

Protective Clothing

(see also Eye and Face Protection, Head Protection,
Hand Protection, Foot Protection, Respiratory Protection)

Meeting Objectives

To understand how to select, use, and maintain clothing to protect the body against physical hazards and exposure to hazardous chemicals. The result should be the use of proper protective clothing whenever required on the job.

Suggested Materials to Have on Hand

- Samples of any protective clothing used on job, such as:
 - encapsulated chemical protective suit
 - rubber apron or coverall
 - disposable paper or cotton coverall
- Sample material safety data sheets, highlighting protective clothing and equipment suggestions.

Introduction/Overview

Every workplace has hazards, ranging from the possibility of fire or explosion, to exposure to toxic chemicals, to getting scratched or scraped by rough or jagged materials.

Luckily, there's protective clothing designed to protect you against just about any hazard you can encounter on the job.

But protective clothing doesn't eliminate a hazard; it protects you from the hazard IF you:

- Select the right clothing for the hazard
- Make sure the clothing fits properly
- Wear the clothing when you might be exposed to the hazard
- Maintain the clothing so that it can do its job.

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You wouldn't go out in 20 degree weather in shorts or wear your best clothes out in the rain. Use the same kind of common sense by wearing protective clothing on the job.

Protective clothing is vital to any company's safety and health program. It's a key part of our company training and safety meetings because it's the best way to protect you.

Today we're going to look at the basics of protective clothing for the body. Protection for the head, for the eyes and face, and for the hands and feet are important—and different—enough that they will be covered in their own safety meetings.

General Hazards

There are two general categories of on-the-job hazards that require protective clothing:

- Physical hazards such as heat, cold, sharp objects, or falling objects
- Health hazards like exposure to toxic or corrosive substances.

You need different types of clothing for each type of hazard you encounter, and, in many cases, the choice is critical. Clothing that will protect you from fire, for instance, won't do you any good against various kinds of chemicals.

OSHA Regulations and Frequent Violations

OSHA has a general requirement standard (29 CFR 1910.132) for personal protective equipment that, unfortunately, isn't always followed. In a recent year, the agency issued nearly 1,050 violations for the standard, which states: "Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact."

Today our focus is on the physical contact part of that requirement.

Personal protective equipment, including clothing, is also required to be part of your training by the Hazard Communication Standard, or "Right to Know." That regulation says, among other things, that employees have to be informed of the hazards that exist in the workplace and be trained in ways to protect themselves from those hazards. Protective clothing is an important part of your protection.

Identifying Hazards

Before you start any job involving chemicals, check the material safety data sheet. The MSDS tells you the hazards posed by that substance, and also recommends protective equipment.

Identifying other kinds of hazards is a matter of common sense.

You know, for example, that if you're working near a furnace you're going to be exposed to high heat. And you know that certain jobs could create a hazard from sharp objects or the risk of flying pieces of metal.

So stop and think before you start any job about the possible hazards you could come up against and what you will need to protect yourself from them.

Protection Against Hazards

Let's look at some of the kinds of hazards and the types of clothing that offer the best protection from them.

- Corrosive materials—acids and alkalines—can burn the skin and will eat through regular street clothes. It's critical to wear protective clothing when working with corrosives.
The protection you'll need is impermeable rubberized or neoprene suits, aprons, leggings, etc. The amount of clothing depends on the job, but because you don't want to take a chance on getting a corrosive on your skin, make sure every part of the body is covered. For example, you don't want dangerous gaps between sleeves and gloves, or pant legs and boots.
- Fire hazards call for clothing made of high-tech fire-resistant fabrics like Nomex. For actual firefighting and certain other jobs, there are aluminized suits. If there's a limited heat hazard, leather clothing may be adequate.
- Toxic substances have so many varied hazards that it's important to check the MSDS to make sure you're wearing clothing that will protect you from the specific hazards of the specific chemical. Most such substances call for impermeable rubberized or neoprene clothes, but check the MSDS to be sure.
- Physical hazards like sharp or moving parts, which could cause, cuts, bruises, etc., may also call for some special protective gear. Cotton, for instance, can protect against abrasion and splinters. Heavier cotton like duck can protect against getting cuts from sharp or rough objects.

