
Sanitation and Disinfection

Course Objectives:

- Become aware of the bacterial and viral risks that exist.
- Apply proper disinfection methods as set forth by OSHA and the EPA to everyday interactions
- Understand OSHA laws regarding chemicals in the workplace

Definitions

Bloodborne Pathogen Means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Body Fluid Fluids originating from inside the body, such as blood or saliva Decontamination A process to eliminate contamination; but doesn't necessarily kill a biological pathogen. May include cleaning, disinfection or sterilization.



Disinfection A process (either chemical or physical) that destroys pathogens. The correct disinfectant must be chosen depending on the type of pathogens present
Ergonomics Is the science of fitting the workplace conditions and job demands to the capabilities of the working population.

Ethyl Alcohol Common alcohol used for disinfection of surfaces or objects.

Formaldehyde A colorless, strong-smelling gas often found in aqueous (waterbased) solutions. Commonly used as a preservative in medical laboratories and mortuaries, formaldehyde is also found in many products such as chemicals, particle board, household products, glues, permanent press fabrics, paper product coatings, fiberboard, and plywood. It is also widely used as an industrial fungicide, germicide and disinfectant.

Glutaraldehyde A liquid disinfectant used for sterilization of objects or surfaces that cannot be treated with heat.

Hazard Communication Standard This standard is based on a simple concept—that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring.

Hepatitis B Infectious disease affecting the liver. Spread through blood and contact with bodily fluids from someone infected with the hepatitis b virus. A vaccination is available.

Hepatitis C Infectious disease affecting the liver. Spread through blood contact with someone infected with the hepatitis c virus. There is no vaccine available.

HIV Human Immunodeficiency Virus, the virus that causes AIDS.

Hospital Grade Disinfectant The Environmental Protection Agency (EPA) regulates and registers disinfectants that have been tested against 3 pathogens (Staphylococcus aureus, Salmonella cholera, and Psuedomonas aeruginosa). A hospital grade disinfectant must prove that it can kill at least these 3 organisms. Impetigo Highly contagious bacterial skin infection. Creates red, oozing sores. Most common in children.

Material Safety Data Sheet (MSDS) Means written or printed material (form) concerning the hazards associated with a particular chemical.

Mucous Membrane Body tissue the lines the body cavities that have contact with the air. Examples: eye, inside skin of nose, inside of mouth, inside of lungs

Other Potentially Infectious Materials (OPIM) (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Pathogen A biological agent/organism that can cause illness.

“Quats” Quaternary ammonium compounds. Typically listed as an ingredient on the chemical label as some form of “alkyl dimethyl ammonium chloride.” Can be used for cleaning and sanitizing, but needs longer contact time with contaminated surface.



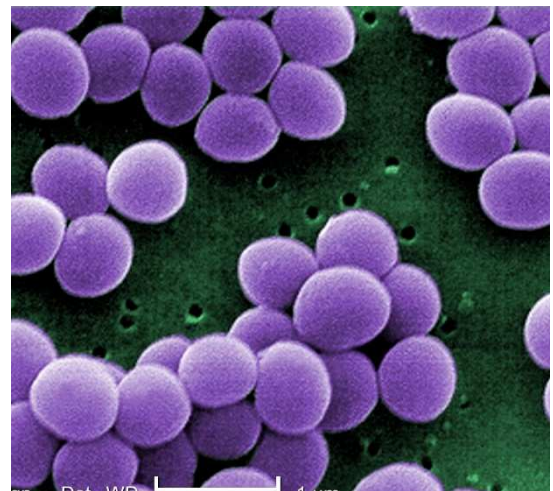
Respiratory Protection A respirator is a personal protective device that is worn on the face, covers at least the nose and mouth, and is used to reduce the wearer’s risk of inhaling hazardous airborne particles (including dust particles and infectious agents), gases or vapors. Respirators should only be used as a “last line of defense” in the Hierarchy of Controls when engineering and administrative controls are not feasible or are in the process of being put in place. Respirators protect the user in two basic ways. The first type of respirator removes contaminants from the air, and are called air- purifying respirators (APR). APRs include particulate respirators, which filter out airborne particles, and “gas masks,” which filter out chemicals and gasses. Other respirators protect by supplying clean respirable air from another source. Airsupplying Respirators (ASR) comprise this category of respirators. They include airline respirators, which use

compressed air from a remote source; and self-contained breathing apparatus (SCBA), which include their own air supply.

Sanitization Destruction or removal of pathogens

“Staph” Infections Refers to a type of infection caused by the Staphylococcus bacteria. Staphylococcus bacteria are often commonly found on skin (and do not cause infection or problems). However, it can cause serious illness if it moves deeper into the body. The most dangerous “Staph” infections are those caused by bacteria that are resistant to antibiotics.

Sterilization A process that removes or destroys ALL forms of microbial life (including spores)



“Universal Precautions” Treating all human blood and bodily fluids as if they contained infectious materials (viruses or bacteria).

Antiseptic vs. Disinfectant

Antiseptics and disinfectants may seem to be the same, however there is a large difference between these two topics.

- Antiseptics are used on tissues (living) and cells to destroy any types of infections or sepsis which may be living on the tissue.
- Disinfectants are meant to destroy microorganisms which can infect nonliving objects.
- Disinfectants are commonly used on household items to protect germs and colds from spreading to people.
- Antiseptics are typically used in the form of sanitizers when hand washing is not available, and in cases where bacteria exist and should be removed.

An antiseptic and a disinfectant are made for destroying bacteria and killing potential germs and disease.

Antiseptics are typically used to clean off a surface which may come into contact with the mouth or eyes at some point, it is considered safer than a disinfectant. Antiseptics are common in items such as mouthwash, eyewashes, cold sores, and yeast infection treatment creams. There are other forms of antiseptics which are used to treat symptoms of gingivitis and minor skin ailments. They are safe to use in these cases and are key ingredients in making these items work as they do. With specific treatments from these certain antiseptics, bacteria is typically greatly diminished or removed from the person.

Antiseptics and disinfectants are terms that are used interchangeably, however the differences between the two are quite numerous; too many to continue interchanging the words antiseptic and disinfectant.

In the News

Article 1 (by Andy Szal, Chem.ino)

The U.S. Department of Labor recently filed a lawsuit against a Bronx hair salon owner over allegations that she fired an employee for warning coworkers about formaldehyde exposure.

According to a statement by the Occupational Safety and Health Administration, the Salon Zoe employee — identified in a media report as Valerie Connoly — began experiencing difficulty breathing and an impaired sense of smell in late 2011.

Connoly told her employer of her suspicions that formaldehyde in hair-straightening products caused her respiratory problems, which a physician confirmed in July 2012.

In June 2012, she warned her fellow employees about the products and was subsequently terminated by salon owner, Kristina Veljovic. The lawsuit seeks payment of lost wages and damages, as well as a reinstatement offer and a requirement that Veljovic post a notice that she will not discriminate against employees.

