particulates, while the half-mask and full-face respirators use the N, R, P filters - i.e.. N95, P100.</p>	N =	Not to be used with oil.	R =	R means "resistant to oils." Can be used for eight hours with chemicals and pesticides that contain oil.	P =	P means "oil proof." Can be used with oil and non-oil hazards; may be able to use longer than eight hours.	HE =	High Efficiency, the filter used on a PAPR (Can be used with oils.) Check with manufacturer's instructions for time restrictions; or change when you notice a decrease in airflow.	
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Respirator	5. How do I know what type of respirator to use for spraying pesticides?	<p>How do I know what type of respirator to use for spraying pesticides? Check your label. OLDER LABELS will list a MSHA/NIOSH TC# (Ex: TC-23C), which refers to the respirator's approval number. NEW LABELS will list a respirator with a NIOSH TC approval # and describe the new NIOSH-approved respirator. For example, it may say: "<i>NIOSH-approved respirator (Ex:TC-23C) with a pre-filter approved for pesticides; or a NIOSH-approved respirator with an organic vapor (OV) cartridge with any N, R, P, HE filter.</i>"</p> <p>A sample label is provided below:</p>	<p>http://www.gemplers.com/tech/sresp.htm</p>								

Type	Use	Info	Source
		<p>Personal Protective Equipment (PPE) Some materials that are chemical-resistant to this product are barrier laminate or viton. For more information, follow instructions in Supplement Three of PR Notice 93-7. If you want more options, follow the instructions for category H on an EPA chemical resistance category selections chart.</p> <p>Loaders, applicators and all other handlers must wear:</p> <ul style="list-style-type: none"> • Coveralls over long-sleeved shirt and long pants • Chemical-resistant gloves • Chemical-resistant footwear plus socks • A NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-2; or a NIOSH-approved respirator with any N, R, P, or HE filter <p>Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washing exist, use detergent and hot water. Keep and wash PPE separately from other laundry.</p> <p>*An HE (high efficiency) filter is used with a PAPR (Powered Air-Purifying Respirator). Check with manufacturer's instructions for time restrictions when used with oil-based pesticides/chemicals that are sprayed. If there are no restrictions, replace the filter when you notice a decrease in the airflow.</p>	
Gas Mask	GP-5 Gas Mask - Civilian Filtering Protective Gas Mask	<p>The GP-5 Gas Mask - Civilian Filtering Protective Gas Mask</p> <p><i>The GP-5 Gas Mask</i></p> <p>Civilian Filtering Protective Gas Mask</p> <p>These are Russian-made high-quality civilian gas masks GP-5, designed to protect from nuclear, biological and chemical (NBC) agents.</p> <p>These protective masks are intended to protect the respiratory organs, face and eyes from the effects of toxic agents, radioactive dust and bacteriological aerosols.</p> <p>Operating conditions: all weather, with ambient temperatures ranging from -40° F to +147° F.</p> <p>THE PROTECTIVE MASKS SPECIFICATION:</p> <ul style="list-style-type: none"> ☐ Breathing resistance of no more than 18 mm H2O ☐ Weighs no more than 2.42 lbs. <p>INTRODUCTION FOR CIVILIAN GAS MASK – GP-5</p>	<p>http://www.getmask.com/id2.html</p>

Type	Use	Info	Source
		<p>The present technical description and the maintenance guide determine GP-5 civil filtering protective mask arrangement and purpose, are the manual on learning and teaching using it as well as establish its maintenance order, storing and eliminating faults.</p> <p>Part I</p> <p style="text-align: center;">TECHNICAL DESCRIPTION</p> <p style="text-align: center;">1. PROTECTIVE MASK PURPOSE</p> <p>1.1. GP-5 filtering protective mask is intended for protecting man's breathing organs, eyes and face against radioactive agents and bacterial (biological) means.</p> <p style="text-align: center;">2. PROTECTIVE MASK SET AND ITS TECHNICAL DATA</p> <p>2.1. GP-5 protective mask set consists of GP-5 anti-gas box, ShM-62Y or ShM-62 face part, a bag and unmissed films box (UF).</p> <p>2.2. UG-5 protective mask should have the following technical parameters:</p> <ul style="list-style-type: none"> a) the collected protective mask weight, kg, not more than – 0.9; b) the anti-gas box (equipped) weight, kg, – 0.25; c) the face part weight ShM-62, kg, – 0.43 ShM-62Y, kg, – 0.40 d) the protective mask size when placed in the bag, – 120x120x270, e) the box sizes – 112, the height with the cup – 80, f) anti-gas box (equipped) resistance to the constant airflow 30 l/min, mm, water column not more than – 19; g) the face part resistance to the constant air flow 30l/min: <ul style="list-style-type: none"> ☐ when breathing in, mm water column, not more ☐ than –2; ☐ when breathing out, mm water column, not more ☐ than – 10; 	

Type	Use	Info	Source
		<p>h) the protective mask resistance to the constant air flow 30l/min;</p> <ul style="list-style-type: none"> ☐ when breathing in, mm water column, not more than – 21; ☐ when breathing out, mm water column, not more than – 10; <p>i) the protective mask should be sealed at extra pressure of 100 mm mercury column – when checked in a water bath during T + 15 sec – the box surface should evolve air bubbles;</p> <p>j) the face part should be sealed at rarefaction of 120 mm water column and should not allow liquid level dropping in either column of the manometer more than 18 mm during a minute.</p> <p>3. PRINCIPLE OF OPERATION AND ARRANGEMENT</p> <p>3.1. The protective mask action principle is based on the fact that the used breathing air is preliminarily purified (filtered) of the poisonous radioactive and bacterial (biological) means in the anti-gas box. For this purpose the anti-gas box is equipped with a special absorber and aerosol-discharging filter.</p> <p>3.2. The anti-gas box has a cylindrical form. There is a threaded neck to connect the box to the protective mask face part and there is a round hole in the box bottom to allow breathed in air access.</p> <p>3.3. The protective mask face part provides the air purified in the anti-gas box to access the breathing organs and protects the eyes and face against poisonous radioactive agents and bacterial (biological) means.</p> <p>3.4. Face part K-62 valve box is intended for the division of the</p>	

Type	Use	Info	Source
		<p>breathed in and out air streams.</p> <p>The breathing in valve and two breathing out valves (the main valve and additional one) are mounted in the valve box.</p> <p>The breathing out valves are the main ones and at the same time the most vulnerable parts of the valve box as their faults such as blocking and freezing results in the outside contaminated air access under the mask space bypassing the anti-gas box.</p> <p>3.5. The bag is intended for keeping and carrying the protective mask. The bag has a shoulder tape (with movable clasps) to wear the protective mask on the shoulder and a tape to fasten the protective mask on the body. Besides the bag has a flat pocket and two bulky pockets. The flat pocket is intended for keeping the boxes with films that do not get misted, the first bulky pocket – for a dressing package, the second one for an individual antichemical package.</p> <p>3-6. <i>The set of unmissed films is intended for the protection of glasses from getting misted.</i></p> <p>PART II</p> <p style="text-align: center;">MAINTENANCE GUIDE</p> <p style="text-align: center;">4. CHOOSING AND PREPARING THE FACE PART</p> <p>4.1. Preparing the protective mask for using begins with determining the size of the face part.</p> <p>4.2. Choosing the face part is done according to the size that is determined by measuring the head on the closed line that goes through the crown, chin and cheeks (fig. 2). The figure is rounded up to 0.5 cm.</p> <p>The result of measuring in cm The helmet-mask size</p> <p style="text-align: center;">Up to 63.0 0</p>	

Type	Use	Info	Source
		<p>63.5 – 65.5 1</p> <p>66.0 – 68.0 2</p> <p>68.5 – 70.5 3</p> <p>71.0 and more 4</p> <p>4.3. The correctly chosen face part should fit closely to the face and exclude the outer air penetration into the breathing organs bypassing the protective box.</p> <p>4.4. Before donning the protective mask when staying in one should clean its outside and inside with a damp cloth or cotton wool and the breathing out valves should be purged.</p> <p>4.5. The face part used by some other person should be disinfected with methylated alcohol or two percent formalin solution.</p> <p style="text-align: center;">5. Checking the protective mask set and its working order</p> <p>5.1. Checking the protective mask set and looking it over and checking its being hermetic as a whole when getting and using it does its working order.</p> <p>5.2. The visual inspection of the protective mask should be done in the following order:</p> <ol style="list-style-type: none"> a) take the protective mask out of the bag; b) check the helmet-mask to be whole, for that purpose stretch it a little and inspect it, the places of found cuts and tears should be marked with an ink pencil or pen; c) check whether the glasses are whole and the fairing and the packing ring are available and in a working order; d) inspect the valve box to be sure that it doesn't have any dents, cuts, corrosion, check the availability and state of the valves (they should not be blocked, corroded or cut), check the availability of the packing rubber ring in the neck of the box; e) Inspect the protective box and check whether it has any cuts, corrosion and whether the neck and the cover are dented. <p>Using protective boxes with dented boxes and dents in the upper</p>	

Type	Use	Info	Source
		<p>part (above the zigzag) and cuts is forbidden;</p> <p>f) inspect the protective mask bag whether it is whole, whether all its parts (loops, buttons, clasps, the shoulder and waist tapes) are available and in a working order;</p> <p>g) Check the availability of the box with unmissed films.</p> <p>5.3. <i>To check the protective mask being in a working order and the size of the face part chosen correctly collect the protective mask according to item 7 of this guide. Don the face part, cover the hole in the bottom of the box with your hand and take a deep breath. If air does not get under the face part (you cannot take a breath), the protective mask is in a working state. If air gets in when the hole in the box is closed (you can take a breath), the protective mask is out of working order and its using is forbidden.</i></p> <p>To find the faults in the protective mask screw the protective box out of the face part and check the availability and correct positioning of the packing rubber ring in the neck of the box.</p> <p>When the fault is eliminated collect the protective mask, don it and check it up again.</p> <p>5.4. <i>If air gets under the face part, when checking it for a second time screw out the protective box, cover the hole of the valve box neck and take a deep breath. If it is impossible to breathe, the face part is chosen correctly and in a working order. If air gets under the face part, it is either out of order or chosen incorrectly.</i></p> <p>To eliminate the fault purge the breathing out valves and again check the face part. If air gets under it should be changed.</p> <p>5.5. After checking the face part it is necessary to check the working order (being hermetic of the protective mask as a whole. To do that put the</p>	

Type	Use	Info	Source
		<p>rubber plug in or cover the hole in the box bottom with your hand and take a deep breath. If air does not get under the face part, the protective mask is hermetic. If air gets there, the protective box is out of order it should be substituted with a new one.</p> <p>5.6. The final inspection of the correct choice of the face part and the protective mask being in a working order is carried out in a special tent under the guidance of specially trained experts.</p> <p>5.7. If it is impossible to eliminate the faults that were found during inspection, it should be substituted. If the protective mask set is not complete, it should be completed or substituted.</p> <p>6. Protective mask collecting and packing</p> <p>6.1. <i>Protective mask collecting should be done in the following order:</i></p> <ol style="list-style-type: none"> a. take the protective box, screw the cup out of the neck and pull the plug out of the box bottom (the cup, the packing and the plug should be put into the bag); b. take the face part and insert unimisty films into the glasses frame; c. Take the face part with your left-hand protective box into your right hand and screw the latter into the neck of the valve box to the stop. <p>6.2. Pack the protective mask into the bag in the following way:</p> <ol style="list-style-type: none"> a) put the face part together, for this purpose take the glasses with one hand and put it alongside with the other hand cover one part of the glasses with it then put the face part across covering the other part of the glasses; b) put the protective mask into the bag with the box downward and the face part upward; c) put the upper part of the bag so that the sidewalks were put inside turn it in the direction of the buttons, button the bag and both pockets. <p>Packing the protective mask in different ways is permissible if the mask is protected and it can quickly be put into operation.</p>	

Type	Use	Info	Source
		<p style="text-align: center;">7. Protecting the glasses against misting</p> <p>7.1. <i>The moisture of the breathed out air can condense on the inner surfaces of the glasses when the protective mask is used.</i> The condensation will be higher if the difference of the surrounding air and the air under the mask is higher. If the temperature of the surrounding air is higher than 0°C, the glasses will be misted, if it is below 0° the glasses may freeze.</p> <p>7.2. To protect the glasses from misting and freezing unmissed films or a special “pencil” can be used. Warming seals are put onto the glass frame of the face part when the temperature is below -10°C.</p> <p>7.3. Unmissed films are inserted into the glass frame with the misting side contacting the glass. Unmissed side is determined by breathing out onto both sides.</p> <p>7.4. To insert the unmissed film into the glasses frame take out the sealing ring, clean the glass with a cloth holding the unmissed film at the brim with the shear directed at the palm, bend it a little and put it into the glasses frame. The inserted unmissed film should be fastened with the ring in such a way that the ring shear be directed to the fairing. Unmissed films may be used several times so after doffing the mask they should be dried without taking them out of the frame and touching them with fingers or any things.</p> <p>7.5. The box with unmissed films should be kept closed to protect the films from moistening. The cover and the box joint should be bound with insulating tape after each opening the box. Opening the box and taking out the unmissed films if not needed is forbidden.</p> <p>7.6. When unmissed films are not available the glasses are lubricated with a special “pencil”. Before lubricating the glasses should be cleaned with a cloth, after that 5-6 “pencil” dashes looking like a net should be put on the surface of the glass, then after breathing out onto the glass the lubricant should be distributed on the glass in a uniform way until the glass is transparent. The unmasking of the glass should be checked by a second</p>	

Type	Use	Info	Source
		<p>breathing out onto the glass. If the glass is misted lubrication is repeated.</p> <p>7.7. Fairings also protect glasses against misting, they allow purging the glasses inner side with the outer air, which has passes through the protective box. Warming sealing are distributed in advance (two per a protective mask) and are put on the face part. To put them on one should turn up the whole brim of the rubber seal to the stop and clean the glass with a cloth then put the seal to the frame of the face part.</p> <p style="text-align: center;">8. Protective mask maintenance rules</p> <p>8.1. <i>The reliability of protecting a man against poisonous and radioactive compounds as well as against bacteriological (biological) means depends on both working order of the protective mask and skillful using it.</i></p> <p>That is why one should learn to put it into the right position in advance.</p> <p>8.2. The protective mask can be in three positions: in a camping position, in a ready position, in a working position.</p> <p>8.3. To put the protective mask in a camping position:</p> <ol style="list-style-type: none"> a) put the bag with protective mask on your shoulder so that it be on your left side and the button be off you; b) adapt the shoulder tape using the clasps so that the upper brim of the bag be on the level of the waist belt; c) unbutton the bag, take out the protective mask, check the reliability of the protective box and the face part juncture, the state of the glasses, valves, clean the dirty glasses with a cloth or cotton wool, substitute non-transparent unmissed films; d) put together the face part and put the protective mask into the bag and button the latter; e) move the protective mask a little back to avoid interference when walking. If necessary the protective mask may be fastened on the body with tape. <p>8.4. <i>The protective mask is put into a ready position from a camping position when there is a threat of a nuclear, chemical or bacteriological (biological) attack. For this</i></p> <ol style="list-style-type: none"> a) move the bag forward to take the protective mask out of it; b) unbutton the bag; 	

Type	Use	Info	Source
		<p>c) prepare to take your cap off to don the face part on the head.</p> <p>8.5. <i>The protective mask put into working position in advance after the command of the senior head or at once after the signal (command) "Gases" and when detecting the enemy's using chemical and bacteriological (biological) weapons or when radioactive compounds precipitate from the nuclear explosion cloud. To do that</i></p> <p>a) keep your breath, close your eyes;</p> <p>b) take off your cap and put it either between your knees or nearby;</p> <p>c) take the protective mask out of the bag, take its thickened brims at the chin part of the helmet-mask with both hands so that the thumbs be on the outer side and the others inside the mask</p> <p>d) put the lower part of the helmet-mask under the chin and with a sharp movement of the hands up and back don it on the head without any wrinkles so that the glasses be in front of the eyes;</p> <p>e) eliminate the warp and the wrinkles if there were any when donning the face part, take a full breath out, open the eyes and start breathing;</p> <p>f) put on your cap, button the bag and fasten it on the body if it were not done before.</p> <p>8.6. <i>Having the protective mask on one should breathe smooth and deep. If there is any difficulty in breathing when one works (the lack of air is felt) the speed of working should be diminished and the breath normalized breathing in deeply and extensively, breathing out quickly and energetically.</i></p> <p>8.7. The protective mask should be doffed at the command "To doff the protective mask". Do it the following way</p> <p>a) put up your cap with one hand;</p> <p>b) take the valve box with one hand;</p> <p>c) pull a little the face part down and with the movement forward and upward take it off;</p> <p>d) put on the cap;</p> <p>e) put the face part inside out and carefully clean its inner surface with a cloth or a handkerchief and dry it;</p>	

Type	Use	Info	Source
		<p>f) put the face part together and put it into the bag;</p> <p>g) put the protective mask into a ready position or a camping position according to the command or the situation.</p> <p>8.8. <i>When using the protective mask in winter, especially when the frosts are strong the rubber of the face part may stiffen, the glasses icing, the breathing in and out valves petals freezing to the saddles, the valve box and protective box neck icing.</i></p> <p>To avoid and eliminate these phenomena one should</p> <p>a) put on warming seals on the glasses frame of the face part;</p> <p>b) when the frost is strong and the air is not infected the face part should be put under the upper clothes to warm the former;</p> <p>c) when the protective mask is on one should warm up the valve box with hands blowing through the breathing out valve with sharp breathing out.</p> <p>When the valve box and the protective box neck are iced the ice should be eliminated whenever it is formed by tapping, splitting off or melting it with a hand.</p> <p>8.9. <i>Whenever overcoming water obstacles swimming in the case of no poisonous, radioactive compounds and bacteriological (biological) means the protective box should be sealed hermetically to avoid water access into it.</i></p> <p>To seal hermetically the hole in the protective box bottom a rubber plug is used and the cup with a protective seal is screwed onto the neck to the stop.</p> <p>Sealing the protective box may be carried out (when the cup is not available) with a waterproof seal made of leather, rubber, plastic film and others), the seal being put into the valve box neck and pressed to its rubber ring by screwing in the protective box.</p> <p>After overcoming the water obstacle all the protective mask components are cleaned, the protective box cup is taken off (or the seal is taken out of the valve box), the plug is taken out of the box bottom and the protective mask is collected again.</p>	

Type	Use	Info	Source
		<p>8.10. The protective mask should be kept in full readiness and measures should be taken to protect it. For this purpose one should</p> <ul style="list-style-type: none"> a) protect the protective mask against blows, pushes and strong shaking; b) carefully treat the breathing out valves, never take them out if unnecessary; c) if the face part is dirty it should be washed with water (preferably warm) with soap and cleaned with a cloth and dried paying a special attention to eliminating the moisture out of the valve box carefully clean the breathing out valves without taking them out of the seats and blow them through with a sharp breathing out; d) in a cold season when taking the protective mask into a building the metal parts should be allowed to mist during 10-15 minutes, then the face part and all the metal parts of the protective mask should be cleaned with a cloth; e) never keep the protective mask in a damp place, never allow water access into the protective box and never keep the protective mask in a damp bag; f) never dry or keep the protective mask near a heated stove or heating pipes and batteries, by the fire; g) when using the protective mask periodically clean the protective mask bag and never keep any strange things in the bag. <p>8.11. <i>When drop-like liquid poisonous compounds get into the protective mask the visually observed ones should be immediately eliminated with a cotton wool, cleaning waste, tow wad and then the poisoned place should be cleaned with the liquid from the individual chemical protective package.</i></p> <p>8.12. When the protective mask is poisoned with radioactive compounds it should be deactivated. The protective mask deactivation should be carried out in the area that is not poisoned. For this it is necessary</p> <ul style="list-style-type: none"> a) to clean the bag with a brush or carefully to shake it out paying attention to avoiding the radioactive dust getting into the breathing organs; b) to clean the outer surfaces of the protective box face part several times with a damp wad. <p>8.13. The protective mask deactivation is carried out with disinfectant solutions.</p>	

Type	Use	Info	Source
		<p style="text-align: center;">9. Faulty protective mask maintenance</p> <p>9.1. <i>If the protective mask is spoilt in the conditions of poisoned air one should be able to use a faulty protective mask, to substitute the protective mask and its components with working ones.</i></p> <p>9.2. If the helmet-mask is cut a little the cut place should be clutched with a hand and pressed to the face with a palm. If there are large pores in the helmet-mask and if the grasses are broken or breathing out valves are spoilt</p> <ol style="list-style-type: none"> a) keep the breath, close the eyes and doff the face part; b) screw the protective box out of the face part; c) take the protective box neck into your mouth, clutch the nose and breathe without opening your eyes. <p>9.3. <i>When the protective box is punctured or has holes or other whole protective box failures, one should cover the hole with a hand and plaster it with something one has at hand (clay, earth, etc.).</i> When it is impossible to restore the box integrity it should be substituted with a new one. To substitute a box in the conditions of poisoned air close the eyes, keep the breath, prepare a new box, screwing out the faulty box screw on a working protective box, take a sharp breathing out and restore breathing and open your eyes.</p> <p>9.4. When substituting a faulty protective mask in the conditions of poisoned air</p> <ol style="list-style-type: none"> a) prepare a working protective mask for quick donning (unbutton the bag, take out the protective mask); b) take off the cap, put it between the knees; c) close your eyes, keep the breath, take off the faulty protective mask; d) don a working protective mask, take a sharp breathing out, restore breathing and open the eyes; e) put the faulty protective mask into the bag that contained the working one. 	

Type	Use	Info	Source
		<p style="text-align: center;">10. Technical maintenance</p> <p><i>10.1. When arriving, storing and delivering from the storehouse the protective masks should be under permanent visual control of the responsible staff who store them and are responsible for their safety.</i></p> <p>10.2. The protective masks should be stored in dry whole boxes that are intended for them.</p> <p>10.3. In the process of storing they are inspected in a random or planned way. The planned visual inspections are subdivided into control and 100% ones. Random visual inspections are carried out when inspecting the warehouses by the representatives or commissions of the supplying departments and according to the permission of the warehouse head when inventory making or the transfer of the authority by those responsible for storing the stock. Control inspections are carried out as a rule in the process of storing and delivering from the storehouse to other storehouses. When completing, decompleting, repacking and reboxing and when it is necessary to dry the articles to carry out the maintenance and checking the number of the articles 100% (per piece) inspection is carried out.</p> <p>10.4. The protective masks are inspected when arriving for the storage, being delivered from the warehouses if more than 6 months passed since the last inspection and in the process of storing at storehouses in the volume of 5% once a year. The inspection of the protective masks is carried out in the following way:</p> <ol style="list-style-type: none"> a) the box is put onto the floor with the cover up, throwing the boxes being forbidden; b) the box is opened carefully in the way to avoid spoiling the contents and the box cover; c) the face parts, bags, protective boxes, boxes with unmisted films are taken out of the boxes one after another after the box is opened, the components being put separately on paper or tarpaulin; 	

Type	Use	Info	Source
		<p>d) the availability and the quality of marking on the cases is checked and its being correspondent to that on the packed stock, the casings quality the lack of rubbish and protruding nails, the package material and the correctness of packing is checked;</p> <p>e) the completeness of the protective masks sets is checked and the entries on the packing sheet are compared with the availability of the protective masks and with the marking on the box. For this purpose all the items are counted and checked one by one and the correspondence of the face parts sizes is checked.</p> <p>10.5. <i>The visual inspection of each protective mask boxes determines: the painting quality, the lack or availability of corrosion, cuts, paint corrosion of the net type paint cuts off, the availability and full screwing the cup on the neck, the availability of the plug on the box bottom.</i> Numerous putting each box upside down the lack of charge moving or its separate grains, a slight noise in the box that may be the reason of faulty articles is determined by hearing. Then the cup is screwed out of the neck and the attention is paid to the state of the threading and the lack of faults on the neck. When the plug is taken out of the hole in the bottom of the box it is checked whether the charge or the catalyst gets out. Casual getting out of some separate charge grains that does not occur after a repeated tapping cannot be the reason for considering the article faulty. The surface and the parts that could be visually inspected are inspected through the neck and the hole in the box bottom.</p> <p>10.6. The visual inspection of each part determines the corrosion on the metal parts, rubber holes and tears as well as changing its color, the availability of the breathing out and breathing in valves, the rubber ring in the valve box neck, the sealing rings for unmisty films, whether the breathing valves petals are deformed, whether the juncture between the valve box and the helmet-mask is strong. For this purpose the checked part of the rubber is stretched twice, the rubber should not tear and after the stretching is stopped it should restore its former state. Such stretching is done in all the places that may be accessed.</p> <p>10.7. The zinc film and passive metal parts on the face parts and the bags without corrosion spoiling is permissible. The face parts with corrosion</p>	

