

# Protecting Hands from Chemical Exposure

HS95-076B (10-05)

## Purpose

This program will inform employees who work in harsh environmental conditions of the importance of using proper hand protection while at work.

## Objective

At the end of this safety training program, employees will be aware of the importance of proper selection and use of hand protection.

## Introduction

A common safety dilemma that faces many companies is how to properly protect the hands. A combination of harsh working environments, failure to choose the appropriate hand protection, and not wearing hand protection at all are the three major causes of skin damage.

Employees associate rough, beat-up hands with manual labor and many are unaware of the increasing damage that can occur when cut, nicked and cracked hands are exposed to chemicals in the workplace. When the skin's most outer layer is weakened, chemicals can more easily penetrate and damage the living skin cells in the dermal layer.

## Glove Selection

The first step in choosing hand protection is to analyze the workplace to identify what conditions and chemicals employees' hands may contact. Once this information is known, the next step is to choose the appropriate hand protection that will protect employees' hands from these conditions and chemicals.

One way a company can effectively decrease the level of hand injuries and contracted skin diseases is to choose the proper type of gloves. To select the proper type of glove, companies may want to:

- check the company's MSDS (Material Safety Data Sheet) for recommendations for the appropriate type of gloves when exposed to a chemical or hazard or;
- check the glove for signs of deterioration.



Another consideration when selecting gloves is the type of materials employees handle. For example, if an employee is working with chemicals, the employer must look at how quickly these chemicals could penetrate or become reactive with the glove. The employer must consider that one chemical may have no effect on a glove, but another may penetrate it.

## Hand Care

Once the employer has selected the proper gloves, care must be taken to assure that the gloves are used properly. Do not substitute one type of glove for another. For example, if an employee is using heavily insulated leather gloves to weld metal, the same pair of gloves would not be used to lift and move heavy, sharp metal plates, since the plates could cut openings in the gloves.

If the employer provides a wash room for employee use, the employer must ensure that proper industrial hygiene practices are used. Simple practices such as proper hand washing will add protection. The Centers for Disease Control recommend the following guidelines for proper hand washing:

1. Turn the water on to a comfortable temperature and wet your hands and wrists.
2. Apply the soap then work it into a thick lather.
3. While holding hands low in the sink, interlace fingers for complete cleaning. Rub one hand against the other, paying particular attention to the fingernails and skin areas between the fingers.
4. Wash the hands for a 10-second period with plenty of friction.
5. Rinse hands thoroughly and hold hands low, allowing soil to run into sink.
6. Dry hands completely using paper towels.
7. Shut off water with a clean paper towel so that clean hands avoid contaminants on the faucet.

The type of soap used by employees can also have a great effect on the conditions of their hands. Careful selection must be made when the employer purchases soap for the company. Harsh cleaners can aggravate a skin condition and will not allow the hands to clear up. Bar soaps can be a poor choice because they may be passed from employee to employee while containing a great deal of bacteria. Pink or coconut-oil based soaps are not designed to take off heavy contamination. Some soaps have a tendency to dry skin. The best choice would be synthetic



## Review Questions

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1. A good way to choose proper gloves for an employee is to check the MSDS for recommendations.

True or False

2. If an employee works with sharp metal, then decides to work with a cleaning chemical, he or she should change from one type of work glove to another.

True or False

3. Only people in food preparation and medical professions have to worry about proper hand washing.

True or False

4. Bar soaps are the best choice of soaps for all types of occupations.

True or False

5. Before protective creams are used, the employee must make sure to have clean skin.

True or False

Answers: 1. T 2. T 3. F 4. F 5. T



## Resources

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The Texas Department of Insurance/Division of Workers' Compensation Resource Center offers a workers' health and safety video tape library. Call (512) 804-4620 for more information or visit our web site at [www.tdi.state.tx.us/wc/indexwc.html](http://www.tdi.state.tx.us/wc/indexwc.html).

*Code of Federal Regulations Title 29, Part 1910.138, 2001 ed.*

detergents that are pH-balanced and clean better than animal-derived soaps with a lot of alkali and fatty acids. The bottom line is education. Take the time to determine the type of cleanser needed in your work area.

Protective creams can also be an excellent source of hand protection. While creams are not to be confused as a substitute for gloves, they can help protect the worker if chemicals penetrate gloves. As with gloves and soaps, special care must be taken when selecting protective creams.

The worker needs to understand how to use the proper cream for the job. If an employee is working with petroleum-based hazards, they should use creams that are water-based to naturally repel the petroleum solvent. For protection against water-based hazards, oil-based creams should be used.

To assure that the proper cream is used, the employer and employee must understand how protective creams work. If a barrier cream is said to repel acid, then the worker must be aware of the concentration of the acid that the cream will repel.

Protective creams need to be used at the appropriate time for full effectiveness. For example, if an employee works on a machine that uses cutting oil, the cream must be applied to the employee's skin before work begins. The cream may not offer any protection to the employee if it is applied after the cutting oil has already penetrated the skin. For protective creams to work, the skin must be clean when the cream is first applied.

When considering what type of hand protection to use, a good method to use is a three-point skin-care program:

1. protect while working
2. use proper cleanser and
3. apply skin cream before work.

Remember, we only have one set of hands. Let's handle them with care on the job.

*Safety Violations Hotline*

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