"No employee should be fired for raising awareness of a potential workplace health hazard," said Jeffrey Rogoff, the regional Solicitor of Labor in New York.

Local OSHA officials inspected the salon in December 2012 and cited the business over a lack of a chemical hazard communication program and for improperly informing and training employees.

Article 2 (NPR)

Bacteria are everywhere on your skin, hair and eyelashes, to name a few of their homes. Bacteria are even in your soap, the very thing you thought washed all the bacteria away.

As long as the bacteria keep their numbers small, there's nothing wrong with them living in soap. But every once in a while it's a problem, like last week when Gilchrist & Soames recalled seven products, including shampoos and shower gels, because of possible contamination with the bacteria *Pseudomonas aeruginosa* and *Enterobacter gergoviae*.



This isn't the first time the very tools we use to fight bacteria have succumbed to an invasion. In 2009, the FDA even recalled one brand of hand sanitizer because it was likely to contain bacteria.

"Everyone assumes that soap is clean," says Jim Arbogast, a vice president of hygiene sciences and public health advancements at GOJO Industries, a company in Akron, Ohio, that makes Purell hand sanitizer and other products. "Any cosmetic product in the U.S. in a public setting or a home setting, it's going to have some normal bacteria that's not going to cause any illness."

When you wash your hands you're not trying to rid them of all bacteria, explains John Heinze, a former senior research microbiologist for the Dial Corp. who now works for KellenAdams, a Washington, D.C., public affairs firm. Bacteria grow everywhere, Heinze says, even in alcohol. "It broke my heart," he says. "Ruined a bottle of bourbon."

While at Dial, Heinze authored a study showing that even though bar soap contains bacteria, it still cleans hands effectively. "You're just trying to reduce the number of bacteria [on your hands] to give your immune system a fighting chance," Heinze tells Shots. So knowing that no soap is free of bacteria, how does a soap-maker proceed?

"You need to make sure that microbes won't take advantage of the situation and proliferate," says Dave Shumaker, a microbiologist at GOJO Industries. To that end, most products have antimicrobial agents built into the recipe, even if they aren't labeled as antibacterial. Soap- and shampoo-makers call these agents the soap's preservation system. Without a preservation system, bacteria would munch on the surfactants and lipids.



Soap and shampoo companies employ someone like Shumaker to make sure that the preservation system works and that an unopened product will last three years on the shelf. To test that system, he might use bioluminescence to detect any metabolic products — signs that some sort of organism is converting nutrients into energy. Or he might dilute the sample and culture it on a petri dish to count how many bacteria colonies form.

The FDA has set upper limits for bacteria in cosmetics and hygiene products. A product used around the eyes must contain fewer than 500 colony-forming units per milliliter, a standard measure of how many bacterial cells are living in a substance. A product for use elsewhere on the body must contain fewer than 1,000 colony-forming units per milliliter.

Another common test involves adding bacteria to products to see how the preservation system fights back. After all, there are lots of bacteria in the home that could contaminate a product at any time, especially in the bathroom. But as long as the antimicrobial agents are working, bacteria in the soap shouldn't increase in number.

Occasionally a company will find more serious bacteria in its products, such as *Staph* and *Pseudomonas* species that cause skin infections, or the bacteria that cause strep throat. The FDA doesn't allow any trace of these bacteria in hygiene products. *Pseudomonas* was one of the bugs that prompted the Gilchrist & Soames recall.

Because manufacturers have to meet the FDA guidelines, people rarely contract infections from the bacteria in soap, dermatologists say. "I have yet to see a skin infection caused by a product itself," says Dr. Whitney Bowe, a dermatologist in New York City. "It's really unusual to see infections from soap and shampoo."

When she does see a *Pseudomonas* infection, Whitney and her patient usually trace it to a nail salon, where there are lots of people sharing damp environments in which bacteria can thrive. Adding nail extensions or acrylic nails opens the body to infection, according to Dr. Zoe Draelos, a dermatologist in High Point, N.C., who performs research for the cosmetics industry. That's because they move the cuticle or separate the nail from the nail bed.



Unopened products should remain relatively germ-free for about three years. But once they're open, Draelos says, they need to be used within one year.

And if a product separates into liquid and lipid components, Draelos says, it's time to toss it, because it can no longer fight off contamination.

Biological hazards include bacteria, fungi, and viruses. Nail salon workers can be exposed to bloodborne pathogens, such as hepatitis B, hepatitis C, and human immunodeficiency virus (HIV), if they come into contact with infected blood from a co-worker or client. Workers can also be exposed to fungal infections of the nails and feet by touching infected client skin or by using equipment that has not been cleaned.

OSHA's Bloodborne Pathogens Standard, 29 CFR 1910.1030, covers exposures to blood and other potentially infectious materials in workplaces, including nail salons. Employers must evaluate whether an employee may contact with blood or other potentially infectious material. If the employer determines that this risk exists, then the employer must follow the requirements of the standard to protect the exposed employees, including providing training, vaccination, and personal protective equipment.

Steps to Prevent Exposure and Protect Worker Health

- Avoid all contact with blood or bodily fluids.
- Wear gloves, and avoid clients with cuts, open wounds/sores, blisters, or visibly infected skin on their hands, feet, or nails. Many agencies such as the Boston Public Health Commission and the California Board of Barbering and Cosmetology prohibit working on clients with these health issues.
- Throw away disposable gloves immediately after using them.
- Always wash hands with soap and water to avoid spreading germs. Wash hands before and after working with clients.
- Bandage open cuts or broken skin to prevent contact with blood or other potentially infectious materials from a client or coworker.
- If an individual is bleeding, do not touch the blood. Ask the individual to use a cotton ball or tissue to stop the bleeding and to throw the used material directly into the trash once the bleeding has stopped.
- Consider immunization against hepatitis B. Immunization practices can vary by state, so contact your local or state health department for information on current hepatitis B immunization policies in your area. Employers must offer employees hepatitis B immunization without charge if they are likely to be exposed to blood or other infectious materials during their work.

- Clean and disinfect tools after each client per the policies put forward by your state's cosmetology board. Some common steps for cleaning and disinfecting tools are:

- Wear gloves when cleaning and handling disinfectants or tools soaked in disinfectant.
- Wash tools with soap and water. Use a scrub if needed.
- Soak tools in an EPA-registered disinfectant for 10-30 minutes, according to manufacturer directions. Be careful to follow the manufacturer's instructions when mixing the product ratios.
- Rinse in clean water.
- Dry with a clean cloth.
- Store all disinfected tools in a clean, covered area. Only use ultraviolet (UV) sanitizing boxes to store clean and disinfected reusable metal tools. The UV boxes do not disinfect tools.

Cleaning Chemicals

There are many types of disinfectants which are available to clean homes or workplaces like salons.