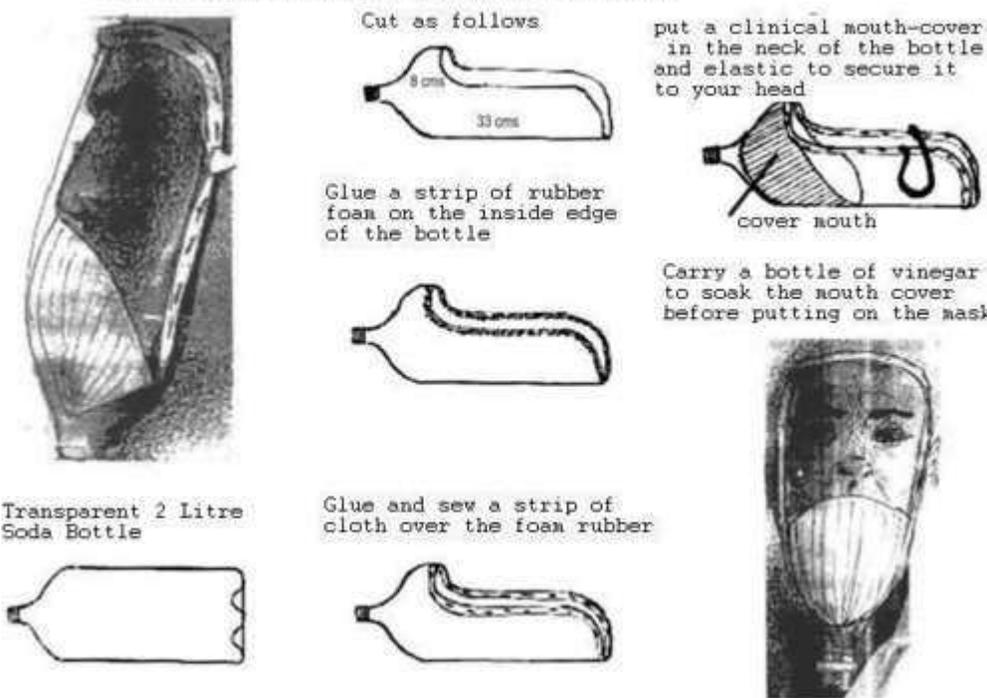
Type	Use	Info	Source
		<p>should be repaired.</p> <p>10.8. The visual inspection of the face parts is carried out at the temperature higher than 6°C. In winter the face parts are warmed before inspecting in a warm building.</p> <p>10.9. The strength of the bags cloth is checked, the availability of buttons, shoulder and body tape, the lack of corrosion on the metal parts and mould on the bags is also checked.</p> <p>10.10. The unmisted films are checked randomly, for this purpose two or three boxes with unmisted films are opened. The opaqueness on the films identifies their being faulty.</p> <p>10.11. The face parts with the main breathing out valves with the guarantee date expiry the valves should be substituted with new ones with checking the face parts using a static method.</p> <p>10.12. The working protective masks are packed into the boxes according to the manufacturer's packing. The opening of the box is marked in the packing sheet the date of opening the box is written, all kinds of work carried out, the position, the surname and the signature of the person checking the protective masks are included. If the boxes were sealed after the inspection and packing of the property they are sealed again with the storehouse seals.</p>	
Gas Mask	1. Gas Masks - Defensive Shield against Bio Terrorism	<p>Gas Masks - Defensive Shield against Bio Terrorism</p> <p>There are countless shops, medical stores and Internet sites that have positioned gas mask for sale. These gas masks are by and large used as a shield to fight bio-terrorism. Before we appreciate the utility of gas mask it is a must to understand what bio terrorism is all about.</p> <p>Bio terrorism came into the picture in the year 2001. The spread of anthrax mail in the U.S in October 2001 introduced a new threat to the world. Today bio terrorism is the deadliest face of terrorism. Around the world medical communities and government are preparing to fight against bio terrorism.</p> <p>Gas masks and antibiotics are the viable solutions to fight such attacks. The benefits of cheap gas masks make them an ideal shield for self-defense.</p>	<p>http://www.iammydefender.com/self-defence-articles/gas-mask-for-sale.php</p>

Type	Use	Info	Source
		<p>History of the gas masks points that Lewis P. Haslett of Louisville, KY invented it in the year 1847. It was designed as a lung protector or Inhaler. The inhaler was designed in manner that allowed breathing through a nose or mouthpiece integrated with two one-way valves. It permitted inhalation of air through a bulb-shaped filter from one and exhaled air from the other valve directly into the atmosphere. The filter material would moistened with water was keeping out dust or other solid particles.</p> <p>This brief history of gas masks went through modifications and updates with time and developed in gas masks to fight bio terrorism.</p> <p>A gas mask essentially protects from harmful substances in air, gas masks and filters curbs breathing of toxic substances and keeps them out from reaching eyes, nose, face and lungs.</p>	
Gas Mask	2a. Types of Gas masks - Half mask air purifying respirators	<p>Half mask air purifying respirators Half mask air purifying respirators are designed to cover mouth and nose but the eyes are left uncovered. The air passes through the filter with less resistance. The lower part of the mask touches the chin. The mask should have an essentially gas tight seal.</p> <p>Benefits of Half mask purifying respirators The half mask air purifying respirators gas mask for sale has several benefits compared to other gas mask and filters available in the market.</p> <ul style="list-style-type: none"> • They are cheap gas masks • Low maintenance • Simple to use • Chin cups are comfortable and hassle free <p>Limitations of Half mask purifying respirators The main limitation of these purifiers is that they do not protect eyes and face. Full-face coverage therefore is not possible by them. These respirators do not supply oxygen therefore they cannot be used at places where oxygen supply is deficient. They are not very effective while exposed to certain chemical and harmful</p>	<p>http://www.iammydefender.com/self-defence-articles/gas-mask-for-sale.php</p>

Type	Use	Info	Source
		atmosphere.	
Gas mask	2b. Types of Gas masks - Full-face respirators	<p>Full-face respirators As the name suggests these respirators cover full face including eyes and face, which half mask respirators do not cover. They provide high safety and protection from chemicals and other hazardous substances.</p> <p>Benefits of Full Face Respirators The main benefits of full mask respirators are listed as:</p> <ul style="list-style-type: none"> • Complete protection of face • Safety is higher than half mask • Protects eyes against mist, vapors and chemicals <p>Limitations of Full Face Respirators Full-face respirators though are high on safety yet they are hazardous to use. Similar to half mask they also don't supply oxygen and therefore cannot be used at places that have deficient oxygen. The weight of the respirators is high and therefore this specific gas mask and children don't get along well. Children's might find it suffocating and rigid to wear.</p>	http://www.iammydefender.com/self-defence-articles/gas-mask-for-sale.php
Gas mask	3. Factors to Consider before Buying Masks or Cheap Gas Masks	<p>Factors to Consider before Buying Masks or Cheap Gas Masks</p> <p>The benefits of cheap gas masks are many. Gas masks are safe and provide protection against harmful substances, elements, particles, dust and chemicals.</p> <p>It is very important to think wisely before you buy a safety gas mask for you and your family. Gas masks today are made of different varieties of materials and filter valves that have their own utility and benefit. Following are the points to ponder before buying gas masks:</p> <ul style="list-style-type: none"> • The mask should be fitted properly and should not be too tight or loose on your face. • It should be easy to wear and remove so that much time is not wasted in just wearing it. 	http://www.iammydefender.com/self-defence-articles/gas-mask-for-sale.php

Type	Use	Info	Source
		<ul style="list-style-type: none"> • It should light weight when considering for children. Gas mask and children both need consideration before buying the mask. • Type of filter cartridge found in the air-purifying respirator. • The amount of pressure the mask could give and how well that can be adjusted. • The safety that it offers from various chemical substances • Full face mask should give you safety and clear eye pieces • Gas mask bag for easy portability and safety of the masks <p>It is very important when you are buying the mask to see that you can use it easily when required. It should have proper fit on your face as even beard can affect the fitness of the mask.</p> <p><u>Advantages of gas masks</u> Gas mask has been extremely useful and beneficial to protect eyes, nose, lungs and face. The main advantages of gas mask are:</p> <ul style="list-style-type: none"> • Acts as a shield for face, eyes and mouth • Safeguards against various hazardous substances like chemicals, toxic fumes and impurities • Help as a mean for self defense in the time of chemical and biological warfare • Protects while wielding jobs and other work that involves risk for face and respiration <p><u>Availability of gas masks</u> Gas masks are a requirement when the risk of bio terrorism is increasing. It can happen any time anywhere therefore gas mask bag becomes a permanent unit when you are on the move.</p> <p>Gas masks are available on sale over the Internet and also available at medical stores or dealers who deals in them. You need to know and understand the type of mask you require and then look for the availability of mask that matches your requirement. At times half facemask are readily available in medical stores but getting full facemask might be little difficult. Various dealers who distribute to</p>	

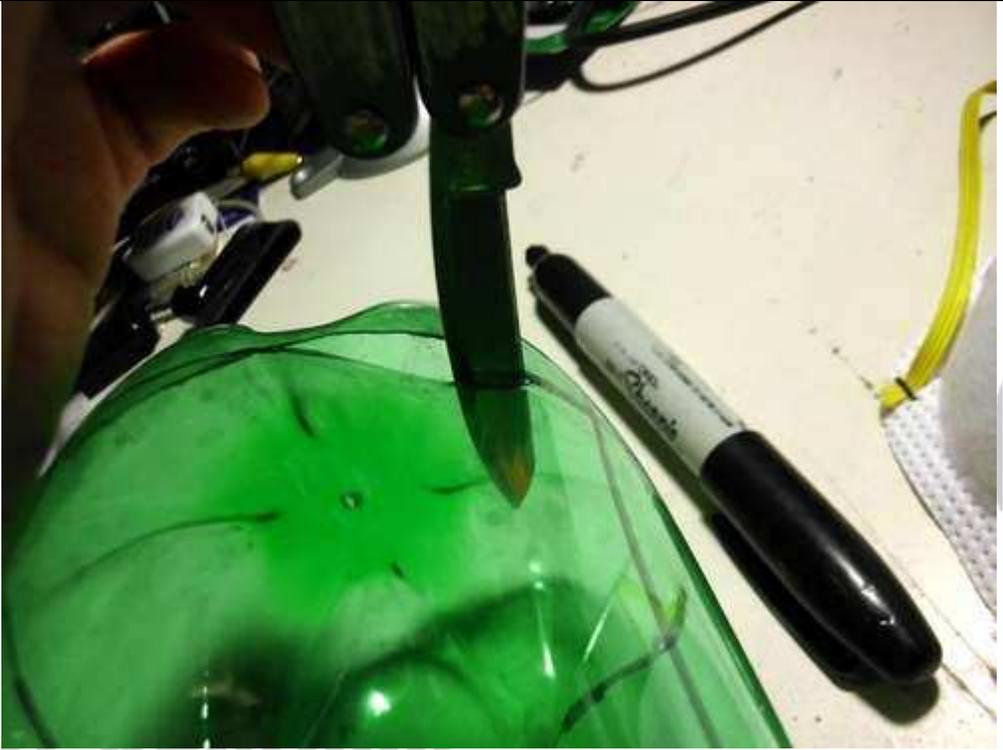
Type	Use	Info	Source
Gas Mask - DIY	A. Gas Mask - DIY	<p>wielding requirements can have full-face mask, or dealers who deal in chemical based products can have them. The benefits of cheap gas masks are that they are low in cost and maintenance and high on performance.</p> <p>DIY Gas Mask</p> <p>Author: frenzy</p> <p>I'm the QA engineer here at instructables. I make cool projects in between testing instructables.com to make sure it works awesomely. Give me your bugs!</p>  <p>With Occupy protests around the country, things are heating up. With disbursement of tear gas an pepper spray by police, how are regular people able to keep safe?</p> <p>Normally, one would by a gas mask, but given cost, bulkiness and being a target when wearing one, this might not be the best option. Based on a pamphlet i saw floating around the internet, you can make your own primitive gas mask out of some stuff you have lying around the house.</p> <p>WARNING: Tear gas is no joke, it burns, hurts and makes you cry for your mommy. Those with respiratory issues should be aware that tear gas can complicate things, leading to injury or even death. Do not use this gas mask tutorial for life threatening situations.</p>	<p>http://www.instructables.com/id/DIY-Gas-Mask/</p>
Gas Mask - DIY	B. Step 1 Idea	<p>Step 1 Idea</p>	<p>http://www.instructables.com/id/DIY-Gas-Mask/</p>

Type	Use	Info	Source
		<p style="text-align: center;">HOW TO MAKE A HOMEMADE TEAR-GAS MASK</p>  <p>Cut as follows</p> <p>put a clinical mouth-cover in the neck of the bottle and elastic to secure it to your head</p> <p>cover mouth</p> <p>Glue a strip of rubber foam on the inside edge of the bottle</p> <p>Carry a bottle of vinegar to soak the mouth cover before putting on the mask</p> <p>Transparent 2 Litre Soda Bottle</p> <p>Glue and sew a strip of cloth over the foam rubber</p> <p>The idea came from this pamphlet that has no author. I figured to make an instructable about it to not only tell others about it but to get constructive feedback from the instructables community. I do not see this idea as a finished product, please give me your input!</p>	
Gas Mask - DIY	C. Step 2 Supplies	<p>Step 2 Supplies</p>	<p>http://www.instructables.com/id/DIY-Gas-Mask/</p>

Type	Use	Info	Source
		 <p>For this project you will need the following:</p> <ul style="list-style-type: none"> - a 2 liter soda bottle - a n95 rated face mask that is good for particulates. Tear gas is a dust, not a gas so this will be perfect - Duct tape (i used gorilla tape) - Stapler 	
Gas Mask - DIY	D. Step 3 Mark and cut	Step 3 Mark and cut	http://www.instructables.com/id/DIY-Gas-Mask/

Type	Use	Info	Source
		 <p>The first step is to mark your bottle and cut it. I used a sharpie to mark the bottom off and the dip the bottle takes to fit to your face. I then took a regular knife and cut the shape out.</p>	

Type	Use	Info	Source
			

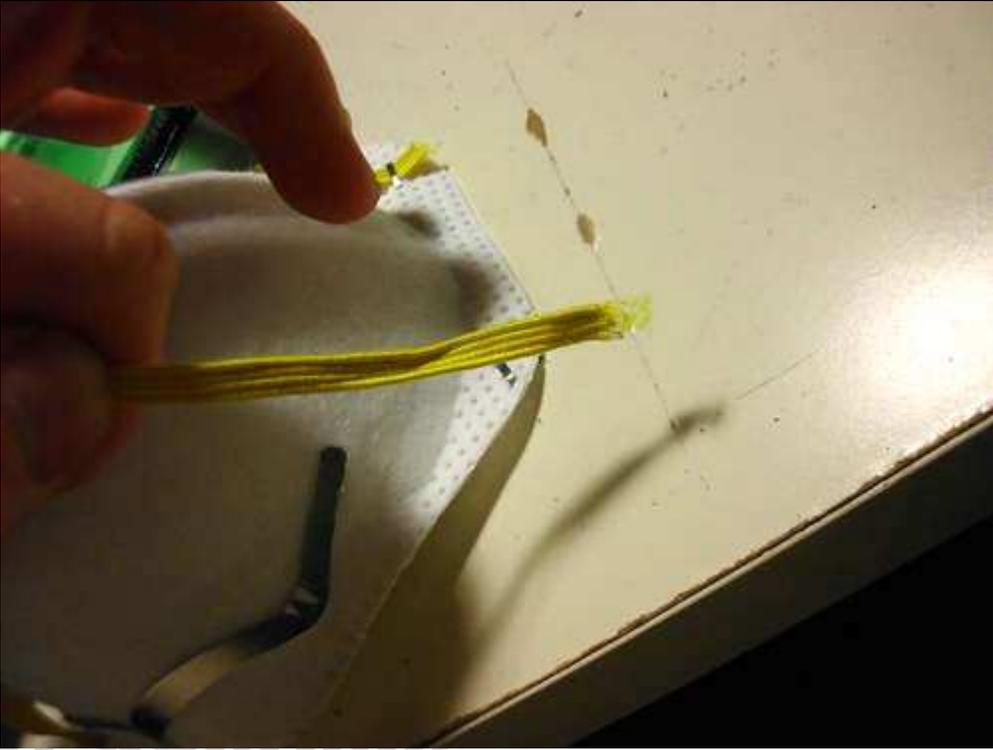
Type	Use	Info	Source
		 A close-up photograph showing a person's hand using a utility knife to cut a clear plastic container. The container is being cut into a shape that resembles a hood or a mask. A black marker is visible on the surface next to the container. The background is a light-colored surface.	

Type	Use	Info	Source
		 <p>The image shows a hand holding a green, funnel-shaped escape hood. The hood is made of a translucent plastic material and has a wide, flared top edge. It is being held in a workshop or hobby room, with various tools, components, and a workbench visible in the background. A pair of pink-rimmed glasses is resting on the workbench next to the hood. The background also shows a metal shelving unit with many small drawers or compartments.</p>	<p>FormerlyNMUrban.com</p> <p>ebly.com</p>

Type	Use	Info	Source
			
Gas Mask - DIY	E. Step 4 Tape the edge	Step 4 Tape the edge	http://www.instructables.com/id/DIY-Gas-Mask/

Type	Use	Info	Source
		 <p>For this to work, you have to create a seal on your face with the bottle. i created this seal with a bit of gorilla tape around the edges. Wrap the tape around the edges until you feel like you'll get a good seal. Check the seal by putting the mask on your face, plugging the spout and breathing in. If you have a seal, the bottle should concave a bit to your face.</p>	
Gas Mask - DIY	F. Step 5 Disassemble the Facemask and put into bottle	Step 5 Disassemble the Facemask and put into bottle	http://www.instructables.com/id/DIY-Gas-Mask/

Type	Use	Info	Source
		 <p>Pull off both of the yellow straps from the facemask (SAVE THEM!) to have a strapless mask. From here you can just stuff it into the bottle.</p>	

Type	Use	Info	Source
			

Type	Use	Info	Source
			<p>ebly.com</p>
Gas Mask - DIY	G. Step 6 Make a hands-free mask	<p>Step 6 Make a hands-free mask</p>	<p>http://www.instructables.com/id/DIY-Gas-Mask/</p>

Type	Use	Info	Source
		 <p>You could stop here if you just wanted something you could hold to your face, but if you want hands-free operation, you can reuse the yellow straps and staple them to the mask.</p>	

Type	Use	Info	Source
			

Type	Use	Info	Source
			
Gas Mask - DIY	H. Step 7 And your mask is done!	Step 7 And your mask is done!	http://www.instructables.com/id/DIY-Gas-Mask/

Type	Use	Info	Source
		 <p>Now you can run around in the tear gas a little easier, just slide the mask over your face, make sure the straps are tight and you're ready to go.</p> <p>If you have improvements or your own builds, please post them in the comments below. Stay safe!</p> <p>For more info about occupy protests going on around you, check out Occupy Together</p> <p>For info about hackers are getting involved in the occupy movement go to Occupy Hack</p>	

Type	Use	Info	Source
			
Gas Masks/Respirato	Advantage of a military issue mask	Gas Masks, Respirators, SCBAs and Escape Hoods	http://www.jesseshunting.com/gas-masks-respirators-scbas-

Type	Use	Info	Source
rs		 <p>One advantage of a military issue mask is the canteen adapter that allows you to drink from your canteen with the mask on. These canteen adapters are only several dollars each.</p>	<p>and-escape-hoods</p>
Gas Masks/Respirators	Air-purifying respirator	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>There are basically 3 types of gas masks or respirators.</p> <p>Air-purifying respirator or gas mask as it is also known, protects the eyes as well as the mouth. A gas mask does NOT contain a supply of oxygen. It removes or neutralizes contaminants from inhaled air and must be used only in areas where there is sufficient oxygen to sustain life. The advantages of the gas mask is they easy to use and the cost is the least. The drawbacks to a gas mask are they can leak around the face seal from a poor fit or from a crack or hole in the mask rubber. You cannot have any facial hair if you want to get a proper seal with a gas mask. Also, children may have trouble getting a proper fit. Breathing resistance in a gas mask is often quite high and in some instances may be too difficult for a child or the elderly to overcome. This can result in a loss of air supply to the child and may place the child at greater risk. There is no gas masks currently on the market that have been designed or approved by the U.S. government for use by children and most gas</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

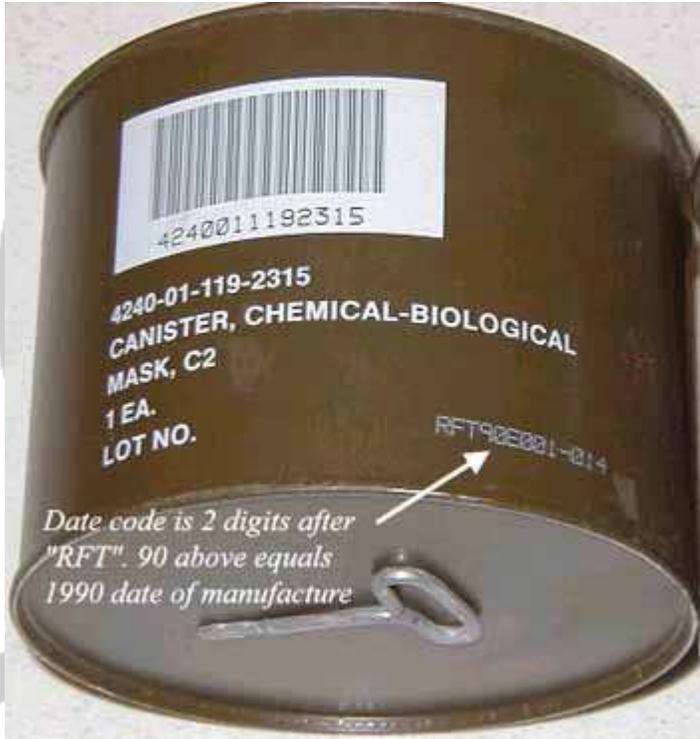
Type	Use	Info	Source
		<p>mask companies do not recommend that gas masks be used by children. The gas masks that are currently on the market are not approved for use on animals. To have a gas mask fit an animal properly to form an airtight seal around the face area, it would have to be specifically designed for that animal. Gas masks are only effective when the hazard in question has been properly identified, the mask is properly fitted and used correctly, and used in areas containing sufficient oxygen to sustain life. ANSI Z88.10 provides guidelines on how to perform a proper fit test. Many chemical and biological agents can enter the body through the skin, so a hood and protective suit, including gloves and shoe coverings would be necessary for protection.</p>	
<p>Gas Masks/Respirators</p>	<p>Air-Tightness Test</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Fitting, Testing and Care of the Gas Mask</p> <p>Air-Tightness Test</p> <p>Perform this test each time the gas mask is put on to ensure a sufficient face-to-facepiece seal is achieved before exposure to a hazardous agent. Perform the test as follows:</p> <ol style="list-style-type: none"> 1. Block off canister inlet using the palm of hand. 2. Inhale gently and hold breath for 10 seconds. If the seal is good, the facepiece will collapse and remain collapsed against face. Remove hand and breathe normally. 3. If the facepiece did not remain collapsed during the test, or any leakage is noticed, readjust straps and test again. 4. If this does not correct the leak, the mask will not provide protection. If the leakage is from the face seal, a different size mask may provide a good seal. If other than face seal leakage is detected, the condition must be corrected before performing another test. <p>ANSI Z88.10 provides guidelines on how to perform a proper fit test.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
Gas Masks/Respirators	Avon S10 NBC Gas Mask	<p>Gas Masks, Respirators, SCBAs and Escape Hoods Avon S10 NBC Gas Mask</p>  <p>The S10 was designed and developed for the British MoD. Its advantages include improved levels of protection, communication, vision, comfort, compatibility and maintainability. In service with the British Armed Forces and numerous other military, paramilitary and police forces worldwide.</p> <p>For protection the S10 has a high-performance integrally molded reflex seal. The facepiece is available in four sizes and has a minimum of molding crevices which improves contamination efficiency. The facepiece is held on the head by a fixed buckle harness arrangement that allows the respirator to be repeatedly donned and removed in seconds. Primary communication is via a horn-type voice transmitter and there is also a secondary speech transmitter for use with communications equipment such as handsets, telephones and microphones. Vision is improved by the use of low profile coated polycarbonate lenses. A facepiece rib ensures a good interface with NBC protective clothing hoods. The drinking device has a double safety valve feature. The filter canister can be worn on either the left or right of the facepiece. The S10 can also be used with remote filtration units.</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>Specifications:</p> <ul style="list-style-type: none"> • Provides excellent protection against penetration by biological or chemical threat agents. • Compatible with a wide range of user equipment including optical sights, weapons, combat clothing, protective head gear and communications equipment. • Wearer comfort ensured by lightweight construction and low breathing resistance. • Scratch and impact resistant eyepieces. • Wide field of vision and good anti-misting characteristics. • Intrinsically safe speech transmitter allows clear direct communication for excellent command and control. • Secondary speech transmitter enables use of communications equipment. • Fail-safe drinking system for use in contaminated environments. • Left and right hand canister option. • 6-point pre-adjusted quick fit harness allows rapid donning. • Highly robust and easy to decontaminate. • Filter Cartridge C2A1. The cartridge is manufactured in accordance with U.S. MIL-C51560(EA) and EA-C-1704 for chemical warfare agents. Tested to military specifications to filter a wide range of certain chemical warfare agents such as nerve agents, tear agents, blood agents, as well as chlorine, phosgene, chloropicrin and diphenylchloroarsine. <p>Best price is - Mask is \$189.99 at Brigade Quartermaster. Note: Please check for current price and availability.</p> <p>Manufacturer Point of Contact - Avon Technical Products. Protection Group. Hampton Park West. Semington Road. Melksham. Wiltshire SN12 6NB. United Kingdom. Tel: +44 1225 896375. Fax: +44 1225 896301. E-mail: protection@avonrubber.co.uk</p>	
Gas	Canadian C4 Gas Mask	Gas Masks, Respirators, SCBAs and Escape Hoods	http://www.jesses hunting.com/

