



# Eye on Safety

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### National Institutes of Health Office of Research Services Division of Occupational Health and Safety

Providing a safe and healthy environment for employees, patients and visitors.

*“Safe science and good science go hand-in-hand.”*

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## Preventing cross contamination

We all know the importance of washing our hands before and after preparing food, eating, or using restroom facilities. Washing up keeps germs from spreading from our hands to other people, or to the food we eat. But did you know that the Occupational Safety and Health Administration (OSHA) considers sanitation important enough to regulate?

The agency takes cross contamination — or the transfer of a contaminant from one surface to another — very seriously. Toxic chemicals, bloodborne pathogens, and other potentially infectious materials (OPIM) are easily spread from hands to just about any other surface.

To make sure employees are given every opportunity to wash up, OSHA's Sanitation standard at 29 CFR 1910.141 gives guidance on the required number and types of handwashing facilities an employer must provide.

The regulation also says washing facilities must be kept clean and supplied with potable hot and cold, or tepid, running water. Employers must have hand soap or “similar cleansing agent” available, too.

### Eating and drinking at work

The sanitation standard also addresses eating and drinking at work, saying that if employees are allowed to consume food and beverages on the



job, they must not do so around toxic chemicals or in restrooms.

The same goes for storing food or beverages: Keep them away from toxic or hazardous substances.

OSHA's Bloodborne Pathogen standard, found at 1910.1030, adds more layers to cross contamination prevention, prohibiting eating or drinking anywhere there's a possible exposure to blood or OPIM.

Not only that, but the standard says you can't smoke, apply cosmetics or lip balm, or handle contact lenses where exposure could occur.

And while common sense says you wouldn't want to store your sandwich next to the blood samples in the refrigerator, the standard specifically prohibits storing food and drink where blood or OPIM are present. This means

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you should be careful where you store first aid supplies; you don't want to encourage treating wounds in the lunchroom.

### Minimize exposures

Good housekeeping habits, including aggressive sanitation and decontamination policies, will minimize the risk of exposure to blood and OPIM. The standard also calls for a written exposure control plan to minimize employee exposures or eliminate them altogether. In addition, employers must develop a cleaning and decontamination schedule for areas where exposures may occur, listing which surfaces must be cleaned, the contaminant present, and the cleaning procedure.



To prevent exposure, 1910.1030(d)(3)(i) requires employers to provide appropriate personal protective equipment (PPE) to employees. PPE can include:

- Gloves;
- Gowns;
- Lab coats;
- Face shields and masks;
- Eye protection; and
- Mouthpieces.

All PPE must be removed before employees leave the work area, and employers must clean, launder, or dispose of the equipment properly. And employees must have access to handwashing facilities, including soaps and antiseptics, hot and cold running water, and clean towels.

### Don't take it home with you

Even with the proper PPE, exposure to blood, OPIM, or toxic and hazardous materials can occur. That's why decontamination procedures are spelled out in the Bloodborne Pathogen standard as well as in the regulations for specific hazards such as lead, asbestos, and fiberglass, to name a few.

If workers are not careful, they can bring contaminants home and spread them to family members by putting contaminated clothes in the laundry, hugging children, sitting on furniture, or preparing food.

In the case of many toxic chemicals, workers must remove work clothing in special changing rooms and place their soiled clothing in special, closed containers.

Only authorized employees may remove the contaminated clothing from the changing room. Employees must change out of their work clothes, or HEPA vacuum their clothing, before they can enter the lunchroom, and they must wash their hands and faces before eating.

When employees are exposed to asbestos above certain levels, they must shower at the end of their work shifts.

To minimize the risk of cross contamination even more, workers should shower and wash their hair before leaving work, or as soon as they arrive home. Clothes worn to work should be laundered separately from the rest of the family's clothes, and kept in separate laundry baskets.

### Safety is in your hands

You can keep contaminants off your clothes and out of your food. Just follow commonsense safety precautions:

- Use the proper PPE when coming into contact with contaminants;
- Don't eat, drink, smoke, or apply cosmetics around hazardous chemicals, blood, or other potentially infectious materials;
- Store food and drinks separately from toxic or hazardous substances;
- Always remember to wash your hands before and after preparing food, eating, or using restroom facilities;
- Change your clothes at work if you are exposed to contaminants in your job; and
- Launder clothing separately from your family's clothing.



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# Safety focus: Personal protective equipment

Personal protective equipment (PPE) includes all clothing and accessories designed to create a barrier against workplace hazards. When it comes to PPE, you and your employer share responsibility for your safety. Your employer needs to provide it and you have to use the required PPE. You must not only use PPE, you must care for it properly to keep it in good condition.

## Eye and face protection

Your employer should perform a hazard assessment in order to determine the risk of exposure to eye and face hazards, including those which may be encountered in an emergency. Some common hazards include risk of impact from flying objects or particles; heat hazards from furnace or welding operations; chemical hazards from splashes, fumes or vapors; harmful dust from woodworking or dust; and optical radiation from torch-cutting or soldering. To help protect you, use any guards, screens, and shields that are attached to equipment. If guards don't completely eliminate the eye and face hazards, wear eye and face protection.