- There are simple air disinfectants which are said to free the air of airborne germs which can cause illness. Nowadays, many companies are adding air fresheners to air disinfectants to make a room smell cleaner.
- There are oxidizing disinfectants like hydrogen peroxide, which is used to disinfect medical centers and tools with.
- There is one form of disinfectant which is sometimes used on living tissue, contrary to its definition. Alcohol is used at home as a disinfectant when someone gets a cut. Disinfectants are harmful if ingested and should not be used on any surfaces which will be eaten on or off of.

Additionally, they should not be used in conjunction with acids and ammonias, as the result could be toxic.

Potential health problems caused by cleaning chemicals Many factors influence whether a cleaning chemical will cause health problems. Some important factors to consider include:

- Chemical ingredients of the cleaning product;
- How the cleaning product is being used or stored;
- Ventilation in the area where the cleaning product is used;

- Whether there are splashes and spills;
- Whether the cleaning product comes in contact with the skin; and
- Whether mists, vapors and/or gases are released. Chemicals in some cleaning products can be irritating to the skin or can cause rashes.

Cleaning products that contain corrosive chemicals can cause severe burns if splashed on the skin or in the eyes. Mists, vapors and/or gases from cleaning chemicals can irritate the eyes, nose, throat and lungs. Symptoms may include burning eyes, sore throat, coughing, trouble breathing and wheezing. Chemicals in some cleaning products can cause asthma or trigger asthma attacks. Some cleaning products contain hazardous chemicals that can enter the body through skin contact or from breathing gases into the lungs. Mixing cleaning products that contain bleach and ammonia can cause severe lung damage or death. Cleaners remove dirt through wiping, scrubbing or mopping. Sanitizers contain chemicals that reduce, but do not necessarily eliminate, microorganisms such as bacteria, viruses and molds from surfaces.

Public health codes may require cleaning with the use of sanitizers in certain areas, like toilets and food preparation areas. Disinfectants contain chemicals that destroy or inactivate microorganisms that cause infections. Disinfectants are critical for infection control in hospitals and other healthcare settings. Cleaners, sanitizers and disinfectants serve different purposes, and it is important to choose the least hazardous cleaning chemical that will accomplish the task at hand. Before purchasing cleaning products, determine whether or not sanitizing or disinfecting is necessary. If sanitizing or disinfecting is not required, then choose a cleaner. In general, disinfectants and sanitizers are more hazardous than cleaners.

If sanitizing or disinfecting is necessary, be sure that the product purchased is effective for the microorganisms being targeted. EPA regulates sanitizers and disinfectants (termed “antimicrobial pesticides”) and is a useful resource. For further information, see EPA’s webpage “What Are Antimicrobial Pesticides? Many employers and building managers are purchasing “green” cleaning chemicals with the expectation that green cleaning products are safer for workers and the environment. However, placing the word “green” in a name or on a bottle does not ensure that a chemical is safe. Employers should review the cleaning chemicals



they purchase, including green cleaning products, to understand their health and safety hazards. Employers should choose the least hazardous cleaners. Independent organizations are now certifying chemicals, including cleaners, as “green.”

Certified green cleaners must meet specific criteria as defined by the certifying organization. Employers may find information from these certifying organizations helpful when purchasing cleaning chemicals. Some certifying organizations are listed under the Resources section below. The EPA webpages “Cleaning” and “Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers” provide comprehensive guidance for purchasers of cleaning products. When choosing safer cleaning chemicals, employers can learn much from Material Safety Data Sheets (MSDSs).

Employers must obtain and maintain MSDSs for all hazardous cleaning products and chemicals that they use. MSDSs must be readily accessible to workers. Employers can use the information contained in the MSDSs to ensure that workers are properly protected. MSDSs include the following important information:

- Hazardous chemical ingredients;
- Symptoms and health problems that may be caused by the chemical ingredients;
- First-aid measures if workers are exposed;
- Recommended personal protective equipment, such as gloves, safety goggles or respirators; and
- Proper procedures for cleaning up spills. Employers must provide safe working conditions for employees using cleaning chemicals.

When cleaning chemicals are hazardous, employers must train workers on safe work practices for using these chemicals. Safe work practices when using cleaning chemicals include the following:

- Warning workers not to mix cleaning products that contain bleach and ammonia;
- Making sure that workers know which cleaning chemicals must be diluted and how to correctly dilute the cleaners they are using; Thoroughly reviewing and training workers on the use, storage and emergency spill procedures for cleaning chemicals;
- Reviewing the proper protective equipment needed, such as gloves and goggles, and providing the proper protective equipment to the workers using the cleaning product;
- Ensuring that all containers of cleaning products and chemicals are labeled to identify their contents and hazards;

- Operating ventilation systems as needed during cleaning tasks to allow sufficient air flow and prevent buildup of hazardous vapors; and
- Providing workers with a place to wash up after using cleaning chemicals. Employers should note recent advances in safe cleaning practices and the availability of modern cleaning equipment that minimizes the use of chemicals. Practices and equipment to consider include:
 - Walk-off mats placed inside and outside of entryways (to prevent dirt from being tracked into the building);
 - Microfiber mops, cloths and dusters;
 - High-filtration HEPA vacuums;
 - Walk-behind hard floor auto-scrubbers;
 - Hands-free mops; and
 - Chemical-free cleaning systems. Building owners and planners should take building cleaning into consideration when designing new buildings, remodeling old buildings and choosing materials, such as flooring.



When to wash or sanitize hands

- When hands are visibly dirty or contaminated with blood or other body fluids, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other situations where you have contaminated hands or much have physical contact with a student.
- Decontaminate hands after contact with a student's intact skin (e.g., when lifting student or assisting a student)

- Decontaminate hands after contact with body fluids or excretions, mucous membranes, non-intact skin, and wound dressings if hands are not visibly soiled
- Decontaminate hands if moving from a contaminated-body site to a clean-body site during child care
- Decontaminate hands after removing gloves
- Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water
- Antimicrobial-impregnated wipes (i.e., towelettes) may be considered as an alternative to washing hands with non-antimicrobial soap and water.