Type	Use	Info	Source
Masks/Respirators		<p style="text-align: center;">Canadian C4 Gas Mask</p> <p>The C4 is a Canadian gas mask. The "true" C4s have black facepieces and were manufactured by SNC Industrial of Quebec province. Their production stopped around 1992 and since 1990 or so there have been C4s manufactured with green facepieces by a different company (I am not sure of the name). Anyhow, the first 30,000 or so of those masks were defective and rejected by the Canadian military.</p> <p>There were several problems plaguing the production run but the most common is the wrong adhesive was used to assemble the voicemitters and valves. This results in the adhesive prematurely drying out and the mask, literally, falling apart. These green-faced masks are on eBay all the time being sold to unsuspecting bidders, and it really gets me upset. I believe that a serviceable, current-production, green-faced C4 is about as difficult to find as anything could be. I know of none, absolutely ZERO, that have been legally released by the Canadian military.</p>  <p>Thanks to D. Toscano for this info.</p>	<p>gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
Gas Masks/Respirators	Care and Maintenance	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Fitting, Testing and Care of the Gas Mask</p> <p>Gas Mask Care and Maintenance</p> <p>Routinely inspect this gas mask for proper operation in anticipation of use in an emergency situation. Replace any components that are found to be defective. Look closely at the mounting thread for the filter and the head straps for excessive wear. If the face lens is badly scratched or yellowed get a replacement lens. You can clean the lens with a soft rag and window cleaner like Windex. To clean the mask, use a soft rag with a mild cleaner and warm water.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Filter For Gas Masks	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Filter For Gas Masks</p> <p>Gas mask filters can use one or more of three different techniques to purify air:</p> <ul style="list-style-type: none"> • Particle filtration - Uses a very fine particulate filter. An anthrax bacteria or spore might have a minimum size of one micron. Most biological particulate filters remove particle sizes as small as 0.3 microns. Any particulate filter eventually clogs, so you have to replace it as breathing becomes difficult. • Chemical absorption or adsorption - Activated charcoal is good at trapping carbon-based impurities ("organic" chemicals), as well as things like chlorine. Activated-charcoal filters will remove certain impurities while ignoring others. Once all of the chemical bonding sites are filled, an activated charcoal filter stops working. At that point you must replace the filter. • Chemical reaction to neutralize a chemical - Activated charcoal can be treated with other chemicals to improve its adsorption abilities for a specific toxin. 	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
<p>Gas Masks/Respirators</p>	<p>FILTERS</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>FILTERS: M13 series: should not be used for NBC protection. C2A1 canister filters: Racal Filter Technologies of Canada manufactures these. The year of manufacture is determined by examining the stamped code on the green can the filters come packed in and is two digits after the letters RFT. Example: RFT94XXXXX was made in 1994, the X is the lot number.</p> <p>If left sealed in the green can under reasonable storage conditions the shelf life should be between 10 and 18 years. Realistically expect 9 to 12 years. C7 canister filters: Same as information for C2A1 filters, also it is rumored that a different chemical mix may give these a slightly longer shelf life.</p> <p>Flodins NBC-37 canister filters: Date of manufacture is stamped on canister itself. Original filters from the factory are in green cans similar to the C2 series, many militaries repackage them with the plug seals in place in clear plastic bags to save weight in transit. Shelf life should be similar to C2A1.</p> 	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
Gas Masks/Respirators	Fitting the Gas Mask	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Fitting, Testing and Care of the Gas Mask</p> <p>Fitting the Gas Mask.</p> <ol style="list-style-type: none"> 1. Loosen harness head straps. 2. Hold facepiece by straps and put chin in first. 3. Pull harness back over head. 4. Tighten lower straps first, by pulling end-tabs straight back, not out. Tighten side straps the same way. 5. Push headband pad towards neck and repeat step 4. <p>If necessary, tighten the top strap(s) for best visibility and fit.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Israeli civilian Issue gas mask	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Israeli Gas Masks.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		 <p>gas mask.</p> <p>Israeli civilian Issue</p> <p>Many if not all Israeli gas masks have been exported from Israel due to their age. Also many of these masks are being sold, innocently I assume, with a PRACTICE filter that is ONLY for tear gas. From what I have read if an Israeli filter has a BLUE string it is a practice filter. Yellow string filters are NBC filters, (nuclear, biological, chemical).</p> <p>These masks are also known to fog up badly, you can't drink from them and your hair gets caught in the head harness when donning the mask.</p> <p>These gas masks are going for about \$40.00 to \$100.00 on Ebay. Just type "Gas mask" or the model number of the mask into the search window. Make sure you</p>	

Type	Use	Info	Source
		<p>use a credit card so you don't get burned. DO NOT send a personal check, cashier's check or money order. I have used PayPal and Bill Point to order items on Ebay and they work good.</p>	
<p>Gas Masks/Respirators</p>	<p>Israeli Military gas mask is the M15</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods Current issue Israeli Military gas mask is the M15</p>  <p>This mask has larger eyepieces better visibility antifog ports on the lens, and a drinking tube to drink while wearing the mask(far superior to the civilian Israeli gas mask). Includes a new Military, NBC rated, sealed filter and drinking tube. One size fits all totally adjustable.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
<p>Gas Masks/Respirators</p>	<p>Links for Gas Masks, Respirators and Smoke Escape Masks</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Links for Gas Masks, Respirators and Smoke Escape Masks.</p> <p>All Safe Industires an MSA, 3M, Draeger and Avon distributor of gas masks. They also carry protective coveralls, gloves, booties and sell as a protective kit with instructions.</p> <p>Aramsco - Sell M95 masks and filters.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>Botach Tactical - Sell M95 gas mask and filters. Also sell other military and law enforcement gear.</p> <p>Brigade Quartermaster military and outdoor gear.</p> <p>Ebay - Just type "gas mask" or the model of the mask you're after into the search window. Make sure you use a credit card so you don't get burned. DO NOT send a personal check, cashier's check or money order. I have used PayPal and Bill Point to order items on Ebay and they work good.</p> <p>EVAC-U8 Smoke Hood - Escape hood for flying or other situations. CPSC recall notice.</p> <p>Lab Safety - Sell the MSA gas masks and other NBC gear.</p> <p>Micronel Safety Products - Gas masks and other NBC gear.</p> <p>Military Field Manuals Free Online - Click on "Enter library", and then select "Field Manual" to see the listing of NBC manuals. You can save these Army field manuals onto your hard drive by clicking the "File "drop down menu in the upper left of your browser window, then click "Save as". Then under "Save as", click and select .mht (web archive file). Also type in the folder you want to save the info to.</p> <p>Ranger Joe's - Gas masks for sale.</p> <p>U.S. Cavalry - Sell MSA Advantage 1000 gas masks and chemical/smoke incident escape masks/hoods.</p> <p>U.S. Military Gas Mask Facts</p>	
Gas Masks/Respirators	M17 and M17A1 US Military Issue Gas Mask (Obsolete)	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>M17 and M17A1 US Military Issue Gas Mask (Obsolete)</p> <p>M17 and early M17A1s: obsolete and potentially unsafe due to parts failure and deterioration. Potentially useful filtering dusts. Post-1978 M17A1s and M17A2: Potential use only with fresh filters against riot agents and dusts. Not safe for NBC protection. This is the old Vietnam era military issue gas mask</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
			
<p>Gas Masks/Respirators</p>	<p>M40 and M40A1 Chemical–Biological Mask (U.S. Military Issue)</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>M40 and M40A1 Chemical–Biological Mask (U.S. Military Issue)</p> <p>Mask, Chemical–Biological: Field, M40. The M40 Chemical–Biological Field Mask series represents the latest generation of protective mask to be issued to the U.S. military. The inner layer of the facepiece is composed of molded silicone rubber that fits tightly against the face, and has an inturred peripheral seal, which increases comfort and fit. The mask’s two ridged eyelenses are approximately 35% larger than the type used in the older M17A2, thus providing a better field of view. Filtration is provided in the M40 mask by one C2A1 filter canister, which, at the user’s convenience, can be mounted on either cheek.</p> <p>Original M40 (late 1980s-early 1990s) has silicone facepiece prone to HD penetration. This does not disqualify the mask from use but a "second skin" hood should always be in place. M40A1 is an excellent mask with no major concerns at this time.</p> <p>Two canisters may be mounted on both cheeks for special purpose activities such as explosive ordnance disposal or technical escort. The standard C2A1 canister will protect against 16 attacks of nerve and vesicant agents. Any other standard thread</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>(40mm), canister issued by North Atlantic Treaty Organization (NATO) countries will fit the M40 mask.</p> <p>Communication is provided by two voicemitters. One is mounted in the front to allow face-to-face communication; the second is located in the cheek to permit the use of a radio telephone handset. A drinking system consists of internal and external drink tubes; the external tube has a quick-disconnect coupling that connects with the M1 canteen cap. A six-point, adjustable harness with elastic straps located at the forehead, temples, and cheeks comes together at a rectangular head pad.</p> <p>The M40 mask comes in three sizes: small, medium, and large. Optical inserts are provided for vision correction and outserts are available to reduce fogging and sun glare and to protect against scratching. A check valve on the nosecup prevents exhaled air from fogging the lenses inside, and an air deflector directs inhaled air over the lenses, which also helps prevent fogging. Accessory items available include a carrier, a hood to protect the neck areas, and a waterproof bag.</p> <p>These gas masks are going for about \$150.00 to \$200.00 on Ebay. Just type "Gas mask" or the model number of the mask into the search window. Make sure you use a credit card so you don't get burned. DO NOT send a personal check, cashier's check or money order. I have used PayPal and Bill Point to order items on Ebay and they work good.</p>	

Type	Use	Info	Source
			
<p>Gas Masks/Respirators</p>	<p>M40 series Masks Identifying</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Identifying M40 series Masks. Thanks to D. Toscano for these tips.</p> <p>Information is taken from personal experience as well as US Army TM 2-4240-300-20&P. This guide only covers characteristics to check to verify the identity of a mask. Some eBay sellers try to sell old M40s as "M40A1" models when in fact they are not the same mask at all.</p> <p>HOODS:</p> <p>M40 is issued with a hood with integral black butyl rubber "second skin" facepiece and hook-and-loop retention fasteners below the "nose" area of the mask. M40A1</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>series issued with Quick Doff Hood, characterized by elasticized round facepiece opening without integral "second skin." Has quick-release tabs on the underarm straps.</p> <p>"SECOND SKINS":</p> <p>M40 second skin is integral to hood as mentioned above. M40A1 has close-fitting second skin without hook-and-loop fasteners, not integral to hood. Has small rubber tabs to help hold it onto the mask's facepiece. USMC M40A1 variation is same except has hook-and-loop fasteners below "nose" area of mask.</p> <p>NOSECUPS:</p> <p>M40 has black rubber nosecup. M40A1 has improved green rubber nosecup.</p>	
<p>Gas Masks/Respirators</p>	<p>M42 Field Mask, Chemical–Biological</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Mask, Chemical–Biological: Field, M42</p> <p>The M42 Chemical–Biological Field Mask is the same series as the M40. The materials of construction and the basic features are identical, but the M42 protective mask is used by combat vehicle crews. Filtration is provided by a C2A1 canister attached to the mask by a corrugated hose; the canister is housed in a specially designed canister carrier. The M42 integrates with the combat vehicle filtration protection system. The M42 also has a dynamic microphone that integrates with the combat vehicle via a microphone cable.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
Gas Masks/Respirators	Micronel Safety M95 Gas Mask	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Micronel Safety M95 Gas Mask</p> <p>The Micronel M95 is considered one of, if not the best gas mask available.</p> <p>The M95 respirator embodies the highest levels of efficiency and comfort in model NBC protection. Experience coupled with the latest innovations in respiratory protection created a product that far exceeds the requirements of international standards. The advantages of advanced computer-aided design have been used in the development of the M95 to produce a high-quality product of outstanding anatomical accuracy. The normal protection factor is >10,000. The M95 gas mask is designed for easy maintenance, which in turn ensures reliable performance.</p> <p>Manufacturer point of Contact - Micronel Safety Products</p> 	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - Accessories	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>M95 Accessories:</p> <p>MTC-1 FILTER- This is an upgrade from the standard M95 Filter that comes with the mask. The M95 is an excellent filter and will save your life. However, the MTC-1 is a bit better for its break-thru time. (The time it takes particles to leak thru filter over time) This is the best filter available on the planet. \$33.00.</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>SPECTACLE KIT (Allows user to mount prescription lenses securely inside mask) \$15.00.</p> <p>DRINKING BOTTLE: Specially designed canteen type bottle that fits into masks drinking device. \$20.00.</p> <p>Best price is - \$230.00 each w/1 filter. NBC Filter \$21.00 each at Botach Tactical.</p> <p>Note: Please check for current price and availability.</p>	
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - High-Quality Materials for Maximum Protection	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>High-Quality Materials for Maximum Protection Halo-butyl rubber used for the facepiece is specially engineered to enhance resistance to all known chemical and biological warfare agents. Silicone inner mask provides comfortable fit against the skin, and all materials are tested to withstand demanding field operations. Elastic head-harness is resistant to chemicals and aging. The filter canister is made from reinforced polyamide for high impact resistance, and it has excellent fire retardant properties with long storage life</p>	http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - Practical Design and Construction	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Practical Design and Construction. Excellent fit and user comfort are the result of computer-aided design (CAD). Anatomical accuracy of the design is based on a wealth of facial-form data. The facepiece has filter connections on both sides in order to facilitate left or right handed operation. Spectacle frames for prescription lenses and a hoseless, leakproof drinking device (intake of liquid 250ml/min.) are just some of the special features.</p>	http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - Technical Data For M95 Filter	Gas Masks, Respirators, SCBAs and Escape Hoods	http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods

Type	Use	Info	Source
		<p>Technical Data For M95 Filter:</p> <p>Height - 90 mm Diameter - 109 mm Weight - 250 g Thread - EN148 (40mm)</p>	
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - Technical Data For M95 Gas Mask	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>Technical Data For M95 Gas Mask:</p> <p>Materials - Polyamide Face piece - Halo-butyl rubber Inner mask - Silicone Lenses - Polyamide Plastic parts - Durable thermoplastics Weight with filter - 700 grams Protection factor - 10 000</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - The Safety NBC Filter Protection	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>The Safety NBC Filter Protection</p> <p>Chemical and biological warfare agents such as saran and other nerve gases, mustard gas, cyanogen, arsine, phosgene. Radioactive and highly toxic particles and aerosols, bacteria and viruses. Many industrial gases, organic gases and vapors, inorganic gases and vapors (e.g. chlorine, hydrogen cyanide, hydrogen sulfide, organic and inorganic acids, such as formic acid, sulfur dioxide, hydrogen fluoride and hydrogen chloride).</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Micronel Safety M95 Gas Mask - Wearer	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
rs	Acceptability	<p>Wearer Acceptability</p> <p>Due to extremely low breathing resistance, the M95 mask and filter are comfortable to wear even for long periods, without effecting user performance. Light in weight, the mask weighs less than 500g, 720g with filter. Small inner mask reduces dead-space to a minimum (CO2 content of the M95 mask is 0.7%). The respirator is easy to don and doff (donning test: 10 seconds). The stretch properties of the polyester/Lycra head-harness enhance wearer comfort, particularly over long periods. Extremely wide field of vision (even downwards), due to the close-fitting design of the mask.</p>	<p>and-escape-hoods</p>

Type	Use	Info	Source
Gas Masks/Respirators	MSA Advantage 1000 CBA/RCA MASK	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">MSA Gas Masks</p> <p>Advantage 1000 CBA/RCA MASK</p> <p>These masks are effective against a variety of chemical warfare and biological agents. They're made of super-soft Hycar™ rubber for superior comfort. A fully elastic, six-point head harness adjusts easily for the correct fit--easy to put on and take off without pulling hair.</p> <p>Specifications:</p> <ul style="list-style-type: none"> • Masks are effective against biological and chemical warfare agents including Tabun, Sarin, Soman, VX, Mustard and Lewisite. • Both masks are NIOSH-approved (TG-14G-194) for protection from chloroacetophenone (CN), chlorobenzylidene (CS), P100 particulate efficiency level for particulates. Effective against OC, dusts, mists, and fumes having a TWA -0.05 mg/m3 and MSHA certification. Click here for filter test performance results. • No. 67692 has a flexible urethane lens that allows an improved field of vision, a noseclip to help protect against lens fogging and a mechanical speaking diaphragm. • Canister mount on either side allows weapon sighting from either shoulder. • No. 67693 has a polyurethane lens and a drinking tube for safe fluid ingestion. • An internal noseclip with two check valves deflects air away from the eyepiece to eliminate fogging. • A mechanical speaking diaphragm and dual-canister mount complete the 	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>face piece. Cartridges (Nos. 67694 and 67802) to fit each mask are sold separately.</p> <ul style="list-style-type: none"> • Cartridges (Nos. 67694 and 67802) to fit each mask are sold separately. The HEPA filter, in contrast to the C2A1 canister, is a true P100 filter, and is effective against the same biological agents and radiological particulates that the MCU-2A/P C2A1 canisters protect against. • Fully elastic, 6 point head harness promotes easy on-off, easy adjustment and no hair pulling. • Made in the USA. • Sizes: S, M, L. • Wt: 1.1 lb. Weighs up to 40% less than conventional full-face respirators. • Not for use in air of less than 19% oxygen. <p>Notes - The MSA Advantage 1000 Chem/Bio gas mask is the same military mask (MCU-2/P) that was used by our troops in the Desert Storm war. MSA was founded in 1914 and have been supplying gas masks to the U.S. military and other customers since World War I.</p> <p>Best price is - Mask is \$169.99, NBC filter \$44.99 each at Ranger Joe's. Mask is \$189.99, NBC filter is \$49.99 at U.S. Cavalry. Mask is \$199.99 at Brigade Quartermaster. Mask is \$201.15 at Lab Safety. Note: Please check for current price and availability.</p>	
Gas Masks/Respirators	MSA MCU-2/P Chemical–Biological Mask (USAF Military Issue)	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">-2/P Chemical–Biological Mask (USAF Military Issue)</p> <p>The MCU-2/P Chemical–Biological Mask is used by U.S. Air Force ground crews and aircrews when not in flight. This protective mask is constructed of molded silicone rubber facepiece material, and an integral, molded, polyurethane, one-piece panoramic lens is bonded to it. Filtration is provided by one C2A1 canister mounted on either side of the facepiece. The primary voicemitter is located over the mouth</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>area with a secondary voicemitter in the cheek area to utilize telephone handsets.</p> <p>The mask incorporates a drinking tube, which connects to the M1 canteen cap. The mask has a six-point, adjustable head harness suspension made of elastic, which comes together in the center head back into a rectangular patch of woven material. The mask comes in three sizes: small, medium, and large. Accessories include a carrier bag, a butyl-coated nylon cloth hood, outserts to protect the lens in storage, and a waterproof bag.</p> <p>Carry case for the MCU-2/P. Gas mask should be kept outside of bag unless threat is imminent; over time and changing weather visor may develop cracks or warp if kept compressed in bag.</p> <p>The filters for the MCU-2/P and the M40 military gas mask are called C2A1 filters. See pic below. SEALED NATO U.S. Military C2A1 NBC (Nuclear, Biological, Chemical) canister filters. All of these filters are sealed INSIDE of VACUUM AIR SEALED METAL CANS. These filters are standard NATO filters (meaning they have a 40mm thread), and will FIT JUST ABOUT ALL CURRENT MASKS, including the ISRAELI CIVILIAN MASK, ISRAELI ARMY M15 mask, CANADIAN M69/C3/C4 masks, U.S. ARMY M40/M42 masks, U.S. AIR FORCE MCU-2A/P mask, RUSSIAN M41 and GP5 masks, BRITISH S10 mask, and any other current mask that uses standard 40mm NATO canister filters.</p> <p>Prices right now are about \$25.00 to \$35.00 USD on Ebay for one C2A1 filter. These filters are good for 6 to 8 hours in an attack, so you'll need several. Try and get the carry case as part of you gas mask deal/purchase. Most of the C2A1 filters selling on Ebay are past their shelf life or very near it.</p> <p>You can buy fresh new NBC M95 filters, which fit the MCU-2/P mask, at Botach Tactical for \$21.00 each.</p> <p>MCU-2/P gas masks are going for about \$150 to \$200.00 on Ebay. Just type "Gas mask" or the model number of the mask into the search window. Make sure you use a credit card so you don't get burned. DO NOT send a personal check, cashier's check or money order. I have used PayPal and Bill Point to order items on Ebay and</p>	

Type	Use	Info	Source
		they work good.	
Gas Masks/Respirators	MSA Millennium Chem-Bio Mask	 <p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>MSA Millennium Chem-Bio Mask</p>	<p>http://www.jessehunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>

Type	Use	Info	Source
		<p>These masks are effective against a variety of chemical warfare and biological agents. They're made of super-soft Hycar™ rubber for superior comfort. A fully elastic, six-point head harness adjusts easily for the correct fit--easy to put on and take off without pulling hair.</p> <p>Specifications:</p> <ul style="list-style-type: none"> • Masks are effective against biological and chemical warfare agents including Tabun, Sarin, Soman, VX, Mustard and Lewisite. • Both masks are NIOSH-approved (TG-14G-194) for protection from chloroacetophenone (CN), chlorobenzylidene (CS), P100 particulate efficiency level for particulates. Effective against OC, dusts, mists, and fumes having a TWA -0.05 mg/m³ and MSHA certification. Click here for filter test performance results. • No. 67692 has a flexible urethane lens that allows an improved field of vision, a nose cup to help protect against lens fogging and a mechanical speaking diaphragm. • Canister mount on either side allows weapon sighting from either shoulder. • No. 67693 has a polyurethane lens and a drinking tube for safe fluid ingestion. • An internal nose cup with two check valves deflects air away from the eyepiece to eliminate fogging. • A mechanical speaking diaphragm and dual-canister mount complete the face piece. • Fully elastic, 6 point head harness promotes easy on-off, easy adjustment and no hair pulling. • Cartridges (Nos. 67694 and 67802) to fit each mask are sold separately. The Millennium Respirator CBA/RCA canisters contain the same sorbent material as the MCU-2A/P C2A1 canisters, but they are smaller - designed for continuous 8-hour use instead of 24-hour use. It is NIOSH approved for riot control gas (chloroacetophenone (CN) and chlorobenzylidene (CS)), but currently cannot be approved for nerve and blister agents because NIOSH has no certification test for the other CBR agents. The HEPA filter, in contrast to the C2A1 canister, is a true P100 filter, and is effective against 	

Type	Use	Info	Source
		<p>the same biological agents and radiological particulates that the MCU-2A/P C2A1 canisters protect against.</p> <ul style="list-style-type: none"> • Made in the USA. • Sizes: S, M, L. • Weighs up to 40% less than conventional full-face respirators. <p>Notes - The MSA Millennium Chem/Bio gas mask is the same military mask (MCU-2/P) that was used by our troops in the Desert Storm war. MSA was founded in 1914 and have been supplying gas masks to the U.S. military and other customers since World War I.</p> <p>Best price is - \$266.00 at Botach Tactical. \$333.15 at Lab Safety. Note: Please check for current price and availability.</p> <p>Manufacturer point of Contact - MSA</p>	
Gas Masks/Respirators	SCBA (self-contained breathing apparatus) system	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>There are basically 3 types of gas masks or respirators.</p> <p>SCBA (self-contained breathing apparatus) system. This is the tank you see firemen or SCUBA divers wear on their back. The tank provides constant positive pressure to the face mask. An SCBA provides the best protection but they are very heavy to wear and only hold 30 to 60 minutes of air, and you must have a way to refill these tanks. This system is very expensive and not really a good choice for home defense.</p>	http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods
Gas Masks/Respirators	Supplied-air respirator	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p>There are basically 3 types of gas masks or respirators.</p> <p>Supplied-air respirator. Uses the same sort of filter cartridge found in an air-purifying respirator above . However, instead of placing the filter directly on the</p>	http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods

Type	Use	Info	Source
		<p>mask and requiring the user's lungs to suck air through it, the filter attaches to a battery-operated canister. The canister uses a fan to force air through the filter, and then the purified air runs through a hose to the mask. The advantage is that the air coming into the mask has positive pressure. Any leak in the mask causes purified air from the canister to escape, rather than allowing contaminated air from the environment to enter. Obviously, positive pressure creates a much safer system, but it has two disadvantages. If the batteries die, so do you. The constant air flow through the filter means that the filter does not last as long.</p>	
<p>Gas Masks/Respirators</p>	<p>Using</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Using Your Gas Mask Or Respirator</p> <p>The user should become familiar with the operation of their gas mask and ensure that it fits properly before use in an actual warfare agent encounter. Don't wait until you really need the mask to learn how to use it, you won't have the time.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
<p>Gas Masks/Respirators</p>	<p>Using - When To Change The Filter</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p> <p style="text-align: center;">Using Your Gas Mask Or Respirator</p> <p>When To Change The Filter.</p> <p>The filter canister should be replaced after each use. During use, the length of time the chemicals in the canister will give protection depends both on the concentration of the agent and the rate of breathing. When the mask is properly adjusted, detection of agents having warning properties such as odor, taste, or eye, nose or throat irritation is an indicator that the canister is exhausted and must be replaced. Excessive resistance to inhalation is also an indicator that the canister must be replaced.</p>	<p>http://www.jesseshunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
<p>Gas</p>	<p>Using - When To Put</p>	<p>Gas Masks, Respirators, SCBAs and Escape Hoods</p>	<p>http://www.jesseshunting.com/</p>

Type	Use	Info	Source
Masks/Respirators	The Mask On	<p style="text-align: center;">Using Your Gas Mask Or Respirator</p> <p>When To Put The Mask On.</p> <p>Put on your gas mask and protective clothing at first indication of the presence of a warfare agent. Follow warnings of local authorities, as the presence of a warfare agent may not be detectable by sight or smell. Follow directions of local authorities regarding where to go to seek shelter. Absent these directions, seek a secure place indoors and away from contaminated areas.</p>	<p>gas-masks-respirators-scbas-and-escape-hoods</p>
Gas Masks/Respirators	Using - When To Take The Mask Off	<p style="text-align: center;">Using Your Gas Mask Or Respirator</p> <p>When To Take The Mask Off.</p> <p>Do NOT remove gas mask or protective clothing in contaminated area. As instructed by local authorities (after agent dissipates or when safely away from contaminated area), decontaminate mask and clothing. Remove mask and clothing only after proper decontamination as instructed by local authorities.</p>	<p>http://www.jesses hunting.com/gas-masks-respirators-scbas-and-escape-hoods</p>
Respirator	1. Introduction - Respirator Specifics: Selection, Types and Use	<p>Respirator Specifics: Selection, Types and Use</p> <p>Document Number: 275</p> <p>Introduction</p> <p>Respirators are among the most important pieces of protective equipment for working in hazardous environments. Selecting the right respirator requires an assessment of all the workplace operations, processes or environment that may create a respiratory hazard. The identity of the hazard and its airborne concentrations need to be determined before choosing a respirator. This</p>	<p>http://www.labsafety.com/refinfo/ezfacts/ezf275.htm</p>