**Safety glasses** are the most common type of protective equipment for the eyes. They provide protection from flying chips or particles, and they can have tinted lenses for radiation and laser hazards. Safety glasses also are available with side shield guards for protection.



**Goggles** are very similar to safety glasses but fit closer to the eyes. They provide additional protection in hazardous situations involving liquid splashes, fumes, vapors, and dust. Some can be worn over prescription glasses.

**Face shields** offer full-face protection to guard against molten metal and chemical splashes. Face shields are available to fit with a hard hat or to wear directly on the head. Use other eye protection such as goggles or glasses with a face shield.

Maintain and clean your eye protection regularly. Use lens cleaners recommended by the equipment's manufacturer or mild soap and warm water. Replace damaged eye and face protection immediately.

## Hand protection

At work, your hands are exposed to three basic kinds of hazards: mechanical hazards, environmental hazards, and irritating substances. Engineering controls are designed into equipment to provide a first layer of defense from injury. For example, machine guards offer protection from moving parts and should not be altered or removed.

PPE can also help reduce the frequency and severity of hand and finger injuries. Gloves are perhaps the most commonly used type of PPE, providing protection to

fingers, hands, wrists, and forearms. Gloves protect against specific hazards:

- **Leather gloves** are useful for handling rough or abrasive materials and hot objects.
- **Canvas or cloth gloves** are worn for light-duty protection.
- **Metal mesh gloves** are worn by workers who work with sharp knives.
- **Rubber, vinyl, or neoprene gloves** are used when handling caustic chemicals like acids, cleansers, or petroleum products. These gloves have a safety rating for use with certain kinds of chemicals. Read the glove manufacturer's chemical resistance charts for selection information.
- **Electrical-resistant rubber gloves and line workers' rubber insulating sleeves.** They are made of natural or synthetic rubber and are color-coded to correspond with their level of voltage protection.

Gloves should be worn with great caution near moving equipment or machinery parts because the glove could get caught and pull your fingers or hand into the machinery. Properly care for and clean gloves. Inspect regularly for changes in shape, hardening, stretching, or rips. Place damp gloves in a location to dry before the next use.

## Foot protection

At work your feet could be subjected to injuries from cuts, punctures, burns, sprains, and fractures. Heavy objects falling or rolling onto the foot are the primary source of injury. The hazards include compression, punctures, electricity, chemicals, and extreme heat or cold. Safety shoes can prevent serious injuries and have toes that meet standard testing requirements. Some types of safety shoes include:

- Steel, reinforced plastic, and hard rubber are used for safety toes, depending on their intended use. These shoes are worn by workers in many types of general industry.
- Puncture-resistant soles in safety shoes protect against punctures from stepping on sharp objects.
- Rubber or plastic safety boots offer protection against oil, water, acids, corrosives, and other industrial chemicals.
- Electrical hazard shoes offer insulation from electrical shock hazards from contact with circuits of 600 volts or less under dry conditions.

Properly care for your shoes to prolong life and protective factors. Allow footwear to dry out between uses. You can also use a protective coating to make footwear water resistant. Inspect footwear regularly for damage. Repair or replace worn or defective footwear.



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## Cavities begin with bacteria and sugar

*"Keep your face  
always toward  
the sunshine —  
and shadows  
will fall behind  
you."*

Walt Whitman



**Sugary or starchy  
foods and beverages  
produce acids that  
harm your teeth.**

Cavities are formed when the bacteria in our mouths create acids that eat away at the enamel (the hard outer surface) on our teeth.

These acids are produced when we consume sugary or starchy foods or beverages (such as soda, juice, cookies, or bread).

Minerals in saliva, such as calcium and phosphate, as well as fluoride from toothpaste, replace the minerals lost when the enamel is attacked by the acid. However, when teeth are frequently exposed to acid, the enamel weakens.

A white spot on a tooth can be an early sign of decay. At this point the decay can be stopped or reversed through good oral hygiene — brushing with a fluoride toothpaste, drinking fluoridated water, flossing, and regularly visiting the dentist.

If left untreated, however, the decay continues and the tooth's enamel is weakened to the point that a hole, or cavity, forms.

Cavities are permanently damaged areas which must be filled by a dentist. If cavities aren't repaired, they enlarge and affect deeper layers of the teeth, leading to severe toothache, infection, and tooth loss.

Good dental hygiene plays a major role in preventing cavities. Keeping teeth as clean as possible, and regularly visiting the dentist, can prevent a painful bout of tooth decay.



### Tips for a great smile:

- **Floss.** Be sure to floss once a day to get rid of food particles in between your teeth. Up to 35 percent of the tooth's surface doesn't get clean if you don't floss.
- **Limit sugary beverages.** Drinks such as soda, juice, and alcoholic beverages have high sugar content. The bacteria in your mouth grow on sugar and form plaque, which can create cavities.
- **Visit your dentist.** See your dentist every six months. A dental hygienist will clean your teeth and remove any plaque and tartar buildup. X-rays may be taken to allow the dentist to see your teeth down to the roots.
- **Don't smoke.** Smoking can stain your teeth and make gum disease and tooth decay more likely.