Because they are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water for reducing bacterial counts on the hands, they are not a substitute for using an alcohol-based hand rub or antimicrobial soap

Hand-hygiene Product Use

- When decontaminating hands with an alcohol-based hand rub, apply product and fingers, until hands are dry
- When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis
- Liquid, bar, leaflet or powdered forms of plain soap are acceptable when washing hands with a non-antimicrobial soap and water. When bar soap is used, soap racks that facilitate drainage and small bars of soap should be used Selection of hand-hygiene agents
- Provide workers with effective hand-hygiene products that have low irritancy..
- Solicit input from these employees regarding the feel, fragrance, and skin tolerance of any products under consideration. The cost of hand-hygiene products should not be the primary factor influencing product selection.
- When selecting non-antimicrobial soaps, antimicrobial soaps, or alcoholbased hand rubs, solicit information from manufacturers regarding any known interactions between products used to clean hands, skin care products, and the types of gloves used in the institution

- Before making purchasing decisions, evaluate the dispenser systems of various product manufacturers or distributors to ensure that dispensers function adequately and deliver an appropriate volume of product
- Do not add soap to a partially empty soap dispenser. This practice of "topping off" dispensers can lead to bacterial contamination of soap . Skin care Use hand lotions or creams to minimize the occurrence of irritant contact dermatitis (rash) associated with hand antisepsis or hand washing . Other Aspects of Hand Hygiene
- Do not wear artificial fingernails or extenders when having direct contact with children at high risk. .
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and nonintact skin could occur

Protecting Worker Health: What OSHA Requires

Hair salon products may contain or release formaldehyde. OSHA has found that some hair smoothing products may release formaldehyde at levels above OSHA's permissible limits during use. Salon owners and other employers (e.g., beauty schools) must comply with OSHA's **formaldehyde** and **hazard communication** standards if they use products that contain or may release formaldehyde. The best way to control formaldehyde exposure is to use products that do not list formaldehyde, formalin, methylene glycol, or any of the other names listed on the Formaldehyde in Your Products page.

If products containing these substances are being used, **salon owners** must follow the requirements of OSHA's Formaldehyde standard:

- **Test** the air in your salon during product use to determine if workers may be exposed to formaldehyde levels at or above OSHA's limits (0.75 parts formaldehyde per million parts of air (ppm) for an 8-hour work shift or the Short Term Exposure Limit (STEL) of 2 ppm during a 15-minute period). You must also notify workers of the air testing results.
- **Give** workers the right gloves and other protective equipment (for example, face shield, chemical splash goggles, chemical-resistant aprons) and train workers how to use the equipment while mixing and applying the products.
- **Explain** to workers how to read and understand the information on a product's label and MSDS.
- **Make sure** the workplace has eye and skin washing equipment if products that contain formaldehyde could be splashed onto the workers' skin or into their eyes.

- **Inform and train** workers about the health effects of formaldehyde (including signs and symptoms exposure), how to use the product safely, what protective equipment to wear, how to safely clean up spills, how to properly throw out products, and how to handle formaldehyde-contaminated clothing and equipment. Workers must be trained at the time of their initial assignment and annually thereafter.
- **Prepare** a written hazard communication program that describes how workers will be informed about labels and other forms of warning, MSDSs, and training requirements.
- **Offer** workers the right medical attention (e.g., doctor exams) if they develop signs and symptoms of an exposure to formaldehyde or are exposed to large amounts of formaldehyde during an emergency (e.g., a large spill).

If air testing shows formaldehyde levels in the salon are above 0.5 ppm during an 8-hour work shift or 2 ppm during any 15-minute period, then **salon owners** must:

- **Offer** workers the right medical attention (e.g., doctor exams).
- **Test** the air periodically to make sure that formaldehyde levels are below OSHA's limits. Testing must be performed at least every 6 months when levels are at or above 0.5 ppm and every 12 months when levels are at or above 2 ppm.
- **Make sure** workers who are exposed know what precautions are being used to lower their exposure.
- **Use** the additional measures below if formaldehyde levels are above OSHA's limits of 2 ppm during any 15-minute period or go above 0.75 during an 8-hour work shift.

If air testing shows formaldehyde levels in the salon are above OSHA's limits of 0.75 ppm of air during an 8-hour work shift or 2 ppm during any 15-minute period, then **salon owners** must:

- **Install and maintain** ventilation systems in areas where the products are mixed and used to keep formaldehyde levels below OSHA limits.
- **Use** work practices that may reduce exposures, such as requiring lower heat settings on blow dryers and flat irons.
- **Ensure** workers are using appropriate protective equipment such as gloves, goggles, face shields, and chemical resistant aprons at no cost to the worker.
- **Provide** workers with respirators at no cost to them and train them in proper respirator use if ventilation and other work practices do not reduce formaldehyde levels below OSHA limits. If respirators are used, salon owners must also meet all other requirements outlined in 29 CFR 1910.134.
- **Post** signs warning workers that formaldehyde is present above OSHA limits and restrict access to authorized personnel.

Salon owners must also keep records of air tests and their results, any medical attention needed by their employees, and respirator fit-testing.

Failure to follow OSHA regulations regarding formaldehyde and hazard communication can result in citations and fines.

Protect Yourself!

Do you use hair products that may contain formaldehyde? If so, take the following steps to protect yourself:

- Read and understand the ingredient and warning information on a product's label. Read the MSDS for each product you use. Your salon must have this document and make it available to you. The MSDS provides more information about product ingredients and associated hazards.
- Use available ventilation systems, such as fans and/or windows, and personal protective equipment, such as gloves, face shield, goggles, and chemical resistant aprons as necessary.
- Know the location of eye washing, skin washing, and other first aid equipment in your workplace.
- Learn the hazards of the products you use and how to safely clean up spills.
- Alert your employer and get medical attention if you develop symptoms of formaldehyde exposure, or if you know you've been exposed directly to large amounts of formaldehyde (such as during a spill).

OSHA Laws- Formaldehyde

1910.1048(a)

Scope and application. This standard applies to all occupational exposures to formaldehyde, i.e. from formaldehyde gas, its solutions, and materials that release formaldehyde.

1910.1048(b)

Definitions. For purposes of this standard, the following definitions shall apply:

Action level means a concentration of 0.5 part formaldehyde per million parts of air (0.5 ppm) calculated as an eight (8)-hour time-weighted average (TWA) concentration.

Assistant Secretary means the Assistant Secretary of Labor for the Occupational Safety and Health Administration, U.S. Department of Labor, or designee.

Authorized Person means any person required by work duties to be present in

regulated areas, or authorized to do so by the employer, by this section, or by the OSH Act of 1970.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Emergency is any occurrence, such as but not limited to equipment failure, rupture of containers, or failure of control equipment that results in an uncontrolled release of a significant amount of formaldehyde.

Employee exposure means the exposure to airborne formaldehyde which would occur without corrections for protection provided by any respirator that is in use.

Formaldehyde means the chemical substance, HCHO, Chemical Abstracts Service Registry No. 50-00-0.

1910.1048(c)

Permissible Exposure Limit (PEL) -

1910.1048(c)(1)

TWA: The employer shall assure that no employee is exposed to an airborne concentration of formaldehyde which exceeds 0.75 parts formaldehyde per million parts of air (0.75 ppm) as an 8-hour TWA.

1910.1048(c)(2)

Short Term Exposure Limit (STEL): The employer shall assure that no employee is exposed to an airborne concentration of formaldehyde which exceeds two parts formaldehyde per million parts of air (2 ppm) as a 15-minute STEL.