Type	Use	Info	Source
		<p>assessment should be done by experienced safety personnel or by an industrial hygienist.</p> <p>Several agencies are responsible for researching and establishing contaminant exposure limit levels for hazardous substances. The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of safety professionals that develops and reviews exposure limit values. ACGIH results are based on animal, human and industrial studies. The National Institute for Occupational Safety and Health (NIOSH) is a federal agency that conducts research on safety and health concerns. NIOSH is responsible for developing and revising recommended exposure limits for hazardous substances. The recommendations are then transmitted to the Occupational Safety and Health Administration (OSHA), a federal agency in the Department of Labor which has safety, regulatory and enforcement authority over most industry and business.</p>	
Respirator	2. Respirator Types - Respirator Specifics: Selection, Types and Use	<p>Respirator Types</p> <p>Once a workplace assessment has been completed and engineering controls have been ruled out, the respirator selection process can begin. There are several different respirators for various hazard situations. The respirator you choose should provide protection against the hazard for which it was designed, in addition to being NIOSH approved.</p>	http://www.labsafety.com/refinfo/ezfacts/ezf275.htm
Respirator	2a. Air-purifying respirators	<p>Air-purifying respirators can be either filtering facepiece, full-face or half masks with mechanical or chemical cartridges to filter dusts, mists, fumes, vapors or gases. They are available in three types: disposable, reusable, and disposable/reusable.</p> <p>Filtering facepiece respirators are meant to be disposable, one time use devices. These are used to filter out particulate matter only.</p> <p>Disposable air-purifying respirators are intended to be used once or until the cartridge expires. The cartridges are permanently attached and have no replacement parts.</p>	http://www.labsafety.com/refinfo/ezfacts/ezf275.htm

Type	Use	Info	Source
		<p>Reusable air-purifying respirators use both replaceable cartridges and parts. <i>NOTE: The replaceable cartridges and parts must be from the same manufacturer to retain a NIOSH approval.</i></p> <p>Disposable/reusable air-purifying respirators have few or no replaceable parts except cartridges.</p> <p>Gas masks are designed for slightly higher concentrations of organic vapors, gases, dusts, mists and fumes. The volume of sorbent used as the medium is higher than a chemical cartridge.</p> <p>Powered air-purifying respirators use a blower to pass the contaminated air through a filter. The purified air is then delivered into a mask or hood. They filter dusts, mists, fumes, vapors and gases, just like ordinary air-purifying respirators.</p> <p>Air-purifying respirators cannot be used in oxygen-deficient atmospheres, which can result when another gas displaces the oxygen or consumption of oxygen by a chemical reaction occurs. Oxygen levels below 19.5% require either a source of supplied air or supplied-air respirator protection. Levels below 16% are considered to be unsafe and could cause death.</p>	
Respirator	2b. Supplied-air respirators	<p>Supplied-air respirators provide the highest level of protection against highly toxic and unknown materials. Supplied air refers to self-contained breathing apparatuses (SCBAs) and air-line respirators. SCBAs have a limited air supply that is carried by the user, allowing for good mobility and fewer restrictions than air-line respirators.</p> <p>Air-line respirators have an air hose that is connected to a fresh air supply from a central source. The source can be from a compressed air cylinder or air pump that provides at least Grade D breathing air.</p> <p>Emergency Escape Breathing Apparatuses (EEBAs) provide breathing air for 5, 10 or 15 minutes depending on the unit. These are for emergency situations in which a worker must escape from environments immediately dangerous to life or health</p>	<p>http://www.labsafety.com/refinfo/ezfacts/ezf275.htm</p>

Type	Use	Info	Source
		(IDLH).	
Respirator	3. Material Types	<p>Material Types</p> <p>Respirators can be made from a variety of materials. The most popular facepiece materials are silicone, neoprene, and rubber. In general, rubber and neoprene are rigid, durable materials. Silicone is preferred for its comfort, flexibility and ease in cleaning. Full-face respirators are available with six-strap harnesses or ratchet suspensions. The harness type can be worn with a hard hat, but ratchet suspensions are generally easier to adjust, making donning and doffing easier.</p>	http://www.labsafety.com/refinfo/ezfacts/ezf275.htm
Respirator	4. Optional Features	<p>Optional Features</p> <p>Various features are available to help you customize respirators to suit your employees and the specific hazards they encounter. For example, nose cups reduce lens fogging and lens covers protect the lens from paint, minor chemical splash and scratches.</p> <p>Spectacle kits are needed when using prescription corrective lenses. The frame mounts into full-face masks, and the prescription lenses are made by the wearers' optometrist. This allows the wearer to maintain a proper fit and still wear prescription lenses.</p>	http://www.labsafety.com/refinfo/ezfacts/ezf275.htm
Respirator	5. Cartridge Types	<p>Cartridge Types</p> <p>To determine the proper cartridge for air-purifying respirators, either contact a safety professional or consult the Material Safety Data Sheet of the substance that needs to be filtered. All cartridges are assigned a color designating the type of contaminant they will filter:</p> <p>Cartridge Color: Contaminant Olive: Multi-Contaminant</p>	http://www.labsafety.com/refinfo/ezfacts/ezf275.htm

Type	Use	Info	Source
		<p>White: Acid gas Black: Organic vapors Green: Ammonia gas Yellow: Acid gas and organic vapors Purple: Any particulates - P100 Orange: Any particulates - P95, P99, R95, R99, R100 Teal: Any particulates free of oil - N95, N99, or N100</p> <p>The medium used as the filter is usually activated carbon. The adsorption capacity of the filter is limited.</p>	
Respirator	6. Particulate Filter Classification	<p>Particulate Filter Classification</p> <p>In July of 1995, NIOSH published a final rule that replaced current MSHA regulations with new public health regulations. NIOSH also upgraded test requirements for the certification of particulate filters. More filters are now meeting these test requirements, giving you a greater selection to choose from. These filters also meet the criteria set by the Centers for Disease Control (CDC) for protection against Tuberculosis.</p> <p>The nine classes of filters are broken down into three series: N, R, and P. Each series has three efficiency levels: 95%, 99%, and 99.97%. The efficiency levels are determined by testing the filter with either sodium chloride (NaCl) or dioctyl phthalate (DOP) until a maximum load of 200 mg is reached. Sodium chloride is a mildly degrading material, while dioctyl phthalate is highly degrading. The difference between the three series of filters is found in their limitations and the way they are tested.</p> <p>The N series filter is tested with NaCl, and is used in environments free of oil aerosols. The R series is tested with DOP. A respirator with this series filter should only be worn for one work shift. The P filter is also tested with DOP, but the test doesn't stop at a 200 mg load. The test continues until there is no further decrease in efficiency at the 95%, 99%, or 99.97% level.</p>	<p>http://www.labsafety.com/refinfo/ezfacts/ezf275.htm</p>

Type	Use	Info	Source
Gas Mask		<p>Gas Mask – Gas Masks</p> <p>Gas mask purchases are a personal decision each family must make. Educate yourself about gas masks to avoid a mistake that could cost you your life. Consider the following information before purchasing and purchase only from a recognized dealer or manufacturer. A gas mask would only protect you if you were wearing it at the exact moment a bioterrorist attack occurred. Unfortunately, a release of a biological agent is most likely to be done “covertly,” that is, without anyone knowing it. That means you would not know ahead of time to put on your gas mask.</p> <p>To wear a gas mask continuously or “just in case” a bioterrorist attack occurs, is impractical, if not impossible. To work effectively, masks must be specially fitted to the wearer, and wearers must be trained in their use.</p> <p>This is usually done for the military and for workers in industries and laboratories who face routine exposure to chemicals and germs on the job. Gas masks purchased at an Army surplus store or off the internet carry no guarantees that they will work. In fact, one national chain of surplus stores provides the following statement: “(X) has been selling gas masks as a novelty item since 1948. We have never been able to warrant their effectiveness and we cannot do so at this time...</p> <p>We do not know what each type of gas mask we sell might or might not be effective against...We do not know the age of each gas mask...” In brief, no guarantees whatsoever are provided. More serious is the fact that the masks can be dangerous. There are reports of accidental suffocation when people have worn masks incorrectly, as happened to some Israeli civilians during the Persian Gulf War. Military personal goes through extensive training in the use of gas masks. If you purchase masks, be sure to get properly trained in their use. Become familiar with putting the mask on and using it correctly. If you are forced to use the gas mask in an attack, that would not be the best time to be donning it, for the first time. And again, KNOW what you are purchasing and understand that a gas mask that will actually work in an attack, will cost you upwards of \$125.00</p>	<p>http://www.nationalterroralert.com/gasmasks/</p>

Type	Use	Info	Source
		<p>Let The Buyer Beware Information provided by Approved Gas Masks.com The truth about surplus gas masks: Many models of surplus masks & filters are available in nearly unlimited quantities at low prices. In most cases, these prices are low because the mask is either obsolete, recalled or replaced due to design flaws or defective components. Before buying a surplus mask, do your homework, take time to review recalled gas mask models. Here are a few of the most widely advertised surplus masks that should be avoided:</p>  <p>Russian Gas Mask Unless you are assembling your Halloween costume, avoid this ineffective mask. Although the \$19 price tag is enticing, this mask is 30+ years old & does NOT provide NBC protection.</p>	

Type	Use	Info	Source
		 <p>EVAC-U-8 Hood</p> <p> Advertised by some unscrupulous vendors for protection against NBC agents, this mask is actually intended for smoke/fire protection. </p> <p> Over 27,4000 have been recalled. </p>	

Type	Use	Info	Source
		 <p>Canadian M69 C-3 The entire Canadian military has removed the C3 from service (replaced by a completely different model, designated as the C4) The C3 60mm filter port does not accept NATO threaded filters without plastic adapter.</p> <p>If you own or intend to purchase one of these masks, YOU WILL have NO protection against ANY form of attack. They offer NO protection against: NBC -Nuclear, Biological, or Chemical agents. Many offer NO protection against even tear gas! Also old,(even sealed) filters may become toxic</p>	

Type	Use	Info	Source
		 <p>GAS MASK: Russian/German M-10-M Protective Mask STATUS: INEFFECTIVE 100% obsolete DETAILS: Very old model. This type of protective mask should NEVER be used for protecting against any NBC warfare agents. USAGE: Designed ONLY for protection against tear-gas. (These will most likely not provide this protection as they are ALL more than 20 years expired)</p>  <p>GAS MASK: Russian M41 Aardvark Protective Mask STATUS: INEFFECTIVE 100% obsolete DETAILS: Complete waste of money. These Russian masks are a triumph in</p>	

Type	Use	Info	Source
		<p>the world of completely useless gas masks, possibly the worst mask still being sold by unscrupulous surplus stores & internet vendors. USAGE: Russian / Outdated (over 20-30 years old) could be used as a Halloween costume or conversation piece but it will provide 0% protection.</p>  <p>GAS MASK: Russian SMS Snorkel Protective Mask STATUS: INEFFECTIVE 100% obsolete DETAILS: Complete waste of money. These Russian masks are another triumph in the world of completely useless gas masks, possibly the worst mask still being sold by unscrupulous surplus stores & Internet vendors. USAGE: Russian/ Outdated (over 20-30 years old) could be used as a Halloween costume or conversation piece but it will provide 0% protection.</p>	

Type	Use	Info	Source
		 <p>GAS MASK: M9 or M9A1 Protective Masks STATUS: OBSOLETE/ineffective (made in the 50's) Details: Uses a 60 mm threaded filter which is very hard to find with a modern & effective filter. USAGE: Tear Gas, Not used since 1960's, these will provide NO protection, as they are 40+ years</p>  <p>GAS MASK FILTER: WEST GERMAN (various model #'s) STATUS: EXPIRED, HEPA ONLY. DETAILS: This filter is rated at 99.9% HEPA filtration and prior to expiration would be effective against P100 (small particles) agents.</p>	

Type	Use	Info	Source
		<p>Examples: Tear Gas, Unmodified Simple Anthrax & other other non-micronized biological agents. Ineffective against ALL chemical warfare agents. USAGE: German mfg. for riot & tear gas protection. Manufactured prior to 1980, all lots are EXPIRED.</p>  <p>GAS MASK FILTER: AMERICAN M-9 (circa 1940) 60 mm threaded filter STATUS: 100% EXPIRED DETAILS: Common American issue. (Most from the 50's) USAGE: US issue during prior to 1950. Use of this filter is highly discouraged, it provides 0% protection and may be toxic on it's own</p>	

Type	Use	Info	Source
		 <p>GAS MASK FILTER: AMERICAN C2 (check exp. date) & C2A1 STATUS: EXPIRED -If more than 10 years old ** (old filters are known to have Chromium Toxicity ** and are considered highly dangerous) DETAILS: To find out if your filter is expired, you must find the printed date of manufacture. Look for the serial number on the can: For Example: RFT 920000CF24054 (sample serial #) (first 2 digits are the year of manufacture) In this example the mfg date: RFT [92] is 1992</p> <p>These are 100% military surplus filters. The military discontinued use of the C2 in favor of the new/better C2A1 filters.</p> <p>But Caution: C2A1 filters provide no protection against ammonia based agents. USAGE: Obsolete/US Military Surplus only. Recommended to upgrade to a MSA or M95 filter (the same threads/mask fitting). Both protect against all NBC agents and are 100% current issue / used in federal agencies, etc.</p>	

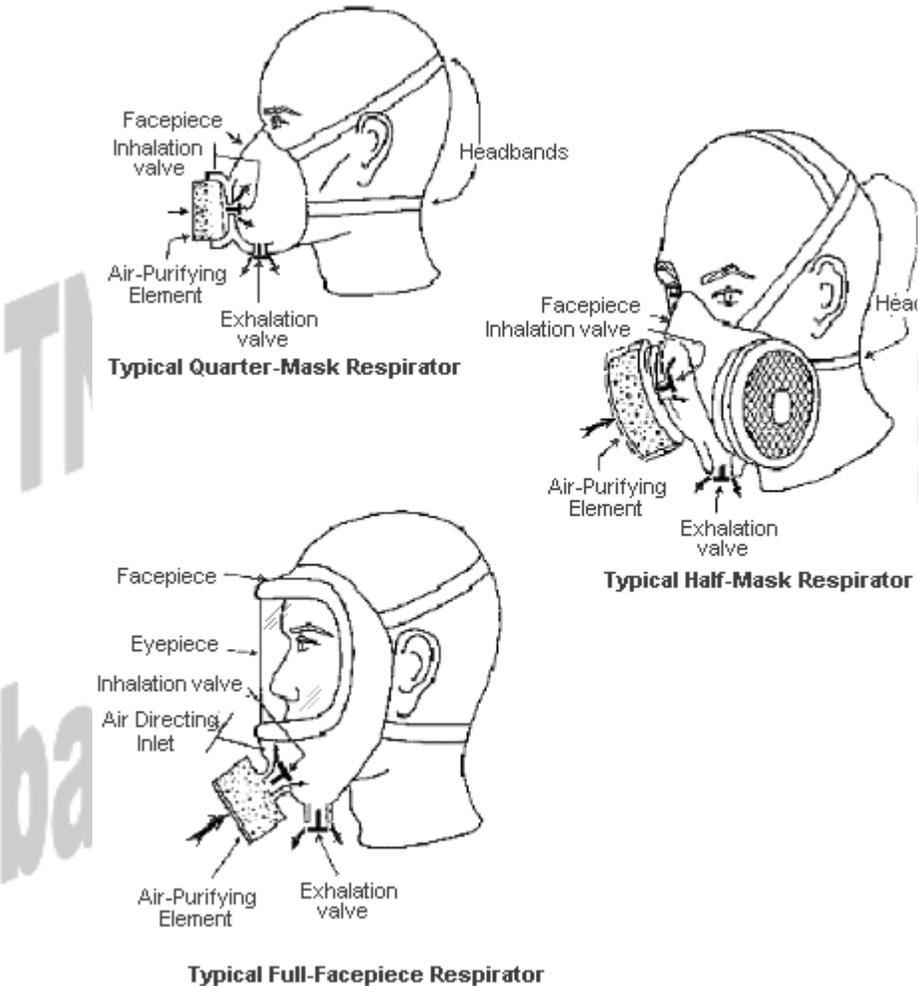
Type	Use	Info	Source
Respirator	1. RESPIRATORY PROTECTION - Introduction	<p>OSHA Technical Manual (OTM) Section VIII: Chapter 2 RESPIRATORY PROTECTION</p> <p>I. INTRODUCTION</p> <p>A. Wearing respiratory protective devices to reduce exposure to airborne contaminants is widespread in industry. An estimated 5.0 million workers wear respirators, either occasionally or routinely. Although it is preferred industrial hygiene practice to use engineering controls to reduce contaminant emissions at their source, there are operations where this type of control is not technologically or economically feasible or is otherwise inappropriate.</p> <p>B. Since respirators are not as consistently reliable as engineering and work practice controls, and may create additional problems, they are not the preferred method of reducing exposures below the occupational exposure levels. Accordingly, their use as a primary control is restricted to certain circumstances. In those circumstances where engineering and work practice controls cannot be used to reduce airborne contaminants below their occupational exposure levels (e.g., certain maintenance and repair operations, emergencies, or during periods when engineering controls are being installed), the use of respirators could be justified to reduce worker exposure. In other cases, where work practices and engineering controls alone cannot reduce exposure levels to below the occupational exposure level, the use of respirators would be essential for supplemental protection.</p> <p>C. There are many variables that affect the degree of protection</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

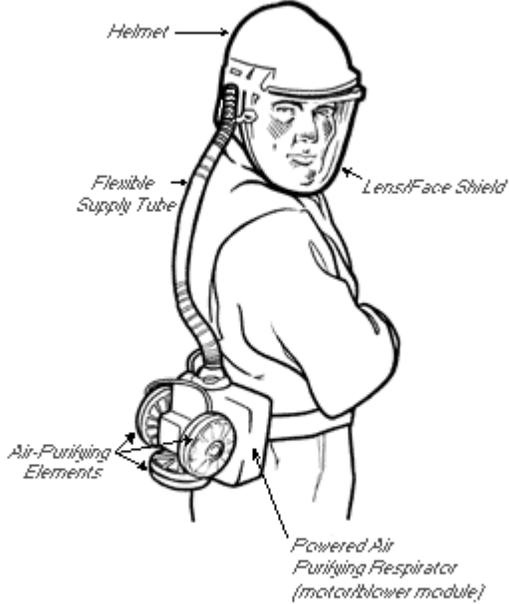
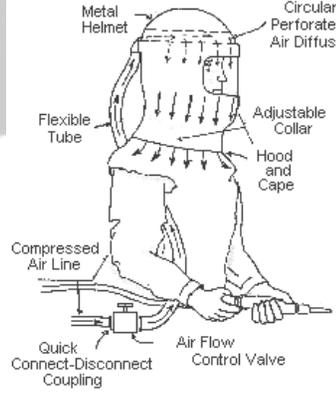
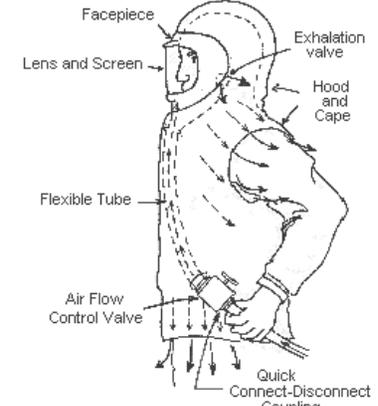
Type	Use	Info	Source
		<p>afforded by respiratory protective devices, and the misuse of respirators can be hazardous to employee safety and health. Selection of the wrong equipment, one of the most frequent errors made in respiratory protection, can result in the employee being exposed to increased concentrations of the harmful contaminant. This error may result in a broad range of health effects caused by the harmful contaminants, including silicosis, asbestosis, permanent lung damage, and cancer. Respirators that are not maintained and inspected can be less effective at reducing exposure to the harmful contaminants, and can place a greater burden on the respiratory system. Respirators that are not clean can cause dermatitis or skin irritation. Because respirator use may give the employee a false sense of security and presumed protection, an improper respirator program can actually present a high degree of hazard for the employee.</p> <p>D. Respirators can only provide adequate protection if they are properly selected for the task; are fitted to the wearer and are consistently donned and worn properly; and are properly maintained so that they continue to provide the protection required for the work situation. These variables can only be controlled if a comprehensive respiratory protection program is developed and implemented in each workplace where respirators are used. When respirator use is augmented by an appropriate respiratory protection program, it can prevent fatalities and illnesses from both acute and chronic exposures to hazardous substances.</p> <p>E. The primary aim of this chapter is to give detailed instruction in the selection of the proper respirator and its use and maintenance. The emphasis is on the implementation of a respiratory protection</p>	

Type	Use	Info	Source
		<p>program developed in a logical progression of steps, outlined below:</p> <ul style="list-style-type: none"> ▪ A clear definition of the hazards that will be encountered and the degree of protection required; ▪ The selection and fitting of the respirator; ▪ Medical evaluation for respirator selection and use; ▪ The required training in the correct use and care of the respirator; and ▪ The implementation of a maintenance program that will ensure that a high level of respiratory protection is maintained. 	
Respirator	2. RESPIRATORY PROTECTION - History of the Development of Respiratory Protection	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>I. HISTORY OF THE DEVELOPMENT OF RESPIRATORY PROTECTION</p> <p>A. Early Practices. The concept of using respiratory protective devices to reduce or eliminate hazardous exposures to airborne contaminants first came from Pliny (circa A.D. 23-79) who discussed the idea of using loose fitting animal bladders in Roman mines to protect workers from the inhalation of red oxide of lead. (See proposed respiratory protection standard, 59 Federal Register 58885.) Later, in the 1700's, the ancestors of modern atmosphere-supplying devices, such as the self-contained breathing apparatus or hose mask, were developed. Although the devices themselves have become more sophisticated in design and materials, respirators' performance is still based on one of two basic principles: purifying the air by removing contaminants before they reach the breathing zone of the worker, or providing clean air from an uncontaminated source.</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>B. Development of Modern Methods. In 1814, a particulate-removing filter encased in a rigid container was developed -- the predecessor of modern filters for air-purifying respirators. In 1854 it was recognized that activated charcoal could be used as a filtering medium for vapors. During World War I, with the use of chemical warfare, improvements in the design of respirators was necessary. In 1930 the development of the resin-impregnated dust filter made available efficient, inexpensive filters that have good dust-loading characteristics and low breathing resistance.</p> <p>C. Latest Advances. A more recent development was the high efficiency particulate filter made with very fine glass fibers. These extremely efficient filters are used for very small airborne particles and produce little breathing resistance. Some features that are currently being incorporated into respirator design include a smaller facepiece, which translates into a better field of vision and a low profile that permits the respirator to fit under other protective gear such as a welder's helmet. Over the years there have been continuing major developments in the basic design of respirators. Modern design improvements have created products that are both more comfortable to wear and more protective than earlier respirators.</p>	
Respirator	3. RESPIRATORY PROTECTION - General Information	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>II. GENERAL INFORMATION</p> <p>A. Purpose. The purpose of a respirator is to prevent the inhalation of harmful airborne substances and/or an oxygen-deficient atmosphere. Functionally, a respirator is designed as an enclosure that covers the nose and mouth or the entire face or head.</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>Respirators are of two general "fit" types, <i>tight-fitting</i> and <i>loose-fitting</i>.</p> <ol style="list-style-type: none"> <li> <p>1. The tight-fitting respirator (Figure VIII:2-1) is designed to form a seal with the face of the wearer. It is available in three types: quarter mask, half mask, and full facepiece. The quarter mask covers the nose and mouth, where the lower sealing surface rests between the chin and the mouth. The half mask covers the nose and mouth and fits under the chin. The full facepiece covers the entire face from below the chin to the hairline.</p> <li> <p>2. The loose-fitting respirator (Figure VIII:2-2) has a respiratory inlet covering that is designed to form a partial seal with the face. These include loose-fitting facepieces, as well as hoods, helmets, blouses, or full suits, all of which cover the head completely. The best known loose-fitting respirator is the supplied air hood used by the abrasive blaster. The hood covers the head, neck, and upper torso, and usually includes a neck cuff. Air is delivered by a compressor through a hose leading into the hood. Because the hood is not tight-fitting, it is important that sufficient air is provided to maintain a slight positive-pressure inside the hood relative to the environment immediately outside the hood. In this way, an outward flow of air from the respirator will prevent contaminants from entering the hood.</p> <p>FIGURE VIII:2-1. TIGHT-FITTING RESPIRATORS.</p>	

Type	Use	Info	Source
		 <p>The figure contains three diagrams of loose-fitting respirators:</p> <ul style="list-style-type: none"> Typical Quarter-Mask Respirator: Shows a side profile of a person wearing a mask that covers the nose and mouth. Labels include: Facepiece, Inhalation valve, Air-Purifying Element, Exhalation valve, and Headbands. Typical Half-Mask Respirator: Shows a side profile of a person wearing a mask that covers the nose and mouth. Labels include: Facepiece, Inhalation valve, Air-Purifying Element, and Exhalation valve. Typical Full-Facepiece Respirator: Shows a side profile of a person wearing a mask that covers the entire face, including the eyes. Labels include: Facepiece, Eyepiece, Inhalation valve, Air Directing Inlet, Air-Purifying Element, and Exhalation valve. <p>FIGURE VIII:2-2. LOOSE-FITTING RESPIRATORS.</p>	

Type	Use	Info	Source
		 <p>Helmet</p> <p>Flexible Supply Tube</p> <p>Lens/Face Shield</p> <p>Air-Purifying Elements</p> <p>Powered Air Purifying Respirator (motor/blower module)</p> <p>Loose-Fitting Facepiece</p>  <p>Metal Helmet</p> <p>Circular Perforated, Air Diffuser</p> <p>Flexible Tube</p> <p>Adjustable Collar</p> <p>Hood and Cape</p> <p>Compressed Air Line</p> <p>Quick Connect-Disconnect Coupling</p> <p>Air Flow Control Valve</p> <p>Abrasive Blasting Respirator (Hood Respirator)</p>  <p>Facepiece</p> <p>Lens and Screen</p> <p>Exhalation valve</p> <p>Hood and Cape</p> <p>Flexible Tube</p> <p>Air Flow Control Valve</p> <p>Quick Connect-Disconnect Coupling</p> <p>Loose-Fitting Hood with Blouse</p>	

