This training was developed by the Dept of Labor & Industries – Division of Occupational Safety & Health to meet the requirements of their training requirements for any employees who wear hand protection.
Hand Protection (Gloves)

The following topics will be covered:

- Hand Hazards
- Types of Gloves
- Limitations
- Use and Care
- Chemical-resistant gloves

“This module covers basic facts on the potential for hand injuries at this worksite, how gloves can protect you, what their limitations are, and how to take care of your gloves. Several slides cover the topic of chemical-resistant gloves because of the special hazard of handling chemicals.” [you can delete those slides if your employees don’t handle chemicals.]
“Your hands are your personal tools. You may take them for granted – until you have a serious injury or develop chronic skin problems.”
Hand Injuries
A hand injury can ruin your day or your life

20% of disabling workplace injuries involve the hands.

Hand injuries include cuts, burns, fractures, amputations, nerve damage and dermatitis.

Skin irritation, dermatitis and even poisoning can occur by handling chemicals with bare hands.

“The top photo shows a typical injury from a knife, the lower photo show a bad case of dermatitis caused by chemical exposure.”
“Most of you are quite familiar with leather work gloves and insulated gloves for cold weather since we all use them at home. On the job, there can be additional hazards and gloves available to protect you from these hazards. The next three slides will cover these hazards.”
“There is a variety of leather gloves available depending on personal preference and job tasks. Cut resistant gloves are made of Kevlar, or have steel wire or fiberglass woven in. Steel mesh gloves are sometimes worn when using sharp knives and are required in the meatpacking industry. Insulated gloves can of course be used for extremely cold objects or cold temperatures.”
“Anti-vibration gloves can help prevent hand or finger numbness from excess vibration. Chronic exposure to excessive vibration can lead to a permanent condition known as Reynard’s Disease which is permanent numbness, tingling and cold sensitivity. In healthcare, latex gloves provide a simple barrier against blood and body fluid splashes and drips, but provide no protection from needle sticks. We will cover the different kinds of chemical resistant gloves in the slides to follow.”
Electrically Insulated Gloves
Certified Linesman’s Gloves

These specialty gloves are used to handle live wires or energized electrical equipment.

They must be electrically tested every 6 months.

They can’t be used if not tested within past 12 months.

Check for obvious signs of wear or holes before using.

(Optional Slide)

[This slide can be skipped if it does not apply to your workplace.]
Hazard Assessment

Our company did a hazard assessment and found that gloves are needed in the following areas or job tasks:

List areas or tasks here

[You can also mention what other steps were taken to reduce hand injuries or hand exposure to chemicals, and why gloves are provided as additional protection or as the only feasible alternative.]
Gloves We Use

List, describe or show type of gloves used at worksite here and when and for what tasks they are needed

[Gloves required at your worksite can be shown and tried on here.]
Like all personal protective equipment, gloves are not fail-safe and in some cases can actually increase hazards if not used properly. Gloves should not be worn around moving machinery parts, but if they must, all guards must be in place, or the machine should be locked out or the power disconnected before maintenance work is done.
“Gloves come in several sizes (extra small, small, medium, large, extra large) or sometimes in number sizes from 5 to 12. Your glove size should be the same as your hand measurement in inches around your palm. If your hand is 9 inches around the palm, usually a medium or large will fit you, although manufacturer sizes do vary. Too small gloves are usually uncomfortable and can rip or tear. Too big gloves can be clumsy and awkward, slip off your hands or get caught in machinery.”
The effects of any chemicals or dirt on your hands will be magnified inside gloves, especially rubber/plastic gloves. Don’t use rubber gloves that have been contaminated inside by chemicals. They must be discarded since they cannot be adequately cleaned on the inside. All fabric and leather gloves can be laundered to extend their life or simply tossed when they become heavily soiled. After washing, gloves should be dried and stored in a clean location. Follow glove manufacturers instructions on how to wash the gloves you use.