1910.1048(d)

Exposure monitoring -

1910.1048(d)(1)

General.

1910.1048(d)(1)(i)

Each employer who has a workplace covered by this standard shall monitor employees to determine their exposure to formaldehyde.

1910.1048(d)(1)(ii)

Exception. Where the employer documents, using objective data, that the presence of formaldehyde or formaldehyde-releasing products in the workplace cannot result in airborne concentrations of formaldehyde that would cause any employee to be



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exposed at or above the action level or the STEL under foreseeable conditions of use, the employer will not be required to measure employee exposure to formaldehyde.

1910.1048(d)(1)(iii)

When an employee's exposure is determined from representative sampling, the measurements used shall be representative of the employee's full shift or short-term exposure to formaldehyde, as appropriate.

1910.1048(d)(1)(iv)

Representative samples for each job classification in each work area shall be taken for each shift unless the employer can document with objective data that exposure levels for a given job classification are equivalent for different work shifts.

1910.1048(d)(2)

Initial monitoring. The employer shall identify all employees who may be exposed at or above the action level or at or above the STEL and accurately determine the exposure of each employee so identified.

1910.1048(d)(2)(i)

Unless the employer chooses to measure the exposure of each employee potentially exposed to formaldehyde, the employer shall develop a representative sampling strategy and measure sufficient exposures within each job classification for each workshift to correctly characterize and not underestimate the exposure of any employee within each exposure group.

1910.1048(d)(2)(ii)

The initial monitoring process shall be repeated each time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde.

1910.1048(d)(2)(iii)

If the employer receives reports of signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the employer shall promptly monitor the affected employee's exposure.

1910.1048(d)(3)

Periodic monitoring.

1910.1048(d)(3)(i)

The employer shall periodically measure and accurately determine exposure to formaldehyde for employees shown by the initial monitoring to be exposed at or above the action level or at or above the STEL.

1910.1048(d)(3)(ii)

If the last monitoring results reveal employee exposure at or above the action level, the employer shall repeat monitoring of the employees at least every 6 months.

1910.1048(d)(3)(iii)

If the last monitoring results reveal employee exposure at or above the STEL, the employer shall repeat monitoring of the employees at least once a year under worst conditions.

1910.1048(d)(4)

Termination of monitoring. The employer may discontinue periodic monitoring for employees if results from two consecutive sampling periods taken at least 7 days apart show that employee exposure is below the action level and the STEL. The results must be statistically representative and consistent with the employer's knowledge of the job and work operation.

1910.1048(d)(5)

Accuracy of monitoring. Monitoring shall be accurate, at the 95 percent confidence level, to within plus or minus 25 percent for airborne concentrations of formaldehyde at the TWA and the STEL and to within plus or minus 35 percent for airborne concentrations of formaldehyde at the action level.

1910.1048(d)(6)

Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a description of the corrective actions being taken by the employer to decrease exposure.

1910.1048(d)(7)

Observation of monitoring.

1910.1048(d)(7)(i)

The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to formaldehyde required by this standard.

1910.1048(d)(7)(ii)

When observation of the monitoring of employee exposure to formaldehyde requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the clothing and equipment to the observer, require the observer to use such clothing and equipment, and assure that the observer complies with all other applicable safety and health procedures.

1910.1048(e)

Regulated areas.

1910.1048(e)(1)

Signs.

1910.1048(e)(1)(i)

The employer shall establish regulated areas where the concentration of airborne formaldehyde exceeds either the TWA or the STEL and post all entrances and access ways with signs bearing the following legend:

DANGER
FORMALDEHYDE
MAY CAUSE CANCER
CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION
AUTHORIZED PERSONNEL ONLY
1910.1048(e)(1)(ii)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (e)(1)(i) of this section:

DANGER
FORMALDEHYDE
IRRITANT AND POTENTIAL CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
1910.1048(e)(2)

The employer shall limit access to regulated areas to authorized persons who have been trained to recognize the hazards of formaldehyde.

1910.1048(e)(3)

An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite.

1910.1048(f)

Methods of compliance -

1910.1048(f)(1)

Engineering controls and work practices. The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to formaldehyde at or below the TWA and the STEL.

1910.1048(f)(2)



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Exception. Whenever the employer has established that feasible engineering and work practice controls cannot reduce employee exposure to or below either of the PELs, the employer shall apply these controls to reduce employee exposures to the extent feasible and shall supplement them with respirators which satisfy this standard.

1910.1048(g)

Respiratory protection.

1910.1048(g)(1)

General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

1910.1048(g)(1)(i)

Periods necessary to install or implement feasible engineering and work-practice controls.

1910.1048(g)(1)(ii)

Work operations, such as maintenance and repair activities or vessel cleaning, for which the employer establishes that engineering and work-practice controls are not feasible.

1910.1048(g)(1)(iii)

Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the PELs.

1910.1048(g)(1)(iv)

Emergencies.

1910.1048(g)(2)

Respirator program.

1910.1048(g)(2)(i)

The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1048(g)(2)(ii)

When employees use air-purifying respirators with chemical cartridges or canisters that do not contain end-of-service-life indicators approved by the National Institute for Occupational Safety and Health, employers must replace these cartridges or canisters as specified by paragraphs (d)(3)(iii)(B)(1) and (B)(2) of 29 CFR 1910.134, or at the end of the workshift, whichever condition occurs first.

1910.1048(g)(3)

Respirator selection.

1910.1048(g)(3)(i)

Employers must:

1910.1048(g)(3)(i)(A)

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

1910.1048(g)(3)(i)(B)

Equip each air-purifying, full facepiece respirator with a canister or cartridge approved for protection against formaldehyde.

1910.1048(g)(3)(i)(C)

For escape, provide employees with one of the following respirator options: A self-contained breathing apparatus operated in the demand or pressure-demand mode; or a full facepiece respirator having a chin-style, or a front-or back-mounted industrial-size, canister or cartridge approved for protection against formaldehyde.

1910.1048(g)(3)(ii)

Employers may substitute an air-purifying, half mask respirator for an air-purifying, full facepiece respirator when they equip the half mask respirator with a cartridge approved for protection against formaldehyde and provide the affected employee with effective gas-proof goggles.

1910.1048(g)(3)(iii)

Employers must provide employees who have difficulty using negative pressure respirators with powered air-purifying respirators permitted for use under paragraph (g)(3)(i)(A) of this standard and that affords adequate protection against formaldehyde exposures.

1910.1048(h)

Protective equipment and clothing. Employers shall comply with the provisions of 29 CFR 1910.132 and 29 CFR 1910.133. When protective equipment or clothing is provided under these provisions, the employer shall provide these protective devices at no cost to the employee and assure that the employee wears them.

1910.1048(h)(1)

Selection. The employer shall select protective clothing and equipment based upon the form of formaldehyde to be encountered, the conditions of use, and the hazard to be prevented.