Type	Use	Info	Source
Respirator	4. Airborne (or Respiratory) Hazards	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>III.</p> <p>Airborne (or Respiratory) Hazards may result from either an oxygen deficient atmosphere or breathing air contaminated with toxic particles, vapors, gases, fumes or mists. The proper selection and use of a respirator depend upon an initial determination of the concentration of the hazard or hazards present in the workplace, or the presence of an oxygen deficient atmosphere.</p> <p>Airborne hazards generally fall into the following basic categories:</p> <ul style="list-style-type: none"> 0. Dusts. Particles that are formed or generated from solid organic or inorganic materials by reducing their size through mechanical processes such as crushing, grinding, drilling, abrading, or blasting. 1. Fumes. Particles formed when a volatilized solid, such as a metal, condenses in cool air. This physical change is often accompanied by a chemical reaction, such as oxidation. Examples are lead oxide fumes from smelting, and iron oxide fumes from arc-welding. A fume can also be formed when a material such as magnesium metal is burned or when welding or gas cutting is done on galvanized metal. 2. Mists. A mist is formed when a finely divided liquid is suspended in the air. These suspended liquid droplets can be generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, or atomizing. Examples are the oil mist produced during cutting and 	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>grinding operations, acid mists from electroplating, acid or alkali mists from pickling operations, paint spray mist from spraying operations, and the condensation of water vapor to form a fog or rain.</p> <p>3. Gases. Gases are formless fluids that occupy the space or enclosure and which can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature. Examples are welding gases such as acetylene, nitrogen, helium and argon; and carbon monoxide generated from the operation of internal combustion engines. Another example is hydrogen sulfide, which is formed wherever there is decomposition of materials containing sulfur under reducing conditions.</p> <p>4. Vapors. Vapors are the gaseous form of substances that are normally in the solid or liquid state at room temperature and pressure. They are formed by evaporation from a liquid or solid, and can be found where parts cleaning and painting takes place and where solvents are used.</p> <p>5. Smoke. Smoke consists of carbon or soot particles resulting from the incomplete combustion of carbonaceous materials such as coal or oil. Smoke generally contains droplets as well as dry particles.</p>	

Type	Use	Info	Source
		<p>6. Oxygen deficiency. An oxygen deficient atmosphere has an oxygen content below 19.5% by volume. Oxygen deficiency may occur in confined spaces, which include, but are not limited to, storage tanks, process vessels, towers, drums, tank cars, bins, sewers, septic tanks, underground utility tunnels, manholes, and pits.</p> <p>Respirator Classifications. Respirators provide protection either by removing contaminants from the air before they are inhaled or by supplying an independent source of respirable air. There are two major classifications of respirators:</p> <ul style="list-style-type: none"> 0. Air purifying respirators (devices that remove contaminants from the air); and 1. Atmosphere-supplying respirators (those devices that provide clean breathing air from an uncontaminated source). <p>Each class of respirator may have tight-fitting and loose-fitting facepieces. An important aspect of respirator operation and classification is the air pressure within the facepiece. When the air pressure within the facepiece is negative during inhalation with respect to the ambient air pressure, the respirator is termed a negative-pressure respirator. When the pressure is normally positive with respect to ambient air pressure throughout the breathing cycle, the respirator is termed a positive-pressure respirator. The concept of negative and positive pressure operation is important when considering potential contaminant leakage into the respirator.</p>	

Type	Use	Info	Source
Respirator	5. Air Purifying Respirators	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>IV.</p> <p>Air Purifying Respirators are grouped into three general types: <i>particulate removing, vapor and gas removing, and combination</i>. Elements that remove particulates are called filters, while vapor and gas removing elements are called either chemical cartridges or canisters. Filters and canisters/cartridges are the functional portion of air-purifying respirators, and they can generally be removed and replaced once their effective life has expired. The exception would be filtering facepiece respirators (commonly referred to as "disposable respirators," "dust masks," or "single-use respirators"), which cannot be cleaned, disinfected, or resupplied with an unused filter after use.</p> <p>0. Particulate-removing respirators are designed to reduce inhaled concentrations of nuisance dusts, fumes, mists, toxic dusts, radon daughters, asbestos-containing dusts or fibers, or any combination of these substances, by filtering most of the contaminants from the inhaled air before they enter the breathing zone of the worker. They may have single-use or replaceable filters. These respirators may be non-powered or powered air-purifying. A powered air-purifying respirator (PAPR) uses a blower to force the ambient atmosphere through air purifying elements to the inlet covering.</p> <p>1. Vapor- and gas-removing respirators are designed with sorbent elements (canisters or cartridges) that adsorb and/or absorb the vapors or gases from the contaminated air before they can enter the breathing zone of the worker. <i>Combination</i> cartridges and canisters are available to protect against particulates, as well as vapors and gases.</p> <p>Atmosphere-Supplying Respirators are respirators that provide air from a source independent of the surrounding atmosphere instead of removing contaminants from the atmosphere. These respirators are classified by the method that is used to supply air and the way in which the air supply is regulated. Basically,</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>these methods are: self-contained breathing apparatus (air or oxygen is carried in a tank on the worker's back, similar to SCUBA gear); supplied-air respirators (compressed air from a stationary source is supplied through a high-pressure hose connected to the respirator); and combination self-contained and supplied-air respirators.</p>	
Respirator	6. Limitations of Respirator Use	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>Limitations of Respirator Use. Not all workers can wear respirators. Individuals with impaired lung function, due to asthma or emphysema for example, may be physically unable to wear a respirator. Individuals who cannot get a good facepiece fit, including those individuals whose beards or sideburns interfere with the facepiece seal, will be unable to wear tight-fitting respirators. An adequate fit is required for a respirator to be effective. In addition to these problems, respirators may also be associated with communication problems, vision problems, fatigue, and reduced work efficiency.</p> <p>In principle, respirators usually are capable of providing adequate protection. However, problems associated with selection, fit, and use often render them less effective in actual application; these problems prevent the assurance of consistent and reliable protection, regardless of the theoretical capabilities of the respirator. Occupational safety and health experts have spent considerable effort over the years developing fit-testing procedures and methods of measuring respirator effectiveness, thereby improving protection for those employees required to wear them.</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>
Respirator	BREATHING AIR QUALITY AND USE	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>BREATHING AIR QUALITY AND USE</p> <p>Standards and Specifications</p> <p>0. Breathing air for atmosphere-supplying respirators must be</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>of high purity, meet quality levels for content, and not exceed certain contaminant levels and moisture requirements. Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration must be in accordance with the following requirements:</p> <ul style="list-style-type: none"> ▪ Compressed and liquid oxygen must meet the United States Pharmacopoeia for medical or breathing oxygen. ▪ Compressed breathing air must meet at least the requirements for Grade D breathing air as described in the ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989. <ol style="list-style-type: none"> 1. Compressed oxygen must not be used in atmosphere-supplying respirators, including open circuit SCBA's, that have previously used compressed air. This prohibition is intended to prevent fires and explosions that could result if high-pressure oxygen comes into contact with oil or grease that has been introduced to the respirator or the air lines during compressed-air operations. In addition, oxygen in concentrations greater than 23.5% can only be used in equipment designed for oxygen service or distribution. 2. Breathing air may be supplied to respirators from cylinders or air compressors. Where cylinders are used, they must be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR parts 173 and 178). Cylinders of purchased breathing air must have a certificate of analysis from the supplier stating that the air meets the requirements for Grade D breathing air. The moisture content of the compressed air in the cylinder cannot exceed a dew point of -50°F (-45.6°C) at 1 atmosphere 	

Type	Use	Info	Source
		<p>pressure. This requirement will prevent respirator valves from freezing, which can occur when excess moisture accumulates on the valves. All breathing gas containers must be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.</p> <p>Other Specific Requirements</p> <ol style="list-style-type: none"> 0. Where compressors are used for supplying air, the compressor must be constructed and situated so contaminated air cannot enter the air-supply system. The location of the air intake is very important, and must be in an uncontaminated area where exhaust gases from nearby vehicles, the internal combustion engine that is powering the compressor itself (if applicable), or other exhaust gases being ventilated from the plant will not be picked up by the compressor air intake. 1. In addition, compressors must be equipped with suitable in-line, air-purifying sorbent beds and filters to further ensure breathing air quality, and to minimize moisture content so that the dew point at 1 atmosphere pressure is 10°F (5.56°C) below the ambient temperature. Sorbent beds and filters must be maintained and replaced or refurbished periodically according to the manufacturer's recommendations, and a tag must be kept at the compressor indicating the most recent change date and the signature of the person authorized by the employer to perform the change. 2. For compressors that are not oil-lubricated, the employer must ensure that carbon monoxide levels do not exceed 10 	

Type	Use	Info	Source
		<p>ppm. This requirement can be met by several different methods, including the use of continuous carbon monoxide alarms, carbon monoxide sorbent materials, proper air intake location in an area free of contaminants, frequent monitoring of air quality, or the use of high-temperature alarms and automatic shutoff devices, as appropriate. Employers have flexibility in selecting the method(s) most appropriate for conditions in their workplace. Since no single method will be appropriate in all situations, several methods may be needed. For example, it may be necessary to combine the use of a carbon monoxide alarm with a carbon monoxide sorbent bed where conditions are such that a reliable carbon monoxide-free area for air intake cannot be found.</p> <p>3. Oil-lubricated compressors can produce carbon monoxide if the oil enters the combustion chamber and is ignited. This problem can be particularly severe in older compressors with worn piston rings and cylinders. Consequently, if an oil-lubricated compressor is used, it must have a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only a high-temperature alarm is used, the air from the compressor must be tested for carbon monoxide at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.</p> <p>4. Breathing air couplings must be incompatible with outlets for non-respirable plant air or other gas systems to prevent accidental servicing of air line respirators with non-respirable gases or oxygen. Also, no asphyxiating substance</p>	

Type	Use	Info	Source
		<p>must be allowed in the breathing air lines.</p>	
Respirator	CLEANING RESPIRATORS	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2 APPENDIX VIII:2-3. RECOMMENDED PROCEDURES FOR CLEANING RESPIRATORS</p> <p>These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer, as an alternative, may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in this Appendix (i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user).</p> <ul style="list-style-type: none"> A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand or pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts. B. Wash components in warm (43°C/110°F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt. C. Rinse components thoroughly in clean, warm (43°C/110°F maximum), preferably running, water. Drain the components. D. When the cleaner used does not contain a disinfecting agent, respirator 	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>components should be immersed for two minutes in:</p> <ul style="list-style-type: none"> ○ Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43°C/110°F; or ○ Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodine/100 cc of 45% alcohol) to one liter of water at 43°C/110°F; or ○ Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer. <p>E. Rinse components thoroughly in clean, warm (43°C/110°F maximum), preferably running, water. Drain the components. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.</p> <p>F. Components should be hand-dried with a clean, lint-free cloth, or air-dried.</p> <p>G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.</p> <p>H. Test the respirator to ensure that all components work properly.</p>	
Respirator	FIT TESTING	RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2	http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html

Type	Use	Info	Source
		<p style="text-align: center;">FIT TESTING</p> <p>It has long been recognized that respirators must fit properly to provide protection. To obtain adequate respiratory protection, there must be a proper match between respirator and wearer. Respirators that don't seal properly around the face offer only the illusion of protection. To accommodate the variability of face size characteristics among individuals, a number of manufacturers offer facepieces in several sizes and models.</p> <p>Purpose. The primary purpose of fit testing is to identify the specific make, model, style, and size of respirator best suited for each employee. In addition, fit testing also provides an opportunity to check on problems with respirator wear, and reinforces respirator training by having wearers review the proper methods of donning and wearing the respirator.</p> <p>Requirement. Fit testing is required for all negative or positive pressure tight-fitting facepiece respirators. The OSHA respiratory protection standard requires that fit testing be performed before an employee first starts wearing a respirator in the work environment, whenever a different respirator facepiece is used, and at least annually thereafter.</p> <p>Method. Prior to the actual fit test, the employee must be shown how to put on a respirator, position it on the face, set strap tension, and determine an acceptable fit. Next, the employee must be allowed to choose a respirator from a sufficient number of models and sizes so that the employee can find an acceptable and correctly fitting respirator. Once an acceptable respirator has been found -- which takes into account the position of the mask on the face, nose, and cheeks; room for eye protection; and room to talk -- a user seal check must be conducted (refer to on "Use of Respirators").</p>	

Type	Use	Info	Source
		<p>Types of Fit Testing. Fit testing may either be <i>qualitative (QLFT)</i> or <i>quantitative (QNFT)</i>, and must be administered using an OSHA-accepted QLFT or QNFT protocol. These protocols are described in mandatory Appendix A to 1910.134. Prior to the commencement of the fit test, the employee must be given a description of the fit test and a description of the exercises that he or she will be performing during fit testing. The respirator to be tested must be worn for at least five minutes before the start of the fit test. The employee must be fit tested with the same make, model, style, and size of respirator that will be used in the workplace.</p> <p>0. Qualitative fit testing (QLFT). Qualitative fit testing involves the introduction of a gas, vapor, or aerosol test agent into an area around the head of the respirator user. A determination is then made as to whether or not the wearer can detect the presence of the test agent through means such as odor, taste, or nasal irritation. If the presence of the test agent is detected inside the mask, the respirator fit is considered to be inadequate.</p> <p>There are four qualitative fit test protocols approved in OSHA's standard. The isoamyl acetate (IAA) test determines whether a respirator is protecting a user by questioning whether the user can smell the distinctive odor of IAA. Both the saccharin and Bitrex™ tests involve substances with distinctive tastes that should not be detected through an effective respirator. The irritant smoke (e.g., stannic chloride) test involves a substance that elicits an involuntary irritation response in those exposed to it.</p> <p>Before conducting a qualitative test, the worker must undergo a sensitivity test to determine if he or she can taste, smell or react to the substance. When performing</p>	

Type	Use	Info	Source
		<p>the isoamyl acetate test, the protocol requires that separate rooms be used for the odor screening and fit tests, and that the rooms be sufficiently ventilated to ensure that there is no detectable odor of IAA prior to a test being conducted. This will prevent olfactory fatigue among workers being fit tested by preventing a buildup of IAA in the general room air.</p> <ol style="list-style-type: none"> 1. Quantitative fit testing (QNFT). In a quantitative fit test, the adequacy of respirator fit is assessed by numerically measuring the amount of leakage into the respirator. This testing can be done by either generating a test aerosol as a test atmosphere, using ambient aerosol as the test agent, or using controlled negative pressure (CNP) to measure the volumetric leak rate. Appropriate instrumentation is required to quantify respirator fit. <p>Fit Test Exercises. The following test exercises must be performed for all fit testing methods described in the OSHA standards, except the CNP method which has its own fit testing exercise regimen:</p> <ol style="list-style-type: none"> 0. Normal breathing in a normal standing position, without talking; 1. Deep breathing in a normal standing position, breathing slowly and deeply, taking precaution not to hyperventilate; 2. Turning the head slowly from side to side, while standing in place, with the employee holding his/her head momentarily at each extreme so that the employee can 	

Type	Use	Info	Source
		<p>inhale at each side;</p> <ol style="list-style-type: none"> 3. Moving the head up and down slowly, while standing in place, inhaling in the up position when looking toward the ceiling; 4. Talking out loud slowly, reading from a prepared text such as the Rainbow Passage (see Appendix A of the standard), counting backward from 100, or reciting a memorized poem or song; 5. Grimacing by smiling or frowning (only for QNFT testing); 6. Bending at the waist as if to touch toes (jogging in place can be done when the fit test enclosure doesn't permit bending at the waist); and 7. Normal breathing (as described above). <p>Each test exercise must be performed for one minute, except for the grimace exercise which must be performed for 15 seconds. The respirator must not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.</p> <p>The employee must perform exercises in the test environment</p>	

Type	Use	Info	Source
		<p>while wearing any applicable safety equipment that may be worn during actual respirator use and that could interfere with respirator fit. If the employee exhibits breathing difficulty during the fit test, he or she must be referred to a physician or other licensed health care professional to determine whether the employee can wear a respirator while performing his or her duties.</p> <p>Retesting. If the employee finds the fit of the respirator unacceptable, he or she must be given a reasonable opportunity to select a different respirator and to be retested. In addition, retesting is required whenever an employee reports, or the employer, PLHCP, supervisor, or program administrator observe changes in an employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes (e.g., wearing new dentures), cosmetic surgery, or an obvious change in body weight.</p>	
Respirator	GLOSSARY	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2 APPENDIX VIII: 2-1. GLOSSARY</p> <p>Air-purifying respirator a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.</p> <p>Assigned protection factor (APF) [reserved]</p> <p>Atmosphere-supplying respirator a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR's) and self-contained breathing apparatus (SCBA) units.</p> <p>Canister or cartridge a container with a filter, sorbent, or catalyst, or a combination of these items, that removes specific contaminants from the air passed through the container.</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>Demand respirator an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.</p> <p>Emergency situation any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled substantial release of an airborne contaminant.</p> <p>Employee exposure an exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.</p> <p>End-of-service-life indicator (ESLI) a system that warns the respirator user of the approach of the end of adequate respiratory protection; for example, that the sorbent is approaching saturation or is no longer effective.</p> <p>Escape-only respirator a respirator intended to be used only for emergency exit.</p> <p>Filtering facepiece (dust mask) a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.</p> <p>Filter or air purifying element a component used in respirators to remove solid or liquid aerosols from the inspired air.</p> <p>Fit factor a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.</p> <p>Fit test the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. See also "Qualitative fit test (QLFT)" and "Quantitative fit test (QNFT)."</p> <p>Helmet a rigid respiratory inlet covering that also provides head protection against impact and penetration.</p>	

Type	Use	Info	Source
		<p>High efficiency particulate air (HEPA) filter a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter and larger. The equivalent NIOSH 42 CFR part 84 particulate filters are the N100, R100, and P100 filters.</p> <p>Hood a respiratory inlet covering that completely covers the head and neck, and may also cover portions of the shoulders and torso.</p> <p>Immediately dangerous to life or health (IDLH) an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.</p> <p>Interior structural firefighting the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures that are involved in a fire situation beyond the incipient stage.</p> <p>Loose-fitting facepiece a respiratory inlet covering that is designed to form a partial seal with the face.</p> <p>Maximum use concentration (MUC) [reserved]</p> <p>Negative pressure respirator (tight fitting) a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.</p> <p>Oxygen deficient atmosphere an atmosphere with an oxygen content below 19.5% by volume.</p> <p>Physician or other licensed health care professional (PLHCP) an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by 29 CFR 1910.134(e), "Medical evaluation."</p>	

Type	Use	Info	Source
		<p>Positive-pressure a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.</p> <p>Powered air-purifying respirator (PAPR) an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.</p> <p>Pressure demand respirator a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.</p> <p>Qualitative fit test (QLFT) a pass/fail fit test to assess the adequacy of respiratory fit that relies on the individual's response to the test agent.</p> <p>Quantitative fit test (QNFT) an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.</p> <p>Respiratory inlet covering the portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.</p> <p>Self-contained breathing apparatus (SCBA) an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.</p> <p>Service life the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.</p> <p>Supplied-air respirator (SAR) or airline respirator an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.</p> <p>Tight-fitting facepiece a respiratory inlet covering that forms a complete seal with the face.</p>	

Type	Use	Info	Source
		<p>User seal check an action conducted by the respirator user to determine if the respirator is properly seated to the face.</p>	
Respirator	MAINTENANCE AND CARE	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>MAINTENANCE AND CARE</p> <p>Requirements. The OSHA standard requires that employers provide each respirator user with a respirator that is clean, sanitary, and in good working order. These requirements are a vital part of any successful respiratory protection program. To ensure that the respirator remains serviceable and delivers effective protection, a maintenance program must be in place prior to respirator use.</p> <p>The OSHA respirator standard strongly emphasizes the importance of a good maintenance program, but permits its tailoring to the type of facilities, working conditions, and hazards involved. However, all programs are required to include at least:</p> <ul style="list-style-type: none"> ▪ Cleaning and disinfecting procedures; ▪ Proper storage; ▪ Regular inspections for defects (including leak check); and ▪ Repair methods. <p>In addition to the OSHA requirements, the manufacturer's instructions for inspection, cleaning, and maintenance of respirators should be consulted to ensure that the respirator continues to function properly. A proper maintenance program ensures that the worker's respirator remains as effective as when it was new.</p> <p>Cleaning and Disinfecting</p> <p>0. Cleaning and sanitizing respirators are necessary to prevent skin irritation, dermatitis, and to encourage worker</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>acceptance. Where the contaminant is a dust, mist, or fume, build-up on the respirator face-to-facepiece seal or within the respirator will reduce the protection provided by the respirator because the contaminant is in the breathing zone or has compromised the seal. In addition, the build-up of contamination on the respirator can contribute to the deterioration of the respirator's materials, which can lead to reduced protection. Full facepieces must be cleaned to ensure that employees can see through the facepiece.</p> <ol style="list-style-type: none"> <li>1. Respirators that are issued for the exclusive use of an employee must be cleaned and disinfected as often as necessary to be maintained in a sanitary condition. Respirators used by more than one employee must be cleaned and disinfected prior to being used by a different individual. Respirators maintained for emergency use as well as respirators used in fit testing and training, must be cleaned and disinfected after each use. The employer must use either the OSHA cleaning and disinfecting procedures recommended in Appendix VIII:2-3 of this chapter or the procedures recommended by the respirator manufacturer, as long as they are equivalent in effectiveness to the OSHA method. <p>Storage</p> <ol style="list-style-type: none"> <li>0. All respirators must be stored so that they are protected against damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. When respirators are packed or stored, the facepiece and exhalation valve must be stored in a manner that will prevent deformation. Each respirator should be positioned so that it retains its natural configuration. Synthetic materials and even rubber will warp if stored in 	

Type	Use	Info	Source
		<p>an unnatural shape, thus affecting the fitting characteristics of the facepiece.</p> <ol style="list-style-type: none"> 1. Respirators intended for emergency use must be kept accessible to the work area, but not in an area that might itself be involved in the emergency because such an area may become contaminated or inaccessible. Emergency-use respirators must be stored in compartments or covers that are clearly marked to indicate that they contain emergency respirators, and stored according to any applicable manufacturer instructions. <p>Inspection. To ensure the continued reliability of respiratory equipment, it must be inspected on a regular basis. The frequency of inspection and the procedures to be followed depend on whether the respirator is intended for non-emergency, emergency, or escape use only.</p> <ol style="list-style-type: none"> 0. The OSHA standard requires that all respirators used in <i>non-emergency situations</i> be inspected before each use and during cleaning. Respirators designated for use in an emergency situation are to be inspected at least monthly and in accordance with the manufacturer's instructions, and checked for proper function before and after each use. <i>Emergency escape-only</i> respirators must be inspected before being carried into the workplace. <ol style="list-style-type: none"> 1. For all respirators, inspections must include a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters, or filters. In addition, the elastomeric parts must be evaluated for pliability and signs of 	

Type	Use	Info	Source
		<p>deterioration.</p> <ol style="list-style-type: none"> <li>2. For SCBA's, which require monthly inspections, the air and oxygen cylinders must be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. In addition, the regulator and warning devices must be inspected to ensure that they function properly. <li>3. For respirators that are maintained for use in emergencies, the OSHA standard requires certifying the respirator by documenting the date that the inspection was performed, the name or signature of the inspector, the findings of the inspection, any required remedial action, and a serial number or other means of identifying the inspected respirator. This information must be provided on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is stored in the form of inspection reports (paper or electronic). The information must be maintained until it is replaced following a subsequent certification. <p>Repair. Respirators that fail to pass inspection or are otherwise found to be defective, must be removed from service, and discarded, repaired, or adjusted. Repairs or adjustments to respirators must be done only by appropriately trained personnel, using only the respirator manufacturer's NIOSH-approved parts designed for that respirator. The repairs also must be made in accordance with the manufacturer's recommendations and specifications regarding the type and extent of repairs to be performed. Because components such as reducing and admission valves, regulators, and alarms are complex and essential to the safe functioning of the respirator, they are required to be adjusted and repaired only by the</p>	

Type	Use	Info	Source
		<p>manufacturer or a technician trained by the manufacturer.</p>	
Respirator	RESPIRATOR SELECTION	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p style="text-align: center;">RESPIRATOR SELECTION</p> <p>Respirator selection requires correctly matching the respirator with the hazard, the degree of hazard, and the user. The respirator selected must be adequate to effectively reduce the exposure of the respirator user under all conditions of use, including reasonably foreseeable emergency situations. Proper respirator selection involves choosing a device that fully protects the worker from the respiratory hazards to which he or she may be exposed and permits the worker to perform the job with the least amount of physical burden.</p> <p>Selection Factors. Many factors must be considered carefully in respirator selection. In choosing the appropriate respirator, one must consider the nature and extent of the hazard, work requirements and conditions, and the characteristics and limitations of the respirators available. The following categories of information must be taken into account:</p> <ul style="list-style-type: none"> ▪ Nature of the hazard, and the physical and chemical properties of the air contaminant; ▪ Concentrations of contaminants; ▪ Relevant permissible exposure limit or other occupational exposure limit; ▪ Nature of the work operation or process; ▪ Time period the respirator is worn; ▪ Work activities and physical/psychological stress; ▪ Fit testing; and ▪ Physical characteristics, functional capabilities and limitations of respirators. <p>8. Nature of the hazard, and the physical and chemical properties of the air contaminant. The nature of the hazard, whether it is in the form of a gas, dust, organic</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>vapor, fume, mist, oxygen deficiency or any combination of hazards, needs to be taken into account. The physical and chemical properties of the contaminant that affect respirator selection, and the selection of respirator components such as cartridges, canisters, and filters must also be considered. Physical properties include such factors as particle size for dusts, and vapor pressure for gases and vapors. Chemical properties of the air contaminant that affect breakthrough times, and the ability of the filter material to remove, adsorb, or absorb the contaminant must also be considered.</p> <p>9. Concentrations of contaminants. Sampling and analysis of the workplace air determines what degree of exposure is occurring, and thus what degree of protection is required. Where such sampling and analysis have been done, the results are to be used as a point of comparison with the occupational exposure level, i.e., to determine how much the concentration must be lowered by the respirator to reduce employee exposure to a safe level.</p> <p>10. The relevant permissible exposure limit or other occupational exposure limit. Respirators selected must be capable of protecting against overexposure by reducing and maintaining exposure to or below the relevant exposure limit. In addition to the OSHA limits, employers should refer to the ACGIH (American Conference of Governmental Industrial Hygienists) recommended Threshold Limit Values (TLV's), the NIOSH (National Institute for Occupational Safety and Health) Recommended Exposure Limits (REL's), or other</p>	