Latex-sensitive people can develop a rash or severe irritation if they wear latex rubber gloves. Other types of plastic or rubber gloves do not have that effect.
Be sure to remove rings, watches or bracelets before using rubber/plastic gloves, since they can cut or tear or wear through the glove. Inspect rubber/plastic glove for pinholes before using, especially if you will be immersing your hands in liquid chemicals. Sometimes the job duties may require protection of wrist and lower arms as well as the hand and longer gloves are needed. In some cases, extra-long or even shoulder-length gloves may be needed. Another safety measure that is sometimes taken is the gloves are taped at the wrist. Depending on tasks, gloves may need to be worn inside or outside sleeves. If the hands are elevated and liquid chemicals are handled, the sleeves should be inside the glove to prevent the liquid from dripping down inside the sleeve.
“Leather or cloth gloves will simply soak up liquid chemicals, get inside the gloves and keep them against your skin. Also the liquid can leak through the seams of the leather or fabric glove.”
The slides following are optional for employees who use chemical-resistant gloves. Manually handling toxic chemicals should be avoided whenever possible, since gloves are not fail-safe. Gloves should be considered secondary protection or protection of last resort when handling toxic chemicals.
You are quite familiar with acid or caustic and how it can burn your skin. Some cleaning solutions contain a mild corrosive which will irritate your skin over time. Solvents (paint thinner, acetone, toluene, for example) may simply dry your hands out, but some may cause actual damage to the skin. A few are absorbed through the skin with toxic effects. Some pesticides are easily absorbed through the skin and can make you quite sick. With other chemicals, the effects are as varied as the type of chemical. Material safety data sheets are one source of information about skin effects of a particular chemical or product and what kind of gloves to wear. Chemical-resistant glove manufacturers are another source of information, especially on what glove is best for protection against a particular chemical.
These facts become very important when working with highly toxic liquid chemicals. Rates of chemical penetration into the glove depends on the type of chemical, and the kind of material the glove is made of. Glove manufacturers publish information on how long it takes for specific chemicals to penetrate different kinds of glove material. This is also called breakthrough.

Thin, disposable gloves cannot be used for prolonged exposure to chemicals. Sometimes inner disposable gloves are worn inside outer thick gloves for more complete protection. There is a trade-off between dexterity and protection of thicker gloves. Thick gloves can be clumsy and are not always needed if the chemical exposure is brief or minimal, or if the chemical is not too corrosive, irritating or toxic.”
Chemical Resistant Gloves

Chemical glove selection

No single glove material will protect against all chemicals.

Gloves are selected according to the type of chemical.

Good chemical gloves are made of Viton®, butyl, nitrile, neoprene, PVC or PVA or combinations of these.

Latex and polyethylene gloves provide little or no protection against liquid solvents. Latex gloves will actually be dissolved by some solvents, but can provide good protection against weak corrosive liquids – acids or caustics – if they are thick enough. They are not protective against strong corrosives, though. Clear polyethylene gloves typically used for food handling provide almost no protection to chemicals of any kind. PVA (polyvinyl alcohol) gloves are effective against certain solvents, but cannot be used with products that contain water. The most chemically-resistant gloves are made of several layers of different kinds of material and have the trade name of “Silver Shield/4H. Generally, any chemical-resistant glove can be used for handling dry powders. The product MSDS may have specific recommendations on the type of glove to wear when handling the product.
How long a particular kind of chemical resistant glove keeps chemicals out depends on the kind of chemical and the material the glove is made of. Glove manufacturers have charts which give these details.
This is a major hazard if the gloves are heavily contaminated or extremely toxic chemicals were handled or if you were not able to clean them before removal. A variety of methods can be used to remove gloves without touching the outside, depending on the type of glove. The photos shows how it can be done with latex gloves used in medical care settings where exposure to blood or bodily fluids occurs. Using inner gloves can help, or another employee can remove them. [If this is an issue at your workplace, describe or show method used.]
Workplace specifics

Describe any additional company glove policies here, such as glove supply and replacement, cleaning policies or rules about use of gloves around machinery with moving parts.
Question 1

Leather gloves provide protection for the following:

a) splinters
b) sheet metal edges
c) acid
d) wire cable

All except c) is correct
a) And c) are correct.  b) may be correct if the material handled cannot get into the gloves. It would never be correct if the hand is immersed in liquid chemicals or water containing chemicals.
b) is the correct answer. Paint thinner will quickly degrade or even dissolve most disposable plastic gloves. They are not strong enough to withstand handling rough or abrasive objects.