1910.1048(h)(1)(i)

All contact of the eyes and skin with liquids containing 1 percent or more formaldehyde shall be prevented by the use of chemical protective clothing made of material impervious to formaldehyde and the use of other personal protective equipment, such as goggles and face shields, as appropriate to the operation.

1910.1048(h)(1)(ii)

Contact with irritating or sensitizing materials shall be prevented to the extent necessary to eliminate the hazard.

1910.1048(h)(1)(iii)

Where a face shield is worn, chemical safety goggles are also required if there is a danger of formaldehyde reaching the area of the eye.

1910.1048(h)(1)(iv)

Full body protection shall be worn for entry into areas where concentrations exceed 100 ppm and for emergency reentry into areas of unknown concentration.

1910.1048(h)(2)

Maintenance of protective equipment and clothing.

1910.1048(h)(2)(i)

The employer shall assure that protective equipment and clothing that has become contaminated with formaldehyde is cleaned or laundered before its reuse.

1910.1048(h)(2)(ii)

When formaldehyde-contaminated clothing and equipment is ventilated, the employer shall establish storage areas so that employee exposure is minimized.

1910.1048(h)(2)(ii)(A)

Signs. Storage areas for contaminated clothing and equipment shall have signs bearing the following legend:

DANGER
FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT
MAY CAUSE CANCER
CAUSES SKIN, EYE AND RESPIRATORY IRRITATION
DO NOT BREATHE VAPOR
DO NOT GET ON SKIN

1910.1048(h)(2)(ii)(B)

Labels. The employer shall ensure containers for contaminated clothing and equipment are labeled consistent with the Hazard Communication Standard, Sec. 1910.1200, and shall, as a minimum, include the following:



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DANGER

FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT

MAY CAUSE CANCER

CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION

DO NOT BREATHE VAPOR

DO NOT GET ON SKIN

1910.1048(h)(2)(ii)(C)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (h)(2)(ii)(A) of this section:

DANGER

FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT

AVOID INHALATION AND SKIN CONTACT

1910.1048(h)(2)(ii)(D)

Prior to June 1, 2015, employers may include the following information on containers of protective clothing and equipment in lieu of the labeling requirements in paragraphs (h)(2)(ii)(B) of this section:

DANGER

FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT

AVOID INHALATION AND SKIN CONTACT

1910.1048(h)(2)(iii)

The employer shall assure that only persons trained to recognize the hazards of formaldehyde remove the contaminated material from the storage area for purposes of cleaning, laundering, or disposal.

1910.1048(h)(2)(iv)

The employer shall assure that no employee takes home equipment or clothing that is contaminated with formaldehyde.

1910.1048(h)(2)(v)

The employer shall repair or replace all required protective clothing and equipment for each affected employee as necessary to assure its effectiveness.

1910.1048(h)(2)(vi)

The employer shall inform any person who launders, cleans, or repairs such clothing or equipment of formaldehyde's potentially harmful effects and of procedures to safely handle the clothing and equipment.

1910.1048(i)

Hygiene protection.

1910.1048(i)(1)

The employer shall provide change rooms, as described in 29 CFR 1910.141 for employees who are required to change from work clothing into protective clothing to prevent skin contact with formaldehyde.

1910.1048(i)(2)

If employees' skin may become splashed with solutions containing 1 percent or greater formaldehyde, for example, because of equipment failure or improper work practices, the employer shall provide conveniently located quick drench showers and assure that affected employees use these facilities immediately.

1910.1048(i)(3)

If there is any possibility that an employee's eyes may be splashed with solutions containing 0.1 percent or greater formaldehyde, the employer shall provide acceptable eyewash facilities within the immediate work area for emergency use.

1910.1048(j)

Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a program to detect leaks and spills, including regular visual inspections.

1910.1048(j)(1)

Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

1910.1048(j)(2)

In work areas where spillage may occur, the employer shall make provisions to contain the spill, to decontaminate the work area, and to dispose of the waste.

1910.1048(j)(3)

The employer shall assure that all leaks are repaired and spills are cleaned promptly by employees wearing suitable protective equipment and trained in proper methods for cleanup and decontamination.

1910.1048(j)(4)

Formaldehyde-contaminated waste and debris resulting from leaks or spills shall be placed for disposal in sealed containers bearing a label warning of formaldehyde's presence and of the hazards associated with formaldehyde. The employer shall ensure that the labels are in accordance with paragraph (m) of this section.

1910.1048(k)

Emergencies. For each workplace where there is the possibility of an emergency involving formaldehyde, the employer shall assure appropriate procedures are adopted

to minimize injury and loss of life. Appropriate procedures shall be implemented in the event of an emergency.

1910.1048(I)

Medical surveillance -

1910.1048(I)(1)

Employees covered.

1910.1048(I)(1)(i)

The employer shall institute medical surveillance programs for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL.

1910.1048(I)(1)(ii)

The employer shall make medical surveillance available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees exposed to formaldehyde in emergencies. When determining whether an employee may be experiencing signs and symptoms of possible overexposure to formaldehyde, the employer may rely on the evidence that signs and symptoms associated with formaldehyde exposure will occur only in exceptional circumstances when airborne exposure is less than 0.1 ppm and when formaldehyde is present in material in concentrations less than 0.1 percent.

1910.1048(I)(2)

Examination by a physician. All medical procedures, including administration of medical disease questionnaires, shall be performed by or under the supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

1910.1048(I)(3)

Medical disease questionnaire. The employer shall make the following medical surveillance available to employees prior to assignment to a job where formaldehyde exposure is at or above the action level or above the STEL and annually thereafter. The employer shall also make the following medical surveillance available promptly upon determining that an employee is experiencing signs and symptoms indicative of possible overexposure to formaldehyde.

1910.1048(I)(3)(i)

Administration of a medical disease questionnaire, such as in Appendix D, which is designed to elicit information on work history, smoking history, any evidence of eye, nose, or throat irritation; chronic airway problems or hyperreactive airway disease; allergic skin conditions or dermatitis; and upper or lower respiratory problems.

1910.1048(I)(3)(ii)

A determination by the physician, based on evaluation of the medical disease questionnaire, of whether a medical examination is necessary for employees not required to wear respirators to reduce exposure to formaldehyde.

1910.1048(I)(4)

Medical examinations. Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and at the time of initial assignment and at least annually thereafter to all employees required to wear a respirator to reduce exposure to formaldehyde. The medical examination shall include:

1910.1048(I)(4)(i)

A physical examination with emphasis on evidence of irritation or sensitization of the skin and respiratory system, shortness of breath, or irritation of the eyes.

1910.1048(I)(4)(ii)

Laboratory examinations for respirator wearers consisting of baseline and annual pulmonary function tests. As a minimum, these tests shall consist of forced vital capacity (FVC), forced expiratory volume in one second (FEV(1)), and forced expiratory flow (FEF).