Type	Use	Info	Source
		<p>occupational exposure limits.</p> <p>11. Nature of the work operation or process. The type of job operation, the equipment or tools that will be used, and any motion or travel the job requires can influence the type of respirator selected, particularly when supplied-air respirators, which require a connection to a clean air source, are used.</p> <p>12. Time period respirator is worn. The employer must also consider the period of time during which the respirator will be used by employees during a work shift. Breakthrough times for different chemicals can vary greatly, and are dependent on the concentrations of contaminants in the workplace air, patterns of respirator use, and environmental factors including temperature and humidity. A respirator that provides adequate protection for one chemical may be inadequate for another chemical with a different breakthrough time. In addition, employees wearing respirators for longer periods of time may need respirators that impose the minimum possible physical burden.</p> <p>13. Work activities and stress. The work activities of employees while wearing respirators are also a factor. Heavy work that is physically draining may affect an employee's capability of wearing certain types of respirators. Temperature and humidity conditions in the workplace may also affect the physical/psychological stress</p>	

Type	Use	Info	Source
		<p>level associated with wearing a respirator, as well as the effectiveness of respirator filters and cartridges. These types of factors must be assessed in selecting the appropriate equipment for a particular work situation.</p> <p>14. Fit testing. Some employees may be unable to achieve an adequate fit with certain respirator models or a particular type of respirator -- such as half-mask air-purifying respirators -- so an alternative respirator model with an adequate fit or other type of respirator that provides adequate protection must be used. Therefore, it is necessary for employers to provide a sufficient number of respirator models and sizes from which employees can choose an acceptable respirator that fits correctly.</p> <p>15. Physical characteristics, functional capabilities, and limitations of respirators. The last category of information to be considered when selecting respiratory protection is the physical characteristics, functional capabilities, and limitations of the respiratory protection equipment itself. Respirators selected must not impair the worker's vision, hearing, communication, and physical movement necessary to perform jobs safely. For example, airline respirators should not be used by mobile employees around moving machinery to avoid entanglement of the respirator in the equipment.</p> <p>Selection. Once the above factors have been taken into account, the employer must select a NIOSH-certified respirator. Where NIOSH has not specifically certified any respirator for use against the particular contaminant present in the workplace, the employer must select a NIOSH-certified respirator that has no limitation prohibiting its use for that contaminant. The respirator must</p>	

Type	Use	Info	Source
		<p>be appropriate for the contaminant's physical form and chemical properties and the conditions under which it will be used. All respirators must be chosen and used according to the limitations of the NIOSH certification, which appears on the NIOSH certification label.</p> <p>Assigned Protection Factors. Until such time as OSHA addresses the issue of assigned protection factors (APF's), employers may rely on APF's published by NIOSH and ANSI. Where there are conflicts between the NIOSH and ANSI APF's, the employer should apply the more protective APF.</p> <p>Warning System. When an air-purifying respirator is selected for protection against gases and vapors, a system must be in effect that will reliably warn respirator wearers of contaminant breakthrough. These systems are: a respirator equipped with an end-of-service life indicator (ESLI) certified by NIOSH for the contaminant, or an established and enforced cartridge/canister change schedule that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.</p> <p>Atmospheres Requiring Highest Level of Protection. For atmospheres that are immediately dangerous to life and health (IDLH), the highest level of respiratory protection and reliability is required. These atmospheres, by definition, are the most dangerous environments in which respirators are used. In these atmospheres, there is no tolerance for respirator failure. Consequently, only the following respirators must be provided and used: full-facepiece pressure demand self-contained breathing apparatus (SCBA) certified for a minimum service life of thirty minutes, or a combination full-facepiece pressure demand supplied-air respirator (SAR) with an auxiliary self-contained air supply.</p>	

Type	Use	Info	Source
Respirator	SELECTION AND USE OF PARTICULATE RESPIRATORS	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2 APPENDIX VIII:2-4. NIOSH GUIDE TO THE SELECTION AND USE OF PARTICULATE RESPIRATORS CERTIFIED UNDER 42 CFR 84</p> <p>Summary for Respirator Users</p> <p>This summary presents a brief overview of what the respirator user needs to know about the new categories of particulate respirators certified by the National Institute for Occupational Safety and Health (NIOSH).</p> <p>NIOSH has developed a new set of regulations in 42 CFR 84 (also referred to as "Part 84") for testing and certifying nonpowered, air-purifying, particulate-filter respirators. The new Part 84 respirators have passed a more demanding certification test than the old respirators (e.g., dust and mist [DM], dust, fume and mist [DFM], spray paint, pesticide, etc.) certified under 30 CFR 11 (also referred to as "Part 11").</p> <p>Changes in the new regulations involve only nonpowered, air-purifying, particulate-filter respirators. Certification requirements for all other classes of respirators (e.g., chemical cartridges, self-contained breathing apparatus [SCBA], airlines, gas masks without a particulate filter, powered air-purifying respirators [PAPR's] equipped with high-particulate air [HEPA] filters, etc.) have been transferred to Part 84 without change. Until further notice, the Occupational Safety and Health Administration (OSHA) is allowing the continued use of Part 11 particulate-filter respirators. Under Part 84, NIOSH is allowing manufacturers to continue selling and shipping Part 11 particulate filters as NIOSH-certified until July 10, 1998.</p> <p>The new Part 84 regulation provides for nine classes of filters (three levels of filter efficiency, each with three categories of resistance to filter efficiency degradation). The three levels of filter efficiency are 95%, 99%, and 99.97%. The three categories of resistance to filter efficiency degradation are labeled N, R, and P. The class of filter will be clearly marked on the filter, filter package, or respirator box. For example, a filter marked N95 would mean an N-series filter that is at least 95% efficient. Chemical cartridges that include particulate filter elements will carry a</p>	http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html

Type	Use	Info	Source
		<p>similar marking that pertains only to the particulate filter element.</p> <p>Filter efficiency is the stated percentage of particles removed from the air. Filter efficiency degradation is defined as a lowering of filter efficiency or a reduction in the ability of the filter to remove particles as a result of workplace exposure.</p> <p>The new classes of nonpowered particulate respirators require new decision logic for selection of the proper respirator. The selection process for using the new particulate classification is outlined as follows and is discussed in Section II of <i>NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84</i>:</p> <ol style="list-style-type: none"> 1. The selection of N-, R-, and P-series filters depends on the presence or absence of oil particles, as follows: <ul style="list-style-type: none"> ○ If no oil particles are present in the work environment, use a filter of any series (i.e., N-, R-, or P-series). ○ If oil particles (e.g., lubricants, cutting fluids, glycerine, etc.) are present, use an R-or P-series filter. <p>Note: N-series filters cannot be used if oil particles are present.</p> ○ If oil particles are present and the filter is to be used for more than work shift, use only a P-series filter. <p>Note: To help you remember the filter series, use the following guide: N for <i>Not</i> resistant to oil R for <i>Resistant</i> to oil P for oil-<i>Proof</i></p> 2. Selection of filter efficiency (i.e., 95%, 99%, or 99.97%) depends on how much filter leakage can be accepted. Higher filter efficiency means lower filter leakage. 3. The choice of facepiece depends on the level of protection needed -- that is, the assigned protection factor (APF) needed. 	

Type	Use	Info	Source
Respirator	USE OF RESPIRATORS	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2</p> <p>USE OF RESPIRATORS</p> <p>Conditions. Once the respirator has been properly selected and fitted, it is necessary to ensure that the respirator is used properly in the workplace. The following conditions may compromise the effective use of the respirator and jeopardize worker protection: facepiece seal leakage; removing the respirator at the wrong times in hazardous atmospheres; not properly performing user seal checks; or not properly repairing defective parts. In these circumstances, there is the danger that employees may have a false sense of security in feeling that they are protected when they are not.</p> <p>The employer must also be aware of the conditions in the work areas where employees are using respirators. Employers are required to routinely evaluate workplace conditions, the degree of employee exposure, and physical stress so that they can provide additional or different respiratory protection when necessary. By observing respirator use under actual workplace conditions, employers can note problems such as changes in the fit of a respirator due to the use of other protective equipment, or conditions leading to skin irritation.</p> <p>Facepiece Seal Protection</p> <p>0. Seal of Tight-Fitting Respirators and Valve Function. The employer must not permit respirators with tight-fitting facepieces to be worn by employees who have conditions that would compromise the facepiece-to-face seal. Examples of these conditions include facial hair that interferes with the facepiece seal or valve function, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or the use of jewelry or headgear that projects under the</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>facepiece seal.</p> <ol style="list-style-type: none"> <li>1. Corrective Glasses or Goggles. Corrective glasses or goggles, or other personal protective equipment, must be worn in such a way that they do not interfere with the seal of the facepiece to the face. Since eye glasses or goggles may interfere with the seal of half-facepieces, it is strongly recommended that full-facepiece respirators be worn where either corrective glasses or eye protection is required, since corrective lenses can be mounted inside a full-facepiece respirator. In addition, the full-facepiece respirator may be more comfortable, and less cumbersome, than the combination of a half-mask and chemical goggles. OSHA's current standard on respiratory protection, unlike the previous one, allows the use of contact lenses with respirators where the wearer has successfully worn such lenses before. <li>2. User Seal Check. A user seal check (formerly known as a fit check) must be performed every time a tight-fitting respirator is put on or adjusted to ensure proper seating of the respirator to the face. The user seal check conducted must be either the positive and/or negative pressure checks described in Appendix VIII:2-2 of this chapter, or the manufacturer's recommended procedures (when equally protective). If the employee fails the user seal check test, another facepiece must be selected. <p>The employee must not have any hair growth (e.g., beard stubble, sideburns, or beard) that comes between the sealing surface of the respirator facepiece and the face, as</p>	

Type	Use	Info	Source
		<p>well as hair that interferes with valve function, or any other condition that might interfere with the face-to-facepiece seal such as jewelry or facial makeup. The user seal check must be used for all respirators on which such checks are possible. If a user seal check cannot be performed on a tight-fitting respirator, the OSHA standard prohibits that respirator from being used.</p> <p>Continuing Respirator Effectiveness</p> <ol style="list-style-type: none"> 0. Skin or Eye Irritation. Skin or eye irritation can result from wearing a respirator in hot, humid conditions, as well as in contaminated environments. Such irritation can be distressing to workers, causing them to remove or adjust the respirator, or to refrain from wearing the respirator altogether. Therefore, to prevent skin or eye irritation associated with respirator use, employees must be permitted to leave the respirator use area to wash their faces and respirator facepieces as needed. 1. Filter, Canister, and Cartridge Elements for Air-Purifying Respirators. Whenever the respirator user can detect vapor or gas breakthrough (by odor, taste, and/or irritation effects), a change in breathing resistance or leakage of the facepiece, the worker must be allowed to leave the respirator use area to replace the respirator or the filter, cartridge, or canister elements. Similarly, employees must be permitted to leave the respirator use area if they are replacing cartridge or canister elements according to a change schedule, or when the end-of-service-life indicator shows that the canister or cartridge(s) must be changed. 	

Type	Use	Info	Source
		<p>2. Repair, Disposal, and Replacement of Respirators. Since respirators must be in good working condition to function, it is imperative that they not be used if they have been impaired in any way. Impairments include a broken strap, loss of respirator shape, and a face seal that can no longer be maintained. Therefore, respirators that are not properly functioning must be replaced, repaired, or discarded. The respirator manufacturers can supply replacement parts for damaged parts on elastomeric respirators. Only when the respirator has been replaced or repaired can the employee return to the respirator use area.</p> <p>Immediately Dangerous to Life or Health (IDLH) Atmospheres. Atmospheres are IDLH when they pose an immediate threat to life, would cause irreversible adverse health effects, or would interfere with an individual's ability to escape from a dangerous atmosphere. Care must be exercised in these situations since failure of the respirator to provide the appropriate protection may result in serious injury or death. Consequently, the employer must develop and implement specific procedures for the use of respirators in IDLH atmospheres that include the following provisions:</p> <p>0. At least one employee (referred to as the "standby employee") is to be located outside the IDLH atmosphere and maintain visual, voice, or signal line communication with the employee(s) in the IDLH atmosphere;</p> <p>1. The standby employee(s) located outside the IDLH atmosphere must be trained and equipped to provide effective emergency rescue;</p> <p>2. The employer or authorized designee is to be notified before the standby employees(s) enter the IDLH</p>	

Type	Use	Info	Source
		<p>atmosphere to provide emergency rescue;</p> <ol style="list-style-type: none"> 3. The employer or authorized designee, once notified of such entry, must provide the necessary assistance appropriate to the situation; 4. Standby employee(s) must be equipped with pressure demand or other positive pressure SCBA, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and 5. Standby employee(s) must be equipped with appropriate retrieval equipment for lifting or removing the employee from the hazardous atmosphere, or, when such retrieval equipment cannot be used because it would increase the overall risk resulting from entry, ensure that equivalent provisions for rescue have been made. <p>Interior Structural Firefighting. In the ultra-hazardous situation of interior structural firefighting, firefighters must operate using a buddy system. Safeguards that may be adequate for well-controlled and well-characterized IDLH situations are not adequate in the uncontrolled and unpredictable situation characterized by a burning building. Therefore, in addition to the above safeguards for IDLH atmospheres, the following requirements apply to interior structural fire fighting:</p> <ol style="list-style-type: none"> 0. Two or more firefighters must always be sent in together and remain in visual or voice contact with one another at all times; 	

Type	Use	Info	Source
		<ol style="list-style-type: none"> 1. At least two standby personnel are to be located outside the fire area; and 2. All personnel engaged in interior structural firefighting must use SCBA. <p>The "two-in/two-out" requirement does not take effect until firefighters begin to perform interior structural fire fighting. While the fire is in the incipient stage (as determined by the commander or other person in charge), or when emergency rescue operations are required before the entire team has assembled, the standard does not require two-member teams inside and outside the structure.</p>	
Respirator	USER SEAL CHECK	<p>RESPIRATORY PROTECTION OSHA Technical Manual (OTM) Section VIII: Chapter 2 APPENDIX VIII:2-2. USER SEAL CHECK</p> <p>A. Facepiece Positive and/or Negative Pressure Checks</p> <p>Positive Pressure Check</p> <p>Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve, and then carefully replacing it after the test.</p> <p>Negative Pressure Check</p>	<p>http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html</p>

Type	Use	Info	Source
		<p>Close off the inlet opening of the canister or cartridge(s) by covering it with the palm of the hand(s) or by replacing the filter seal(s). Inhale gently so that the facepiece collapses slightly, and hold your breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand, which requires that the test be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition, and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.</p> <p>B. Manufacturer's Recommended User Seal Check Procedures</p> <p>The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures, provided that the employer demonstrates that the manufacturer's procedures are equally effective in detecting seal leakage compared to the positive pressure and negative pressure checks described above.</p>	
Respirators		General Respiratory Protection Guidance for Employers and Workers	http://www.osha.gov/dts/shib/respiratory_protection.pdf
Gas Masks,Respirators,Suits & More	10 Person Guardian Deluxe Survival Kit OKTP	10 Person Guardian Deluxe Survival Kit OKTP \$179.99	http://www.rddusa.com/Search.aspx

Type	Use	Info	Source
			
Gas Masks,Respirators,Suits & More	2 Person Deluxe Kit SKD2	2 Person Deluxe Kit SKD2 \$89.99 	http://www.rddusa.com/Search.aspx
Gas Masks,Respirators,Suits & More	2 Person Essentials Kit SKE2	2 Person Essentials Kit SKE2 \$69.99 	http://www.rddusa.com/Search.aspx
Gas Masks,Respirators,Suits & More	2 Person Guardian Deluxe Survival Kit OK2P	2 Person Guardian Deluxe Survival Kit OK2P \$99.99	http://www.rddusa.com/Search.aspx

Type	Use	Info	Source
			
Gas Masks,Respirators,Suits & More	4 Person Guardian Deluxe Survival Kit OK4P	4 Person Guardian Deluxe Survival Kit OK4P \$119.99 	http://www.rddusa.com/Search.aspx
Gas Masks,Respirators,Suits & More	5 Person Guardian Deluxe Survival Kit OKFP	5 Person Guardian Deluxe Survival Kit OKFP \$129.99 	http://www.rddusa.com/Search.aspx
Gas Masks,Respirato	Baby Safe Pro Infant Protective Wrap	Baby Safe Pro Infant Protective Wrap GM50000	http://www.rddusa.com/Search.aspx

Type	Use	Info	Source
rs,Suits & More	GM50000	\$98.00 	
Gas Masks,Respirators,Suits & More	Bardas - PROTECTIVE HOOD FOR CHILDREN	Bardas - PROTECTIVE HOOD FOR CHILDREN GM50001 \$98.00 	http://www.rddusa.com/Search.aspx
Gas Masks,Respirators,Suits & More	Belgian Gas Mask With Filter FG10007	Belgian Gas Mask With Filter FG10007 \$49.90	http://www.rddusa.com/Search.aspx

Type	Use	Info	Source
			
<p>Gas Masks,Respirato rs,Suits & More</p>	<p>Chemical Cover Boots U.S. G.I. CF10008</p>	<p>Chemical Cover Boots U.S. G.I. CF10008 \$3.90</p> 	<p>http://www.rddusa.com/Search.aspx</p>
<p>Gas Masks,Respirato rs,Suits & More</p>	<p>Civilian Adult NBC Protective Hood and Blower System GM50002</p>	<p>Civilian Adult NBC Protective Hood and Blower System GM50002 \$189.00</p> 	<p>http://www.rddusa.com/Search.aspx</p>

Type	Use	Info	Source
Gas Masks,Respirators,Suits & More	Gas mask Replacement Filter FG10003	<p>Gas mask Replacement Filter FG10003 \$14.90</p> 	<p>http://www.rddusa.com/Search.aspx</p>
Gas Masks,Respirators,Suits & More	Gas Masks,Respirators,Suits & More	<p>2 Shelf First Aid Cabinet FAC2 \$80.00 3 Shelf First Aid Cabinet FAC3 \$140.00 4 Shelf First Aid Cabinet FAC4 \$175.00 Desert Net 10ft X 10ft - New CNDESERT10 \$40.00 Desert Net 15ft X 15ft New CNDESERT15 \$90.00 Desert Net 25ftX 25ft TC10004DESERTNET25FTX25FT \$255.00 Gas Mask Bag Canvas M-17 U.S. G.I. FB20009 \$3.90 Gas Mask French Bag FB20053-FRENCHGASMASKBAG \$9.90</p>	<p>http://www.rddusa.com/Search.aspx</p>
Gas Masks,Respirators,Suits & More	Israeli Civilian Gas Mask Adult With Filter (Model 4A1)	<p>Israeli Civilian Gas Mask Adult With Filter (Model 4A1) FG10001 \$19.90</p> 	<p>http://www.rddusa.com/Search.aspx</p>

Type	Use	Info	Source
Gas Masks,Respirators,Suits & More	Israeli Youth Gas Mask With Filter 4A1 Child GM50003	<p> Youth Israeli Gas Mask With Filter 4A1Child GM50003 \$19.90 </p> 	<p> http://www.rddusa.com/Search.aspx </p>
Gas Masks,Respirators,Suits & More	Long Term Food Storage Deluxe Survival Kit FSDK	<p> Long Term Food Storage Deluxe Survival Kit FSDK \$239.00 </p> 	<p> http://www.rddusa.com/Search.aspx </p>
Gas Masks,Respirators,Suits & More	M-15 Upgraded Military Gas Mask With Filter FG10002	<p> M-15 Upgraded Military Gas Mask With Filter FG10002 \$39.90 </p>	<p> http://www.rddusa.com/Search.aspx </p>

Type	Use	Info	Source
			
<p>Gas Masks,Respirators,Suits & More</p>	<p>Pets Protective Shelter With Filter Small</p>	<p>Protective Shelter With Filter For Small Pets Width 2' Length 2'6" FG10004 \$39.90</p> 	<p>http://www.rddusa.com/Search.aspx</p>
<p>Gas Mask</p>	<p>Gas Mask FAQ</p>	<p>Q: If the threat of nuclear, biological or chemical (NBC) terrorism is so great, why doesn't the government issue gas masks to their citizens? A: According to Stephen Rose, author of "The Coming Explosion of Silent Weapons," there are two reasons the U.S. Government has not issued gas masks to its citizens. a. Because the issue is too unsavory and difficult to handle, especially in time of peace. The leaders of the country do not want to alarm the citizens with this threat. b. Politicians who approve and vote on the budget would have a hard time voting for an 80-billion-dollar expense (which is what Rose estimates it would cost to supply every citizen of the United States with a gas mask and protective gear) to fight a heretofore invisible threat.</p> <p>Q: Does any country provide effective protection for its people? A: We at Neoterik</p>	<p>http://www.securityprousa.com/gasmain.html</p>

Type	Use	Info	Source
		<p>studied how countries around the world prepare to meet the dangers of widespread terrorist attacks and incidents. We found one country that provided free masks. Israel makes sure that all its citizens are protected. The civil defense system in Israel is very good. It has been proved against real threats for decades. The core item of protection in Israel is a gas mask. The government provides good masks and filters for everyone. We anticipated the need for similar products in the United States and developed our own designs for gas masks, battery-powered respirators for first responders and special hoods for babies and children.</p> <p>Q: What exactly is a gas mask? A: A gas mask is a device that is worn to reduce the amount of contamination in the air that you breathe. There are different types. Some of them cover only your nose and mouth, some cover your entire face and some positive air systems have hoods. All gas masks have filters that are used with them.</p> <p>Q: What is a PAPR or positive air system? A: A PAPR, powered air purifying respirator, is a positive air system that uses a battery to power a blower, which then pumps air through a filter into a mask or a hood. The blower, battery and filters are usually belt-worn, and connected to the hood or mask by a breathing tube. The clean, filtered, cool air flows into the breathing zone. The airflow is much higher than the wearer needs to breathe, and the excess flow creates a positive pressure as it passes through the mask. This pressure pushes out, and keeps contamination from leaking in. This is different from a normal gas mask, which uses the wearer's lung power to pull air through a filter. The normal type mask must fit tightly. A powered mask or hood can be loose. The positive air system is more comfortable and more protective. It is also more complex and more costly. Positive air systems are sometimes called PAPRs, for powered air purifying respirators.</p> <p>Q: What makes a gas mask effective? A: Concerning the effectiveness of masks, the key characteristics are the fit and the capability of the filter.</p> <p>Q: Is the fit important with positive air systems? A: The fit is not important on positive air systems provided they are properly designed and operational. The excess airflow creates a positive pressure that works to prevent contaminated air from leaking into the breathing zone.</p>	

Type	Use	Info	Source
		<p>Q: Is the fit important on regular masks? A: Yes. With conventional tight-fitting masks the fit is very important because contaminants must not be allowed to leak past the seal on the face. If the mask doesn't fit, it doesn't work.</p> <p>Q: How does the filter work? A: Filtration technology works in two basically different ways. We filter particulates using one approach, and vapors and gases in a different way.</p> <p>Q: What are particulates, and how do you filter them? A: Particulates are particles of any size. They can be very large, or so small that they cannot be seen. Particulates include things such as bacteria, viruses, biological hazards, aerosols, mists, sprays, asbestos, dusts and so on. When we filter these things, we use a media that traps them. The media acts like a screen or a sieve. It is designed to trap the particulates and allow the air to pass through. The media must be capable of blocking and retaining small, toxic particles. Our media is tested against a particle that averages 0.3 microns in size. Compare this with anthrax, for example, which is a rod shaped particle that is 1 micron wide and 4 microns long. Just as you cannot squeeze a tractor-trailer through the door to your kitchen, so anthrax will not pass through our filters.</p> <p>Q: What are gases and vapors, and how do you filter them? A: Gases and vapors are substances that behave a lot like air does. They are not particles until we get down to the molecular level. Gases and vapors will pass through screens and sieves. When we filter gases and vapors, we cannot trap them so we use a media that absorbs them. This media will suck up gases like a sponge until it is saturated. Different types of filters will filter different types and amounts of gases. Not all filters will filter all sorts of gases. Our NP8000 filter was tested by the US Army against nerve gas. The test lasted for six hours and at the end of the test there was zero breakthrough.</p> <p>Q: What if I need a filter for protection against both particulates and gases? A: Some filters, like our NP8000, are combination filters and incorporate both particulate and gas filtering media.</p>	

Type	Use	Info	Source
		<p>Q: Why should I have a mask at all? Some people say there's no point in having one. A: Many people are getting masks. All the professional first responders like the police, emergency medical and fire department people are getting masks. These professionals know that there are times when a mask will save their lives. Not always, of course. There are some risks that a mask will not protect you against. But there are some that it will. A bulletproof vest will not stop a police officer from being shot in the head, but they do save lives. And the police do wear these vests for that reason. Masks are the same. There will be situations where they will help, and others where they will not. Many people in the general population are following the lead of the professionals and are getting protective masks for themselves. People are assessing the risks that we face, and making their own decisions.</p> <p>Q: When should I use a mask? Some people say there's no point in having one unless I wear it all the time. I can't do that. A: No, of course you shouldn't wear your mask all the time. Generally, there are two distinct situations when you should wear a mask. The first is when a competent authority, such as the police, declares an emergency and tells you to take cover, to evacuate or even to put on a mask if you have one. The second is when you are in a situation that becomes an emergency and your own awareness makes it clear that now is the time to put your mask on. In today's world, both these situations are genuine possibilities. We hope we never encounter such circumstances. But, realistically, such situations could happen while we are traveling, commuting, at work, at home, or doing anything else that is part of our regular lifestyle.</p> <p>Q: Since many chemical and biological weapons are difficult to detect, won't it be too late for me to save my life by putting on my gas mask or respirator once I've become aware of the threat? A: In the worst case, if you've already been exposed, it may indeed be too late. However, putting on your mask will certainly curtail your exposure, and may make the consequences less severe. Also, remember, the first hint that NBC agents are being used on civilians will be instant news. It will be broadcast over radio and television immediately. It is likely that the duration of a gas risk could be estimated and made known. Even the direction of a spreading toxic cloud could be predicted and people in the path would be warned. Some people in the hot zone and certainly those in the warm zone will have sufficient</p>	

Type	Use	Info	Source
		<p>time to respond. After a chemical or biological attack, the residual effects could linger from several minutes to several days, depending on weather conditions (wind, humidity, etc.) and the amount of toxins released into the atmosphere. For people who are prepared for this type of emergency, gas masks may well be a lifesaver. The bottom line is that when an NBC assault happens, some of us may die. However, many will survive. If we and those we care about have effective gas masks we will increase the odds of being among the survivors.</p> <p>Q: Why should I use your gas masks, and not masks from somewhere else? A: We are an American company, manufacturing here in America. Our products are designed to protect you against real threats. Every item is manufactured, inspected and tested against a rigorous quality control program. Our costs are very competitive. Our products are very easy to use. And, we are a one source manufacturer for many different types of masks, including our special configurations for babies and children.</p> <p>Q: What types of gas masks do you offer? A: We offer a number of different products with various advantages and benefits.</p> <p>Q: What are the most protective products you offer? A: The most protective masks and hoods we manufacture for protection against nuclear, biological and chemical hazards are battery-powered, positive pressure full masks and hoods. Our battery-powered products are the full face mask FR2 and the full hood FR3. These are both intended for emergency use by first responders such as fire fighters, law enforcement personnel and emergency medical services. They are kept on stand-by for immediate use.</p> <p>Q: What is the next level of protection? A: Our next level of protection is full face gas masks. We offer two basic types. One is our NP2131K mask, which has a full panoramic visor and a speaking diaphragm. The other is our NBC14 mask, which has twin eye pieces. They are both made from neoprene, and have a nose cup, and five point suspension for a secure fit. There is a junior version of the mask with twin eye pieces, the NBC24 for some pre-teens and teenagers. Filter canisters are not included. We recommend our NP8000 canister but other types are available.</p>	

Type	Use	Info	Source
		<p>Q: What is the next level of protection? A: For people who want an alternative to a full gas mask, we offer Homeland Hoods. These are quick-don, ready-to-wear with a half-mask, filters and an integrated hood made from either butyl rubber or tychem. These can be worn by adults and by some teenagers.</p> <p>Q: What is the next level of protection? A: Our lowest level of protection, absolute minimum effective against low levels of hazards only, is our half-mask dual cartridge respirator, MK32. Use our NP1000K special filter pack.</p> <p>Q: Can children and babies use masks? A: No, children and babies cannot use regular gas masks. Protecting babies and small children is a special problem, for several reasons. They do not have the lung capacity of adults, and are not able to breathe through a filtering canister. They have small faces and masks do not seal and contamination will leak into the child’s face. And some children are not able to wear a mask without becoming very frightened.</p> <p>Q: What can I use to protect babies and small children? A: We manufacture battery-powered hoods, one for children who can walk, ages 2-12, (our CH14), and one for babies up to two years old, (our CH16) who must be carried. These products have a small electric blower, a small battery, and a specially configured hood. The battery powers the blower, which then pumps air through the filter into a hood. The child breathes filtered air which is brought to her under positive pressure. The child does not have to suck air through the filter, because the blower does the work.</p> <p>Q: How do I know what size gas mask to order? A: That depends on whether you want to protect adults or children.</p> <p>Q: What about adults? What sizes do they need? A: For full facemasks, it’s one size fits all. They come with adjustable straps. For Homeland Hoods and half-masks, most adults need a medium size. Some big faces may need a large size.</p> <p>Q: What about children? What size do they need? A: For babies who need to be carried, use our Baby-Hood, CH16. For children who can walk, up to about age 12, use our Child-Hood, CH14. Some pre-teens and teenagers may be able to wear our</p>	

Type	Use	Info	Source
		<p>junior mask, NBC24, or Homeland Hood.</p> <p>Q: What is the shelf life of gas masks and filters? A: Typically, gas masks have a shelf life of up to 15 years and filters up to 10 years.</p> <p>Q: Is that why old gas masks are suspect? A: Yes. If you are looking for protection, never buy a gas mask or filter from a surplus supplier. Be careful, because some masks are described as "new" even though they are literally forty or fifty years old. To some people "new" means "never been used" while to others it means "recent in origin." A fifty-year old mask may never have been used, but it is certainly not recent in origin. By the way, our very name, Neoterik, is a word that means recent in origin.</p> <p>Q: What happens to old gas masks? A: They may well be offered for sale to the general public. For example, in Israel, the people there can trade in old masks that have exceeded their shelf life and get new ones. Filters are exchanged for new ones when they exceed their shelf life. If a mask or a filter is used, it is exchanged for a new one. Many of the older, used and obsolete Israeli masks are being sold on the Internet and through military surplus outlets to unsuspecting Americans. The same thing happens with aged military masks from different countries around the world. These masks can be sold as surplus items, and America is a favored outlet because the purchase is made in those very desirable USA dollars. Old military masks from Russia, China, Germany, Israel and other sources are readily available, often at very low cost. Of course, all these items have exceeded their useful life. We recommend that you always ask three fundamental questions before you buy any gas mask.</p> <p>Q: What are the three fundamental questions I should ask before I buy a gas mask? A: When you buy any mask, make sure you ask these three fundamental questions. First, when was this mask factory tested? Second, when was this filter manufactured? Third, what will this filter protect against? Always buy a mask that has been factory tested and packaged so that the date of test is clearly displayed. Never buy an old filter. Always make sure the filter will protect against the hazards of concern. Out-of-date filters are useless. Old gas masks, even if they really have never been used, have probably lost their integrity. Without factory testing, they are useless. They are sold very cheaply because there is no guarantee that they will</p>	

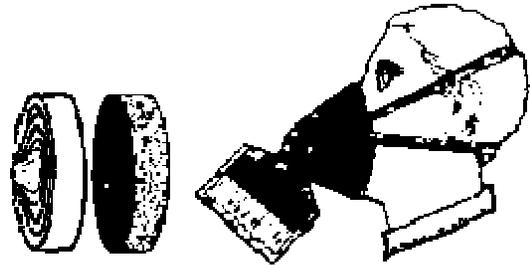
Type	Use	Info	Source
		<p>protect you from nuclear, biological or chemical agents.</p> <p>Q: My local army/navy surplus store sells gas masks. I can also find some very cheap on the internet. They told me that their masks would protect me from biological or chemical agents. Is that true? A: Probably not. Ask the three fundamental questions we discussed above. Many gas masks sold in surplus stores are old and do not have functional filters. When was this mask factory tested? Many of these masks are made of old rubber that is beginning to crack. If you can, pick up the mask and stretch the straps between your fingers. If small cracks are visible, the mask is not a good risk. When was this filter manufactured? Filters have a limited shelf life. If they are ten years old, they will not protect you. What will this filter protect against? Who has the test results? Ask these questions and judge the professionalism of the product by the answers you get. If you have a mask and filter that was purchased from a swap meet, gun show or surplus store and is not in its original packaging, assume it is useless.</p> <p>Q: How long will filters last in use? A: This is very difficult to answer, because there are so many possible variations. One main consideration is whether the risk is a biological hazard like anthrax or a vapor like nerve gas.</p> <p>Q: What if it is biological, like anthrax? A: Then the life of a Neoterik filter will not be a concern. Our filters are designed to accept a very heavy loading of particulate matter without breakthrough. The best guidance is that our filter will last for months. However, be sure the change the filter after it has been used.</p> <p>Q: What if the hazard is a gas? A: Again, all we give is general guidance, because the life of the filter will be affected by how much gas is in the air, what kind of gas it is, and how many different gases are present. A good general rule may be to expect the filters to last up to ten hours. However, if concentrations of a deadly toxin are extremely high, it is possible that each filter will only last ten minutes. It is highly advisable that when you purchase a mask, you purchase a realistic supply of filters as well.</p> <p>Q: What if the hazard is a combination of both biological agents and a gas? A: When we are providing protection against terrorist substances or the</p>	

Type	Use	Info	Source
		<p>consequences of chemical accidents of some kind, the gas filtering part of our filter will always be used up first. For the likely duration, follow the same advice as we offer for protection against a gas.</p> <p>Q: Should I replace the filter after I have used it? A. Yes. It is acceptable to practice with the filter in clean air, but afterwards you must replace the sealing caps or put the filters back into the storage pouch, whichever is applicable. When the filter is used in earnest, replace it as soon as possible. Do not put a used filter into storage.</p>	
Biological or Chemical Threat	Biological or Chemical Threat	Responding to a Biological or Chemical Threat-A Practical Guide	http://www.state.gov/documents/organization/19691.pdf
Gas Masks/Respirators	Fitting	<p>Fitting</p> <p>There is no purpose in wearing a respirator if it does not fit, or is worn incorrectly. Faces are different shapes and sizes and respirators come in a variety of brands and sizes.</p> <p>When respirators are being selected for a workplace, workers should insist that a range of brands and types are available to choose from, and that everyone undergoes a facial fit-test.</p> <p>Correct fit and comfort are just as important as technical effectiveness</p> <p>Once a mask which seems appropriate for the individual and task has been selected, the wearer must be shown how to fit it. Seals must be inspected and the rubber must be in good condition. Inlet and exhaust valves should be inspected for correct operation, particularly for blockage or sticking - sweat and saliva often cause them to clog up. The RPE are often made of rubber and this must not be allowed to perish.</p> <p>Correct fit of a mask requires contact with smooth skin - this makes masks unsuitable for men with beards or moustaches. Even a one day growth of a beard has been shown to allow nearly one per cent penetration of a full face-piece. This is unacceptable with very toxic or carcinogenic substances. Small beards or moustaches which fit inside the face-piece are also unacceptable as they may cause an exhalation valve to fail if a hair lodges in it.</p>	http://www.workershealth.com.au/facts014.html

Type	Use	Info	Source
		<p>Glasses must not be worn inside a face-piece unless they are specially designed for the purpose, as the ear pieces will prevent a good seal. These face-pieces are also unsuitable for people who wear contact lenses.. Workers who wear glasses or contact lenses should be supplied with air-supplied hoods or helmets.</p> <p>Users should be provided with instruction about how to replace filters, canisters and cartridges and when to do so. There must be practice drills and periodic refresher training in the use and care of the protective equipment.</p>	
Gas Masks/Respirators	Maintenance	<p>Maintenance</p> <p>All respirators should be inspected at least once per month and cleaned and examined after each use. Face-pieces should be washed in warm water with a detergent, rinsed and air dried. They may be disinfected with hypochlorite (bleach) solution.</p> <p>Filters and cartridges cannot be disinfected and should be replaced daily or when breathing becomes noticeably more difficult, indicating that the filter is becoming clogged. Respirators should be stored in a dust-proof container or locker.</p>	<p>http://www.workershealth.com.au/facts014.html</p>
Gas Masks/Respirators	Masks and other respiratory protection	<p>Masks and other respiratory protection</p> <p>Dusts, gases, fumes, mists and vapors are common hazards in workplace air. These can seriously affect the health of workers. Breathing in asbestos fibers can lead to asbestosis and lung cancer while crippling lung diseases can be caused by the inhalation of certain dusts.</p> <p>Inhaling some chemicals, such as solvents, can damage many parts of the body including the brain. Welding fumes, smoke, mists from spray painting are also serious respiratory hazards and workers should be adequately protected from exposure to any of them.</p>	<p>http://www.workershealth.com.au/facts014.html</p>

Type	Use	Info	Source
		<p>Protection against respiratory hazards</p> <p>The most important defence against respiratory hazards is to control the contamination at its source and prevent it from entering the air. This can be done by either substituting dangerous substances with less hazardous ones (particularly where chemicals are used), by isolating or enclosing hazardous operations, or by providing adequate local exhaust ventilation. However, in some situations it may be necessary to wear respiratory protective equipment (RPE). This may be because it is not immediately practical to implement some of the above mentioned measures. Or it may be because access to a contaminated area is needed for a short period, or maintenance operations need to be carried out. In addition, RPE may need to be worn in some emergency situations.</p> <p>The use of respiratory protective equipment is often favoured by employers because it is generally a cheaper option, when compared with the cost of controlling the hazard at its source. Nevertheless, many employers are not even prepared to commit the resources required for an effective Personal Protective Equipment Program (see later). In some instances, engineering controls may be more cost-effective in the long-term, in addition to improving health & safety in the workplace.</p> <p>The Australian Council of Trade Unions (ACTU) Health and Safety Policy strongly emphasises the importance of engineering control measures such as hazard enclosure or local exhaust ventilation. It is essential that workers find out all the possible options for preventing an airborne hazard before agreeing to wear respiratory equipment on a regular basis.</p> <p>It is also essential that any respiratory protective equipment program implemented in a workplace includes air monitoring. Respirators of different types are suitable for atmospheres of specific concentrations only. If the concentration exceeds a certain level, a different type of respirator will be necessary.</p> <p>This Fact Sheet is intended to inform workers on the different types of respiratory protection and what should be done before you wear them at work.</p>	

Type	Use	Info	Source
		<p>References</p> <ul style="list-style-type: none"> • Australian Standard AS/NZS 1715:1994 <i>Selection, use, maintenance of respiratory protective devices</i> (Standards Association of Australia, Sydney). • Australian Standard AS/NZS 1716:1994 <i>Respiratory protective devices</i>. (Standards Association of Australia, Sydney). • Frequently asked questions about Personal Protective Equipment WorkCover NSW, 1995 <p>For further information and advice contact the Workers Health Centre 02 9749 7666 admin@workershealth.com.au</p>	
Gas Masks/Respirators	Selecting the right equipment	<p>Selecting the right equipment</p> <p>There are many types of respiratory protection equipment and the correct type must be selected for the job; otherwise it will be useless. Unfortunately, most RPE are selected because they are the cheaper choice and look as though they “will do”.</p> <p>Selection of the right protective equipment is easy, once the hazard is identified. RPE should not be selected unless there is accurate information on its toxicity and on the amount present in the working environment. Therefore, it is essential that air monitoring is regularly carried out, even when RPE is used. If the contaminant levels in the air increase, a different type of respirator or other controls may have to be used.</p> <p>Standards</p> <p>The Australian Standard AS/NZS 1715-1994 Selection, use and maintenance of respiratory protective devices should be referred before selecting respiratory protection.</p> <p>It explains the general principles of respiratory protection and different types of</p>	<p>http://www.workershealth.com.au/facts014.html</p>

Type	Use	Info	Source
		respirators. The Standard describes in detail the management responsibilities after the purchase of RPE because education, training and maintenance is important for efficient protection.	
Gas Masks/Respirators	Types of respiratory equipment	Types of respiratory equipment In general, there are two types of respiratory protective equipment - air purifying respirators and air supplying respirators . The latter are either self contained air supply, like what SCUBA divers wear, or are supplied from an external air source.	http://www.workershealth.com.au/facts014.html
Gas Masks/Respirators	Types of respiratory equipment - Air purifying respirators	Air purifying respirators Air purifying respirators are divided into three categories - those which purify through: <ul style="list-style-type: none"> • <i>Filtering self-rescue</i> (these are used for dusts, fumes, fibres, particulates and mists) • <i>Gas filtering absorption</i> (these are used for gases and vapours) • <i>Particular filter</i> (a combination of the above two filters) <div style="text-align: center;">  <p>A half-mask with combination filter containing both a dust and a gas filter</p> </div>	http://www.workershealth.com.au/facts014.html

Type	Use	Info	Source
		<ul style="list-style-type: none"> • Filtering self-rescue <p><i>Dust, Fume and Mist Particulate Respirators</i></p> <p>Dust, fume and mist particulate respirators consist of a quarter or half face mask and a filter unit. They are basically mechanical filters. They give no protection against gases, vapours or oxygen deficiency.</p> <p>Care must be taken with the filter and they must be replaced regularly. As the filter becomes clogged, resistance to air flow increases. Apart from increasing the wearer's workload, this also increases the likelihood of leakage around the mask. <i>(See the Maintenance section of this Fact Sheet for advice on replacement of filters).</i></p> <p>There are three classes of filtering self-rescue based on their efficiency in filtering particles from outside contaminants.</p> <p>For example, Class 3 is the high efficiency type where penetration does not exceed 0.01 %.</p> <p>That is, when the dust concentration outside is 10 mg per cubic metre, then only 0.001 mg/m³ of dust (0.01%) will pass through the filter into the lungs.</p> <p><i>Disposable Respirators</i></p> <p>These are generally paper masks, which are only used for non-toxic contaminants (such as house dust).</p> <ul style="list-style-type: none"> • Gas filtering absorption <p><i>Gas Masks</i></p>	

Type	Use	Info	Source
		<p>The gas filter removes certain gases from the inhaled air and has a limited period of use. Gas masks are full face-pieces attached to a canister, which is mounted on the front, back or chin.</p> <p>The type of canister depends upon the vapours or gases that need to be removed and it is essential that the correct canister is selected.</p> <p>These masks must not be used with canisters which have exceeded the recommended life of the absorbent in it (the expiry period varies according to the size of the canister and the type of absorbent).</p> <p>Gas masks must not be used in oxygen deficient areas.</p> <p><i>"Escape-masks" are a sub-group of gas masks and are usually a half-mask or mouthpiece respirator.</i></p> <p>Chemical Cartridge Respirators</p> <p>These are similar to Gas Masks, except that the cartridges are smaller. They are available as half-masks, full masks, hoods or helmets and are useful for nuisance exposures to some vapours or low toxicity gases.</p> <p>Different cartridges are available for different vapours or gases and care must always be taken that the correct cartridge is used.</p> <p>They must not be used in environments</p> <ul style="list-style-type: none"> ▪ which are low in oxygen ▪ with very toxic substances ▪ with substances that will react with the chemical fill ▪ with eye irritants or ▪ with substances not detectable by smell or taste. 	

Type	Use	Info	Source
		<ul style="list-style-type: none"> • Particular filter (a combination of filtering and absorption) <p>Pesticide Respirators A pesticide respirator is comprised of a face-piece, an organic vapour canister and an aerosol filter.</p>	
Gas Masks/Respirators	Types of respiratory equipment - Air supplying respirators	<p>Air supplying respirators</p> <ul style="list-style-type: none"> • Self Contained Breathing Apparatus <p>Self Contained Breathing Apparatus provides respiratory protection in any toxic gas or oxygen deficient conditions. The supply of air or oxygen is carried by the wearer. When used with proper protective clothing, complete isolation from the dangerous environment can be achieved.</p>  <p>Self Contained Breathing Apparatus are the equipment of choice in emergency or rescue work, as they can operate independently of an air supply, and with no trailing hoses.</p> <p>They have the disadvantages of being heavy, bulky and hot, and are limited in their range by the amount of air carried by the worker. These also require a lot of training in their proper use.</p> <ul style="list-style-type: none"> • Supplied-Air Respirators 	<p>http://www.workershealth.com.au/facts014.html</p>

Type	Use	Info	Source
		<p>These respirators supply air to the wearer through a hose. They may be sub-grouped as:</p> <ul style="list-style-type: none"> <li>i. Hose masks with blower. These have a full face mask connected by a flexible hose to an air source. The source provides air under pressure by a hand or power operated blower. The inlet end of the air hose must be located away from the compressor. <li>ii. Hose masks without blower. These are similar to the above, but the air is drawn in by the user's respiratory effort. Hose masks without blowers should not be used with a hose longer than 22 meters. <li>iii. Air-Line Respirators. These are either full or half-face masks with air supplied through a hose from a compressed air source. They are designed to provide a constant positive pressure inside the face-piece to prevent inward leakage. They may be used with hose lengths of up to 90 metres. <p>Hose masks and air-line respirators are the most highly efficient. They should be used where dust, mist, vapour or gas concentrations are immediately dangerous to health. They are light and comfortable and are the best type of protection where long-term respirator use is required.</p> <p>However, the long hose may be a nuisance or hazard if cut or blocked and care should be taken that no contaminants are allowed into the air source. It is surprising how often exhaust carbon monoxide from the compressor finds its way into the air-line because of improper placement of the air</p>	

Type	Use	Info	Source
		<p>intake valve. Special filters from a compressor should be fitted to any air-supply line to remove oil mists, etc. These should be regularly checked.</p>	
<p>Gas Masks,Respirators,Suits & More</p>	<p>Certified Equipment List</p>	<p>General Cautions and Limitations</p> <p>These limitations are by no means all inclusive. The respirator manufacturer may also identify further cautions and limitations for their respirators. In addition, regulatory agencies may also place a limit on the use of respirators in their standards..</p> <p>See approval label for specific approval information and limitations.</p>	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>
<p>Gas Masks,Respirators,Suits & More</p>	<p>Certified Equipment List - 13F - Self-Contained Breathing Apparatus</p>	<p>General Cautions and Limitations</p> <p>13F - Self-Contained Breathing Apparatus</p> <ul style="list-style-type: none"> • Approval • General Limitations - All SCBA • Recommendation - SCBA with Breathing Gas Cylinder • Additional Limitations - Closed Circuit • Special Limitations <p>Approval (13F):</p> <p>Entry Into and Escape Class: Approved for respiratory protection during entry into or escape from oxygen-deficient atmospheres, gases and vapors</p> <p>Escape Only Class: Approved for respiratory protection during escape only from oxygen-deficient atmospheres, gases and vapors</p> <p>Combination Self-Contained Breathing Apparatus and Supplied-Air Respirator Class (demand and pressure demand): Approved for respiratory protection during entry into and escape from oxygen-deficient atmospheres, gases and vapors, when using air-line air supply. If the self-contained breathing apparatus is to be used during entry, the SCBA must be classified for 15 minutes or longer service time and not more than 20 percent of the rated capacity of the air supply is used during entry</p> <p>General Limitations - All SCBA:</p> <ul style="list-style-type: none"> • Use only for temperatures above the temperature listed on the approval 	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>

Type	Use	Info	Source
		<p>label.</p> <ul style="list-style-type: none"> • Approved only when compressed air reservoir is fully charged with air meeting the requirements of the Compressed Gas Association specification G-7.1 for Type 1, Grade D air, or equivalent specifications. • The air container shall meet applicable DOT specifications. • Use adequate skin protection when worn in gases or vapors that poison by skin absorption. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. <p>This respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations.</p> <p>Recommendation - SCBA with Breathing Gas Cylinders: NIOSH recommends that SCBA be inspected weekly if stored and immediately before use if used regularly, for breathing gas pressure.</p> <p>Additional Limitations - Closed Circuit:</p> <ul style="list-style-type: none"> • If compressed air supply is used: Approved only when air reservoir is fully charged with air meeting the requirements of the Compressed Gas Association (CGA) Specification G-7.1 for Type 1, Grade D air, or equivalent specifications. • If compressed oxygen or liquid oxygen is used: Approved for use only when the cylinder or container is charged with compressed oxygen or liquid oxygen meeting U.S.P. specifications. • If enriched air is used: Approved for use only when the cylinder or container is charged with compressed gas meeting the requirements listed in Federal Register Vol. 20, No. 222, November 18, 1985. Oxygen in the facepiece shall not exceed 30 percent by volume under normal temperature and pressure conditions. • If liquefied breathing air is used: Must meet both Type I gaseous air and Type II liquefied air specifications (1966 edition of CGA G-7.1). • The oxygen container shall meet applicable DOT specifications. • Provide proper care, training, and maintenance of the apparatus as specifically described in the manufacturer's instruction and maintenance manuals. 	