1910.1048(I)(4)(iii)

Any other test which the examining physician deems necessary to complete the written opinion.

1910.1048(I)(4)(iv)

Counseling of employees having medical conditions that would be directly or indirectly aggravated by exposure to formaldehyde on the increased risk of impairment of their health.

1910.1048(I)(5)

Examinations for employees exposed in an emergency. The employer shall make medical examinations available as soon as possible to all employees who have been exposed to formaldehyde in an emergency.

1910.1048(I)(5)(i)

The examination shall include a medical and work history with emphasis on any evidence of upper or lower respiratory problems, allergic conditions, skin reaction or hypersensitivity, and any evidence of eye, nose, or throat irritation.

1910.1048(I)(5)(ii)

Other examinations shall consist of those elements considered appropriate by the examining physician.

1910.1048(I)(6)

Information provided to the physician. The employer shall provide the following information to the examining physician:

1910.1048(I)(6)(i)

A copy of this standard and Appendix A, C, D, and E;

1910.1048(I)(6)(ii)

A description of the affected employee's job duties as they relate to the employee's exposure to formaldehyde;

1910.1048(I)(6)(iii)

The representative exposure level for the employee's job assignment;

1910.1048(I)(6)(iv)

Information concerning any personal protective equipment and respiratory protection used or to be used by the employee; and

1910.1048(I)(6)(v)

Information from previous medical examinations of the affected employee within the control of the employer.

1910.1048(I)(6)(vi)

In the event of a nonroutine examination because of an emergency, the employer shall provide to the physician as soon as possible: a description of how the emergency occurred and the exposure the victim may have received.

1910.1048(I)(7)

Physician's written opinion.

1910.1048(I)(7)(i)

For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde. The written opinion shall include:

1910.1048(I)(7)(i)(A)

The physician's opinion as to whether the employee has any medical condition that would place the employee at an increased risk of material impairment of health from exposure to formaldehyde;

1910.1048(I)(7)(i)(B)



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Any recommended limitations on the employee's exposure or changes in the use of personal protective equipment, including respirators;

1910.1048(I)(7)(i)(C)

A statement that the employee has been informed by the physician of any medical conditions which would be aggravated by exposure to formaldehyde, whether these conditions may have resulted from past formaldehyde exposure or from exposure in an emergency, and whether there is a need for further examination or treatment.

1910.1048(I)(7)(ii)

The employer shall provide for retention of the results of the medical examination and tests conducted by the physician.

1910.1048(I)(7)(iii)

The employer shall provide a copy of the physician's written opinion to the affected employee within 15 days of its receipt.

1910.1048(I)(8)

Medical removal.

1910.1048(I)(8)(i)

The provisions of paragraph (I)(8) apply when an employee reports significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization attributed to workplace formaldehyde exposure. Medical removal provisions do not apply in the case of dermal irritation or dermal sensitization when the product suspected of causing the dermal condition contains less than 0.05 percent formaldehyde.

1910.1048(I)(8)(ii)

An employee's report of signs or symptoms of possible overexposure to formaldehyde shall be evaluated by a physician selected by the employer pursuant to paragraph (I)(3). If the physician determines that a medical examination is not necessary under paragraph (I)(3)(ii), there shall be a two-week evaluation and remediation period to permit the employer to ascertain whether the signs or symptoms subside untreated or with the use of creams, gloves, first aid treatment or personal protective equipment. Industrial hygiene measures that limit the employee's exposure to formaldehyde may also be implemented during this period. The employee shall be referred immediately to a physician prior to expiration of the two-week period if the signs or symptoms worsen. Earnings, seniority and benefits may not be altered during the two-week period by virtue of the report.

1910.1048(I)(8)(iii)



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If the signs or symptoms have not subsided or been remedied by the end of the two-week period, or earlier if signs or symptoms warrant, the employee shall be examined by a physician selected by the employer. The physician shall presume, absent contrary evidence, that observed dermal irritation or dermal sensitization are not attributable to formaldehyde when products to which the affected employee is exposed contain less than 0.1 percent formaldehyde.

1910.1048(I)(8)(iv)

Medical examinations shall be conducted in compliance with the requirements of paragraph (I)(5)(i) and (ii). Additional guidelines for conducting medical exams are contained in Appendix C.

1910.1048(I)(8)(v)

If the physician finds that significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization result from workplace formaldehyde exposure and recommends restrictions or removal, the employer shall promptly comply with the restrictions or recommendation of removal. In the event of a recommendation of removal, the employer shall remove the affected employee from the current formaldehyde exposure and if possible, transfer the employee to work having no or significantly less exposure to formaldehyde.

1910.1048(I)(8)(vi)

When an employee is removed pursuant to paragraph (I)(8)(v), the employer shall transfer the employee to comparable work for which the employee is qualified or can be trained in a short period (up to 6 months), where the formaldehyde exposures are as low as possible, but not higher than the action level. The employer shall maintain the employee's current earnings, seniority, and other benefits. If there is no such work available, the employer shall maintain the employee's current earnings, seniority and other benefits until such work becomes available, until the employee is determined to be unable to return to workplace formaldehyde exposure, until the employee is determined to be able to return to the original job status, or for six months, whichever comes first.

1910.1048(I)(8)(vii)

The employer shall arrange for a follow-up medical examination to take place within six months after the employee is removed pursuant to this paragraph. This examination shall determine if the employee can return to the original job status, or if the removal is to be permanent. The physician shall make a decision within six months of the date the employee was removed as to whether the employee can be returned to the original job status, or if the removal is to be permanent.

1910.1048(I)(8)(viii)



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An employer's obligation to provide earnings, seniority and other benefits to a removed employee may be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program or from employment with another employer made possible by virtue of the employee's removal.

1910.1048(I)(8)(ix)

In making determinations of the formaldehyde content of materials under this paragraph the employer may rely on objective data.

1910.1048(I)(9)

Multiple physician review.

1910.1048(I)(9)(i)

After the employer selects the initial physician who conducts any medical examination or consultation to determine whether medical removal or restriction is appropriate, the employee may designate a second physician to review any findings, determinations or recommendations of the initial physician and to conduct such examinations, consultations, and laboratory tests as the second physician deems necessary and appropriate to evaluate the effects of formaldehyde exposure and to facilitate this review.

1910.1048(I)(9)(ii)

The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction.

1910.1048(I)(9)(iii)

The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the notification of the right to seek a second medical opinion, or receipt of the initial physician's written opinion, whichever is later;

1910.1048(I)(9)(iii)(A)

The employee informs the employer of the intention to seek a second medical opinion, and

1910.1048(I)(9)(iii)(B)

The employee initiates steps to make an appointment with a second physician.

1910.1048(I)(9)(iv)

If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve the disagreement. If the two



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physicians are unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician who shall be a specialist in the field at issue:

1910.1048(I)(9)(iv)(A)

To review the findings, determinations or recommendations of the prior physicians; and

1910.1048(I)(9)(iv)(B)

To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

1910.1048(I)(9)(v)

In the alternative, the employer and the employee or authorized employee representative may jointly designate such third physician.

1910.1048(I)(9)(vi)

The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

1910.1048(m)

Communication of hazards.

1910.1048(m)(1)

Hazard communication - General.

1910.1048(m)(1)(i)

Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (§ 1910.1200) for formaldehyde.

1910.1048(m)(1)(ii)

In classifying the hazards of formaldehyde at least the following hazards are to be addressed: Cancer; skin and respiratory sensitization; eye, skin and respiratory tract irritation; acute toxicity effects; and flammability.

1910.1048(m)(1)(iii)

Employers shall include formaldehyde in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (n) of this section.



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1910.1048(m)(1)(iv)

Paragraphs (m)(1)(i), (m)(1)(ii), and (m)(1)(iii) of this section apply to chemicals associated with formaldehyde gas, all mixtures or solutions composed of greater than 0.1 percent formaldehyde, and materials capable of releasing formaldehyde into the air at concentrations reaching or exceeding 0.1 ppm.

1910.1048(m)(1)(v)

In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

1910.1048(m)(2)(i)

In addition to the requirements in paragraphs (m)(1) through (m)(1)(iv) of this section, for materials listed in paragraph (m)(1)(iv) capable of releasing formaldehyde at levels above 0.5 ppm, labels shall appropriately address all hazards as defined in paragraph (d) of § 1910.1200 and Appendices A and B to § 1910.1200, including cancer and respiratory sensitization, and shall contain the hazard statement "May Cause Cancer."

1910.1048(m)(2)(ii)

As a minimum, for all materials listed in paragraph (m)(1)(i) and (iv) of this section capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, labels shall identify that the product contains formaldehyde; list the name and address of the responsible party; and state that physical and health hazard information is readily available from the employer and from safety data sheets.

1910.1048(m)(2)(iii)

Prior to June 1, 2015, employers may include the phrase "Potential Cancer Hazard" in lieu of "May Cause Cancer" as specified in paragraph (m)(2)(i) of this section.

1910.1048(n)

Employee information and training -

1910.1048(n)(1)

Participation. The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training.

1910.1048(n)(2)

Frequency. Employers shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into the work area. The training shall be repeated at least annually.

1910.1048(n)(3)

Training program. The training program shall be conducted in a manner which the employee is able to understand and shall include:

1910.1048(n)(3)(i)

A discussion of the contents of this regulation and the contents of the Material Safety Data Sheet.

1910.1048(n)(3)(ii)

The purpose for and a description of the medical surveillance program required by this standard, including:

1910.1048(n)(3)(ii)(A)

A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.

1910.1048(n)(3)(ii)(B)

Instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects is attributable to formaldehyde exposure.

1910.1048(n)(3)(iii)

Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job;

1910.1048(n)(3)(iv)

The purpose for, proper use of, and limitations of personal protective clothing and equipment;

1910.1048(n)(3)(v)

Instructions for the handling of spills, emergencies, and clean-up procedures;

1910.1048(n)(3)(vi)

An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls; and

1910.1048(n)(3)(vii)

A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.

1910.1048(n)(4)

Access to training materials.

1910.1048(n)(4)(i)

The employer shall inform all affected employees of the location of written training materials and shall make these materials readily available, without cost, to the affected employees.

1910.1048(n)(4)(ii)

The employer shall provide, upon request, all training materials relating to the employee training program to the Assistant Secretary and the Director.

1910.1048(o)

Recordkeeping -

1910.1048(o)(1)

Exposure measurements. The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to formaldehyde. This record shall include:

1910.1048(o)(1)(i)

The date of measurement;

1910.1048(o)(1)(ii)

The operation being monitored;

1910.1048(o)(1)(iii)

The methods of sampling and analysis and evidence of their accuracy and precision;

1910.1048(o)(1)(iv)

The number, durations, time, and results of samples taken;

1910.1048(o)(1)(v)

The types of protective devices worn; and

1910.1048(o)(1)(vi)

The names, job classifications, social security numbers, and exposure estimates of the employees whose exposures are represented by the actual monitoring results.

1910.1048(o)(2)

Exposure determinations. Where the employer has determined that no monitoring is required under this standard, the employer shall maintain a record of the objective data relied upon to support the determination that no employee is exposed to formaldehyde at or above the action level.

1910.1048(o)(3)

Medical surveillance. The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under this standard. This record shall include:

1910.1048(o)(3)(i)

The name and social security number of the employee;

1910.1048(o)(3)(ii)

The physician's written opinion;

1910.1048(o)(3)(iii)

A list of any employee health complaints that may be related to exposure to formaldehyde; and

1910.1048(o)(3)(iv)

A copy of the medical examination results, including medical disease questionnaires and results of any medical tests required by the standard or mandated by the examining physician.

1910.1048(o)(4)

Respirator fit testing.

1910.1048(o)(4)(i)

The employer shall establish and maintain accurate records for employees subject to negative pressure respirator fit testing required by this standard.

1910.1048(o)(4)(ii)

This record shall include:

1910.1048(o)(4)(ii)(A)

A copy of the protocol selected for respirator fit testing.

1910.1048(o)(4)(ii)(B)

A copy of the results of any fit testing performed.

1910.1048(o)(4)(ii)(C)

The size and manufacturer of the types of respirators available for selection.

1910.1048(o)(4)(ii)(D)

The date of the most recent fit testing, the name and social security number of each tested employee, and the respirator type and facepiece selected.

1910.1048(o)(5)

Record retention. The employer shall retain records required by this standard for at least the following periods:

1910.1048(o)(5)(i)

Exposure records and determinations shall be kept for at least 30 years.

1910.1048(o)(5)(ii)

Medical records shall be kept for the duration of employment plus 30 years.

1910.1048(o)(5)(iii)

Respirator fit testing records shall be kept until replaced by a more recent record.

1910.1048(o)(6)

Availability of records.

1910.1048(o)(6)(i)

Upon request, the employer shall make all records maintained as a requirement of this standard available for examination and copying to the Assistant Secretary and the Director.

1910.1048(o)(6)(ii)

The employer shall make employee exposure records, including estimates made from representative monitoring and available upon request for examination, and copying to the subject employee, or former employee, and employee representatives in accordance with 29 CFR 1910.1020 (a)-(e) and (g)-(i).

1910.1048(o)(6)(iii)

Employee medical records required by this standard shall be provided upon request for examination and copying, to the subject employee or former employee or to anyone having the specific written consent of the subject employee or former employee in accordance with 29 CFR 1910.1020 (a)-(e) and (g)-(i).

At this time, please take your corresponding quiz or quizzes for this section of the course.