Type	Use	Info	Source
		<ul style="list-style-type: none"> • After each use of each apparatus, a fully charged breathing gas container and a recharge of carbon dioxide scrubber shall be installed. • Thorough cleaning and disinfecting of facepiece, breathing tube, and breathing bag must be done in accordance with the manufacturer's instructions. <p>Special Limitations: Open circuit pressure demand: Negative pressure mode shall be used only when donning apparatus. Closed circuit pressure demand: Do not use this apparatus where there is direct exposure to open flames or in high radiant heat. (This limitation applies to 100 percent oxygen apparatus only.) Open circuit (pressure demand, demand, or continuous flow): OSHA regulations require that escape respirators be inspected monthly. Closed circuit: OSHA regulations require that escape respirators be inspected monthly. MSHA regulations require that self-rescuers that are carried be inspected daily. Combination Self-Contained Breathing Apparatus and Supplied-Air Respirators (demand and pressure demand): Use only the hose lengths and pressure ranges specified on the approval label. If the supplied air fails, open cylinder valve and proceed to fresh air immediately.</p>	
Gas Masks, Respirators, Suits & More	Certified Equipment List - 14G - Gas Masks	<p>General Cautions and Limitations</p> <p>14G - Gas Masks</p> <ul style="list-style-type: none"> • General Limitations - All Gas Masks • Pesticides <p>General Limitations - All Gas Masks (14G):</p> <ul style="list-style-type: none"> • Not for use in atmospheres immediately dangerous to life or health. • Not for use in atmospheres containing less than 19.5 percent oxygen. • Refer to approval label, and instruction and maintenance manuals, for additional information on use and maintenance of these respirators. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Approval may include protection against particulates and multiple gases 	http://www2a.cdc.gov/drds/cel/cl.htm

Type	Use	Info	Source
		<p>and vapors. The type of additional approval is listed in the approval record under the approval number.</p> <ul style="list-style-type: none"> • Follow the manufacturer's instructions for changing canisters. • Do not wear for protection against gases or vapors with poor warning properties or those which generate high heats of reaction with sorbent materials in the canister. • Respirators shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Pesticides:</p> <ul style="list-style-type: none"> • Refer to pesticide label for limitations on respirator use. 	
<p>Gas Masks, Respirators, Suits & More</p>	<p>Certified Equipment List - 19C - Supplied Air Respirators</p>	<p>General Cautions and Limitations</p> <p>19C - Supplied Air Respirators</p> <ul style="list-style-type: none"> • Approval • Limitations - Type A • Limitations - Type B • Limitations - Type C (Continuous Flow, Pressure Demand, Demand) • Limitations - Type CE (Abrasive Blasting) <p>Approval (19C):</p> <p>Type A / Type B: Approved for respiratory protection against atmospheres not immediately dangerous to life or health.</p> <p>Type C - Continuous Flow / Type C - Pressure Demand / Type C – Demand: Respirator only approved when used with respirable air.</p> <p>Type CE - Abrasive Blasting: Approved for abrasive blasting and respiratory protection against atmospheres not immediately dangerous to life or health. Respirator only approved with used with respirable air.</p> <p>Limitations - Type A:</p> <ul style="list-style-type: none"> • Not for use in atmospheres containing less than 19.5 percent oxygen. • Use only the hose lengths, RPM, or pressure ranges specified on the approval label. • In making renewals and repairs, parts identical with those furnished by the 	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>

Type	Use	Info	Source
		<p>manufacturer under the pertinent approval shall be maintained.</p> <ul style="list-style-type: none"> • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • Follow manufacturer's instructions for fitting the facepiece, for location of the blower, for preventing entanglement and fouling of the hose, or operation of the blower and for caring of the respirator while in use. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Limitations - Type B:</p> <ul style="list-style-type: none"> • Not for use in atmospheres containing less than 19.5 percent oxygen. • Use only the hose lengths specified on the approval label. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • Follow manufacturer's instructions for locating the intake of the air supply hose. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Limitations - Type C (Continuous Flow, Pressure Demand, Demand):</p> <ul style="list-style-type: none"> • Use only the hose lengths and pressure ranges specified on the approval label. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Limitations - Type CE (Abrasive Blasting):</p> <ul style="list-style-type: none"> • Use only the hose lengths and pressure ranges specified on the approval label. • In making renewals and repairs, parts identical with those furnished by the 	

Type	Use	Info	Source
		<p>manufacturer under the pertinent approval shall be maintained.</p> <ul style="list-style-type: none"> • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. 	
<p>Gas Masks,Respirators,Suits & More</p>	<p>Certified Equipment List - 21C - Particulate Respirators (Part 11)</p>	<p>General Cautions and Limitations</p> <p>21C - Particulate Respirators (Part 11)</p> <ul style="list-style-type: none"> • Approval • Limitations - Single Use • Limitations - Dusts, Dusts and Mists, and Dusts, Fumes and Mists • Limitations - High-efficiency • Additional limitations for combination Type C Supplied-Air Respirators with escape high-efficiency respirators <p>Approval (21C):</p> <p>Single Use: Approved for respiratory protection against pneumoconiosis- and fibrosis- producing dusts and mists.</p> <p>Dusts: Approved for respiratory protection against dusts having an exposure limit measured as a time weighted average not less than 0.05 milligram per cubic meter or 2 million particles per cubic foot.</p> <p>Dusts and Mists: Approved for respiratory protection against dusts and mists having an exposure limit measured as a time weighted average not less than 0.05 milligram per cubic meter or 2 million particles per cubic foot.</p> <p>Dusts, Fumes and Mists: Approved for respiratory protection against dusts, fumes and mists having an exposure limit measured as a time weighted average not less than 0.05 milligram per cubic meter or 2 million particles per cubic foot.</p> <p>High-efficiency: Approved for respiratory protection against dusts, fumes and mists having an exposure limit measured as a time weighted average less than 0.05 milligram per cubic meter and radionuclides.</p> <p>Radon Daughters: Approved for respiratory protection against radon daughters, and radon daughters attached to dust, fumes and mists.</p> <p>Asbestos: Approved for respiratory protection against asbestos-containing dusts and mists</p>	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>

Type	Use	Info	Source
		<p>Limitations - Single Use (21C):</p> <ul style="list-style-type: none"> • Not for use in atmospheres immediately dangerous to life or health. • Not for use in atmospheres containing less than 19.5 percent oxygen. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Follow the manufacturer's instructions for changing filters. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Limitations - Dusts, Dusts and Mists, and Dusts, Fumes and Mists (21C):</p> <ul style="list-style-type: none"> • Not for use in atmospheres immediately dangerous to life or health. • Not for use in atmospheres containing less than 19.5 percent oxygen. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • Follow the manufacturer's instructions for changing filters. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Limitations - High-efficiency (21C):</p> <ul style="list-style-type: none"> • Not for use in atmospheres immediately dangerous to life or health. • Not for use in atmospheres containing less than 19.5 percent oxygen. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • Follow the manufacturer's instructions for changing filters and replacing respirators. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>Additional Limitations - Combination Type C Supplied-Air Respirator with escape</p>	

Type	Use	Info	Source
		<p>high-efficiency respirator:</p> <ul style="list-style-type: none"> • Use only the hose lengths and pressure ranges specified on the approval label. • When airflow is cut off, switch to filter and immediately exit to clean air. 	
<p>Gas Masks, Respirators, Suits & More</p>	<p>Certified Equipment List - 23C - Chemical Cartridges</p>	<p>General Cautions and Limitations</p> <p>23C - Chemical Cartridges</p> <ul style="list-style-type: none"> • Approval • General Limitations - all chemical cartridges • Special Limitations • Vinyl Chloride <p>Approved: See approval labels for approved maximum use concentration and for specific limitations.</p> <p>Hydrogen Chloride: Approved for respiratory protection against not more than 50 parts per million hydrogen chloride.</p> <p>Paints, Lacquers and Enamels: Approved for respiratory protection against (1) mists of paints, lacquers and enamels and (2) organic vapors</p> <p>General Limitations - All Chemical Cartridges:</p> <ul style="list-style-type: none"> • Not for use in atmospheres containing less than 19.5 percent oxygen. • Not for use in atmospheres immediately dangerous to life or health. • Do not exceed maximum use concentrations established by regulatory standards. • Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality. • Use only the pressure ranges and hose lengths specified in the User's Instructions. • Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets. • If airflow is cut off, switch to filter and/or cartridge and immediately exit to clean air. 	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>

Type	Use	Info	Source
		<ul style="list-style-type: none"> • Do not wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with sorbent. • Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH. • Failure to properly use and maintain this product could result in injury or death. • The Occupational Safety and Health Administration regulations require gas-proof goggles to be worn with this respirator when used against formaldehyde. • Follow the manufacturer's User's Instructions for changing cartridges and/or filters. • All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations. • Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer. • Refer to User's Instructions, and/or maintenance manuals, for information on use and maintenance of these respirators. • Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions for donning. <p>Special Limitations: 23C - Chemical Cartridges Organic Vapor / Paints, Lacquers and Enamels: Do not wear for protection against organic vapors with poor warning properties or those that generate high heats of reaction with sorbent. Pesticides: Do not wear for protection against organic vapors with poor warning properties or those that generate high heats of reaction with sorbent. Not approved for fumigants. Refer to pesticide label for limitations on respirator use. Other Gases and Vapors (including Mercury): The respirator should be carefully fitted to the wearer's face before use, in accordance with the manufacturer's facepiece fitting instructions. End of Service Life indicator.</p> <p>Vinyl Chloride:</p> <ul style="list-style-type: none"> • Not for use in atmospheres immediately dangerous to life or health. 	

Type	Use	Info	Source
		<ul style="list-style-type: none"> • Not for use in atmospheres containing less than 19.5 percent oxygen. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of these respirators. • Follow manufacturer's instructions for changing sorbent element. • The respirator shall be carefully fitted to the wearer's face before use, in accordance with the manufacturer's facepiece fitting instructions. • The respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. • End of Service Life indicator. 	
<p>Gas Masks,Respirators,Suits & More</p>	<p>Certified Equipment List - 84A - Non-powered Air-Purifying Particulate Filter Respirators</p>	<p>General Cautions and Limitations</p> <p>84A - Non-powered Air-Purifying Particulate Filter Respirators</p> <ul style="list-style-type: none"> • Approval • General Limitations - all Part 84A approvals <p>Approval (84A):</p> <p>84A - Non-Powered Air-Purifying Particulate Filter Respirators</p> <p>N95: Particulate Filter (95% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.* **</p> <p>R95: Particulate Filter (95% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.* ***</p> <p>P95: Particulate Filter (95% filter efficiency level) effective against all particulate aerosols.*</p> <p>N99: Particulate Filter (99% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.* **</p> <p>R99: Particulate Filter (99% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.* ***</p> <p>P99: Particulate Filter (99% filter efficiency level) effective against all particulate aerosols.*</p> <p>N100: Particulate Filter (99.9% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.* **</p> <p>R100: Particulate Filter (99.9% filter efficiency level) effective against all</p>	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>

Type	Use	Info	Source				
		<p>particulate aerosols; time use restrictions may apply.* ***</p> <p>P100: Particulate Filter (99.9% filter efficiency level) effective against all particulate aerosols.*</p> <p>* Limited by consideration of hygiene, damage, and breathing resistance</p> <p>** High (200 mg) filter loading in the certification test is intended to address the potential for filter efficiency degradation by solid or water-based (i.e., non-oil) aerosols in the workplace. Accordingly, there is no recommended service time limit in most workplace settings. However, in dirty workplaces (high aerosol concentrations) service time should only be extended beyond 8 hours of use (continuous or intermittent) by performing an evaluation in specific workplace settings that demonstrates (a) that extended use will not degrade the filter efficiency below the certified efficiency level, or (b) that the total mass loading of the filter is less than 200 mg (100 mg per filter for dual-filter respirators).</p> <p>*** No specific service time when oils are not present. In the presence of oil aerosols, service time may be extended beyond 8 hours of use (continuous or intermittent) by demonstrating (a) that extended use will not degrade the filter efficiency below the certified efficiency level, or (b) that the total mass loading of the filter is less than 200 mg (100 mg per filter for dual-filter respirators).</p> <p>NIOSH will be conducting and encouraging other researchers to conduct studies to assure that these service time recommendations are adequate. If research indicates the need, additional service time recommendations may be recommended by NIOSH for specific workplace conditions.</p> <p>General Limitations - All Part 84A Approvals:</p> <table border="1"> <tr> <td>A</td> <td>Not for use in atmospheres containing less than 19.5 percent oxygen.</td> </tr> <tr> <td>B</td> <td>Not for use in atmospheres immediately dangerous to life or health.</td> </tr> </table>	A	Not for use in atmospheres containing less than 19.5 percent oxygen.	B	Not for use in atmospheres immediately dangerous to life or health.	
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B	Not for use in atmospheres immediately dangerous to life or health.						

Type	Use	Info	Source
		C Do not exceed maximum use concentrations established by regulatory standards.	
		D Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality	
		E Use only the pressure ranges and hose lengths specified in the User's Instructions.	
		G If airflow is cut off, switch to filter and/or cartridge and immediately exit to clean air.	
		H Do not wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with sorbent.	
		I Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.	
		J Failure to properly use and maintain this product could result in injury or death.	
		K The Occupational Safety and Health Administration regulations require gas-proof goggles to be worn with this respirator when used against formaldehyde.	
		L Follow the manufacturer's User's Instructions for changing cartridges and/or filters.	
		M All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.	
		N Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.	
		O Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.	

Type	Use	Info	Source				
		<table border="1"> <tr> <td>P</td> <td>NIOSH does not evaluate respirators for use as surgical masks.</td> </tr> <tr> <td>S</td> <td>Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.</td> </tr> </table>	P	NIOSH does not evaluate respirators for use as surgical masks.	S	Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.	
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S	Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.						
Gas Masks,Respirators,Suits & More	Certified Equipment List - Coal Mine Dust Personal Sampler Units (CMDPSU)	<p>General Cautions and Limitations</p> <p><u>Coal Mine Dust Personal Sampler Units (CMDPSU)</u></p> <p>Powered Air-Purifying Respirators (PAPR)</p> <ul style="list-style-type: none"> • General Limitations for respirators approved under 30 CFR Part 11 & 42 CFR Part 84 • General Limitations for respirators evaluated and approved under 30 CFR Part 18 • Additional limitations under 42 CFR Part 84 <p>Coal Mine Dust Personal Sampler Units (CMDPSU): A coal mine dust personal sampler unit (CMDPSU) consists of a pump, charger, and a sampling head with a 10 mm nylon cyclone and a preweighed sealed filter cassette. It is used - as a unit - for collecting the mandatory coal mine atmosphere samples as required under Federal Mine Safety and Health Act of 1977. The sampling requirements are detailed in Title 30, Part 70 of the Code of Federal Regulations. All certified CMDPSU's must have prior approval by the Mine Safety and Health Administration, Department of Labor, to meet the 2G-2239 electrical permissibility requirements. The performance of the CMDPSU's is certified by NIOSH under Title 30, Part 74 of the Code of Federal Regulations.</p> <p><u>General Limitations - Powered Air-Purifying Respirators (PAPR)</u></p> <p>For respirators approved under 30 CFR Part 11 & 42 CFR Part 84:</p> <ul style="list-style-type: none"> • Not evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH. • Not for use in atmospheres containing less than 19.5 percent oxygen. • Not for use in atmospheres immediately dangerous to life or health. • Tight-fitting facepiece: Do not use if airflow is less than four cubic feet per minute. 	<p>http://www2a.cdc.gov/drds/cel/cl.htm</p>				

Type	Use	Info	Source						
		<ul style="list-style-type: none"> • Loose-fitting facepiece: Do not use if airflow is less than six cubic feet per minute. • In making renewals and repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained. • Refer to approval label and instruction and maintenance manuals for additional information on use and maintenance of the respirators. • Follow the manufacturer's instructions for changing filters, cartridges, and/or canisters. • This respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration and other applicable regulations. <p>For respirators approved under 30 CFR Part 18:</p> <ul style="list-style-type: none"> • Not evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH, except evaluated under Part 18 for use in methane air atmosphere. <p>Additional limitations under 42 CFR Part 84:</p> <ul style="list-style-type: none"> • Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets. • Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH. 							
<p>Gas Masks, Respirators, Suits & More</p>	<p>Certified Equipment List - Definitions of Terms</p>	<p>General Cautions and Limitations</p> <p>Definitions of Terms</p> <table border="1"> <thead> <tr> <th>Term</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td>Abrasive blasting respirator</td> <td>Type AE, BE, and CE supplied-air respirators designed and constructed to provide protection to the wearer's head and neck, against impact and abrasion from rebounding abrasive materials.</td> </tr> <tr> <td>Closed-circuit apparatus</td> <td>An apparatus of the type in which the exhalation is rebreathed by the wearer after the</td> </tr> </tbody> </table>	Term	Definition	Abrasive blasting respirator	Type AE, BE, and CE supplied-air respirators designed and constructed to provide protection to the wearer's head and neck, against impact and abrasion from rebounding abrasive materials.	Closed-circuit apparatus	An apparatus of the type in which the exhalation is rebreathed by the wearer after the	<p>http://www2a.cdc.gov/drds/cel/def.htm</p>
Term	Definition								
Abrasive blasting respirator	Type AE, BE, and CE supplied-air respirators designed and constructed to provide protection to the wearer's head and neck, against impact and abrasion from rebounding abrasive materials.								
Closed-circuit apparatus	An apparatus of the type in which the exhalation is rebreathed by the wearer after the								

Type	Use	Info	Source
		<p>carbon dioxide has been effectively removed and a suitable oxygen concentration restored from resources composed of (1) compressed oxygen, (2) chemical oxygen, or (3) liquid-oxygen.</p>	
		<p>Continuous-flow airflow class Type C supplied-air respirator which supplies respirable air at a constant flow at all times, rather than only on demand. In place of a demand or pressure-demand regulator, an airflow control valve or orifice partially controls the airflow. This means that by design, the control valve cannot be closed completely, or a continually open bypass is provided to allow air to flow around the valve and maintain the required minimum rates.</p>	
		<p>Demand airflow class Provides airflow into the facepiece only on "demand" by the wearer's inhalation.</p>	
		<p>Dust, fume, and mist respirator A respirator, with replaceable filters, designed as respiratory protection against dust, fume, and mist (1) having an air contamination level not less than 0.05 milligram per cubic meter or air; or (2) dust, fume, or mist having an air contamination level not less than 2 million particles per cubic foot of air. Also, designed as respiratory protection against radon daughters, and radon daughters attached to dusts, fumes, and mists.</p>	
		<p>Dust-only respirator A respirator, with replaceable filters, designed as respiratory protection against dusts (1)</p>	

Type	Use	Info	Source
		<p>having an air contamination level not less than 0.05 milligram per cubic meter or air; or (2) dusts having an air contamination level not less than 2 million particles per cubic foot of air.</p>	
		<p>Escape only respiratory device</p> <p>Provides protection only during escape from hazardous atmospheres.</p>	
		<p>Filtering facepiece</p> <p>A type of N, R, or P series disposable particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium. The unit may or may not have an exhalation valve. The unit has no replaceable parts.</p>	
		<p>Full facepiece</p> <p>Covers from roughly the hairline to below the chin. On the average provides the greatest protection, usually seal most reliably, and provides some eye protection as well.</p>	
		<p>Fume respirators with replaceable filter</p> <p>Designed as respiratory protection against fumes of various metals having an air contamination level not less than 0.05 milligram per cubic meter</p>	
		<p>Half mask</p> <p>Fits over the nose, mouth, and under the chin.</p>	
		<p>Hood or Helmet</p> <p>Loose-fitting respirators that enclose at least the head. A light, flexible device covering only the head and neck, or head, neck, and shoulders is called a hood. If rigid headgear is incorporated into the design, it is called a helmet. Blouses extend down to the waist, and some have wrist-length sleeves. The enclosure includes a system through which clean compressed air is</p>	

Type	Use	Info		Source
			distributed around the breathing zone. It may include a head harness and connection for a breathing tube.	
		Mist respirators with replaceable filters	Designed as respiratory protection against mist of materials having an air contamination level not less than 0.05 milligram per cubic meter or 2 million particles per cubic foot.	
		Mouthpiece respirator	Consists of a mouthpiece held in the teeth (the lips seal around it) and a clamp that closes the nostrils. Mouthpiece respirators should provide a good seal, but they eliminate communication, may cause fatigue, and provide no eye protection. Therefore, mouthpiece respirators are certified for use as escape-only respirators.	
		N100	Particulate Filter (99.97% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.	
		N95	Particulate Filter (95% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.	
		N99	Particulate Filter (99% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.	
		Obsolete	A respirator that (a) is no longer produced by the manufacturer, (b) no longer sold under private label by an approved rebrander, (c) neither the manufacturer nor private labeler has any future plans to produce, or (d) was given NIOSH or NIOSH/MSHA approval but never	

Type	Use	Info	Source	
		<p>actively produced by the manufacturer or private labeler.</p> <p>NOTE: Any "obsolete" respirator in use that carries NIOSH/MSHA or NIOSH approval and has been maintained in accordance with approved designs and specifications, continues to be approved until discarded or scrapped due to physical damage, lack of maintenance, or unavailable repair parts.</p>		
		Open-circuit demand type	<p>An apparatus in which the pressure inside the facepiece in relation to the immediate environment is positive during exhalation and negative during inhalation and from which exhalation is vented to the atmosphere and not rebreathed.</p>	
		Open-circuit pressure demand type	<p>An apparatus in which the pressure inside the facepiece in relation to the immediate environment is positive during both inhalation and exhalation and from which exhalation is vented to the atmosphere and not rebreathed.</p>	
		Oxygen-generating respirator	<p>A respirator which supplies oxygen by means of a chemical reaction.</p>	
		P100	<p>Particulate Filter (99.97% filter efficiency level) effective against all particulate aerosols.</p>	
		P95	<p>Particulate Filter (95% filter efficiency level) effective against all particulate aerosols.</p>	
		P99	<p>Particulate Filter (99% filter efficiency level) effective against all particulate aerosols.</p>	
		Pesticide	<p>(1) Any substance or mixture of substances</p>	

Type	Use	Info	Source
		<p>(including solvents and impurities) intended to prevent, destroy, or repel, or mitigate any insect, rodent, nematode, fungus, weed, or other form of plant or animal life or virus, and (2) any substance or mixture of substances (including solvents and impurities) intended for use as a plant regulator, defoliant, or desiccant, as defined in the Federal Insecticide, Fungicide, and Rodenticide Act of 1947, as amended (7 U.S.C. 135-135k), excluding fumigants which are applied as gases or vapors or in a solid or liquid form as pellets or poured liquids for subsequent release as gases or vapors.</p>	
		<p>Powered air-purifying respirator (PAPR)</p>	
		<p>Pressure-demand airflow class</p>	

Type	Use	Info		Source
		Private label	Private labeled products are labeled as belonging to a company or interest that is not the manufacturer. Private labeled products will carry the same approval number that was issued to the manufacturer.	
		Quarter mask	Covers the mouth and nose, and the lower sealing surface rests between the chin and mouth.	
		R100	Particulate Filter (99.97% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.	
		R95	Particulate Filter (95% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.	
		R99	Particulate Filter (99% filter efficiency level) effective against all particulate aerosols; time use restrictions may apply.	
		Replaceable filter	A filter attached to the respirator by mechanisms that allow replacement after excessive resistance, sorbent exhaustion, hygiene considerations, or physical damage renders it unsuitable for further use.	
		Service Time	The length of time required for an air-purifying element to reach a specific effluent concentration. Service time is determined by the type of substance being removed, the concentration of the substance, the ambient temperature, the specific element being tested (cartridge or canister), the flow rate resistance,	

Type	Use	Info	Source
		<p>and the selected breakthrough value. The service time for a self-contained breathing apparatus (SCBA) is the period of time, as determined by the NIOSH certification tests, in which adequate breathing gas is supplied. Current service time ratings are 3 minutes, 5 minutes, 10 minutes, 15 minutes, 30 minutes, 45 minutes, 1 hour, 2 hours, 3 house, 4 hours, and other service times as prescribed by the Institute.</p>	
		<p>Single use respirator</p>	
		<p>Supplied-air "Hose mask" respirator (Type A)</p>	
		<p>Supplied-air "Hose mask" respirator (Type AE)</p>	

Type	Use	Info	Source
		interfere with the wearer's vision and permit easy access to the external surface of such window(s) for cleaning.	
		Supplied-air respirator (SAR) An airline respirator	
		Supplied-air respirator (Type B) A hose mask respirator, for entry into and escape from atmospheres not immediately dangerous to life or health, which consists of a strong large diameter hose with low resistance to airflow through which the user draws inspired air by means of his lungs alone, a harness to which the hose is attached, and a tight-fitting facepiece.	
		Supplied-air respirator (Type BE) A Type B supplied-air respirator equipped with additional devices designed to protect the wearer's head and neck against impact and abrasion from rebounding abrasive material, and with shielding material such as plastic, glass, woven wire, sheet metal, or other suitable material to protect the window(s) of facepieces, hoods, and helmets which do not unduly interfere with the wearer's vision and permit easy access to the external surface of such window(s) for cleaning.	
		Supplied-air respirator (Type C) An airline respirator, for entry into and escape from atmospheres not immediately dangerous to life or health, which consists of a source of respirable breathing air, a hose, a detachable coupling, a control valve, orifice, a demand valve or pressure demand valve, and	

Type	Use	Info	Source										
		<table border="1"> <tr> <td></td> <td>arrangement for attaching the hose to the wearer and a facepiece, hood, or helmet.</td> </tr> <tr> <td>Supplied-air respirator (Type CE)</td> <td>A Type C supplied-air respirator equipped with additional devices designed to protect the wearer's head and neck against impact and abrasion from rebounding abrasive material, and with shielding material such as plastic, glass, woven wire, sheet metal, or other suitable material to protect the window(s) of facepieces, hoods, and helmets which do not unduly interfere with the wearer's vision and permit easy access to the external surface of such window(s) for cleaning.</td> </tr> <tr> <td>Type A particulate respirators - Asbestos-containing dusts and mists (30 CFR 11)</td> <td>Respirators, with replaceable filters, designed as respiratory protection against asbestos-containing dusts and mists, however, no longer permitted for use under the OSHA asbestos standard, 1910.1001.</td> </tr> <tr> <td>Type H particulate respirators - Dusts, Fumes, Mists and Radionuclides (30 CFR 11)</td> <td>Respirators, with replaceable filters, designed as respiratory protection against dusts, fumes and mists having an air contamination level less than 0.05 milligram per cubic meter, and against</td> </tr> <tr> <td>Type R particulate respirators - Radon daughters (30 CFR 11)</td> <td>Respirators, with replaceable filters, designed as respiratory protection against radon daughters, and radon daughters attached to dusts, fumes, and mists.</td> </tr> </table>		arrangement for attaching the hose to the wearer and a facepiece, hood, or helmet.	Supplied-air respirator (Type CE)	A Type C supplied-air respirator equipped with additional devices designed to protect the wearer's head and neck against impact and abrasion from rebounding abrasive material, and with shielding material such as plastic, glass, woven wire, sheet metal, or other suitable material to protect the window(s) of facepieces, hoods, and helmets which do not unduly interfere with the wearer's vision and permit easy access to the external surface of such window(s) for cleaning.	Type A particulate respirators - Asbestos-containing dusts and mists (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against asbestos-containing dusts and mists, however, no longer permitted for use under the OSHA asbestos standard, 1910.1001.	Type H particulate respirators - Dusts, Fumes, Mists and Radionuclides (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against dusts, fumes and mists having an air contamination level less than 0.05 milligram per cubic meter, and against	Type R particulate respirators - Radon daughters (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against radon daughters, and radon daughters attached to dusts, fumes, and mists.	
	arrangement for attaching the hose to the wearer and a facepiece, hood, or helmet.												
Supplied-air respirator (Type CE)	A Type C supplied-air respirator equipped with additional devices designed to protect the wearer's head and neck against impact and abrasion from rebounding abrasive material, and with shielding material such as plastic, glass, woven wire, sheet metal, or other suitable material to protect the window(s) of facepieces, hoods, and helmets which do not unduly interfere with the wearer's vision and permit easy access to the external surface of such window(s) for cleaning.												
Type A particulate respirators - Asbestos-containing dusts and mists (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against asbestos-containing dusts and mists, however, no longer permitted for use under the OSHA asbestos standard, 1910.1001.												
Type H particulate respirators - Dusts, Fumes, Mists and Radionuclides (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against dusts, fumes and mists having an air contamination level less than 0.05 milligram per cubic meter, and against												
Type R particulate respirators - Radon daughters (30 CFR 11)	Respirators, with replaceable filters, designed as respiratory protection against radon daughters, and radon daughters attached to dusts, fumes, and mists.												
Gas Mask	Opti-Fit™ Gas Mask CN/CS/P100	Opti-Fit™ Gas Mask CN/CS/P100 APPLICATION: CBRN ... Survivair Opti-Fit CBRN-Tactical Manual (PDF)	www.sperian.net/Supplementar y/Documents_and.../1033.aspx										