Use your head, your eyes, your experience, and the resources at your command like MSDSs to determine what hazards you're going to encounter and what to do to protect yourself from them.

Safety Procedures

Use your protective equipment. It's that simple. If you need vests, jackets, aprons, coveralls, or even full-body suits to protect yourself, wear them.

The EPA sets four levels for the protective clothing and respirators you wear when you work with a toxic or corrosive substance. We'll just talk about the clothing here. (See Respiratory Protection, but understand that respirators are included in levels A and B, and sometimes C.

Level A, the highest level of protection, is needed when there's a very high risk of exposure to a toxic or corrosive substance. It requires a chemical-resistant fully encapsulated suit.

Level B requires chemical-resistant clothing that covers your arms and legs.

Level C means the appropriate clothing called for by the MSDS.

Level D is generally regular work clothing.

It's important to remember, though, that even when you're wearing ordinary workclothes, you have to take some precautions about what you wear and how you wear it.

- Pants should have uncuffed, unrolled bottoms so they don't catch on equipment or trip you up. Cuffs could also catch sparks or chemicals. Pants shouldn't be so long that you trip over them.
- Clothes should fit well. If they're too loose, they could get caught in machinery. Keep shirttails tucked in.
- Wear long sleeves and button them at the wrist.
- Don't wear jewelry. It could get caught in machinery or act as a conductor for electricity.
- Keep your clothes clean. Grease or oil could catch fire. And buildups of dust or other substances could irritate your skin.

Putting On and Taking Off Protective Clothing

Even the way you put on and take off protective clothing can make a big difference in your level of protection.

Before you put on protective clothing:

- Inspect it for cuts, tears, punctures, stiffness, and discoloration.

If it doesn't look or feel right, don't use it. Encapsulated suits should be tested before every use.

- Make sure it fits right. If it's too tight, you won't be able to move comfortably and do the job. If it's too loose, movement will also be awkward and there's a risk of the garment getting caught on something and tearing.
- Make sure all snaps, zippers, etc., are fastened properly. Ask another worker to double-check you—and return the favor.

The way you take off protective clothing that may have been exposed to a toxic chemical or corrosive substance is very important, too. You don't want to do it in a way that will contaminate you or take the contaminated substance out of the changing area. The EPA has a detailed set of steps for removing contaminated clothing that we covered in our training program, but it's worth going over the highlights now.

- Remove contaminated clothing only in the designated changing area.
- Don't touch any part of clothing that has been contaminated.
- Remove the most contaminated articles first.
- Remove clothing from the top down so you don't drop contaminants from the jacket or apron on your uncovered legs.
- Always wear gloves as you unfasten zippers, snaps, etc., or have someone else do it for you.
- Place contaminated clothing in proper containers for cleaning or disposal.

You can't take any shortcuts when you take off contaminated clothing. Carelessness at this stage could be as bad as not wearing the protective clothing at all.

Suggested Discussion Questions

- 1 . What are some of the hazards that require protective clothing?
- 2 . What kind of clothing do you use to protect against corrosives?
- 3 . What kind of clothing do you use to protect against heat or fire?
- 4 . What kind of clothing do you use to protect against toxic chemicals?
- 5 . Where do you look to determine what protection you need for a specific hazardous substance?
- 6 . What are some precautions to follow when you're wearing regular work clothes?
- 7 . What do you do before you put on protective clothing? What do you look for?
- 8 . What is the general sequence of steps to follow when you remove protective clothing?
- 9 . Are there any other questions?

Wrap-Up

Protective clothing is an essential part of your on-the-job safety. The company has made a substantial investment in clothing that will protect you from the hazards you encounter on the job. And you've received a lot of training on this subject.

But none of that will do any good unless you:

- Wear protective clothing for any job that involves hazards
- Be sure you're wearing the right clothing—clothing that will protect you from that hazard
- Inspect clothing carefully before putting it on
- Remove clothing carefully to prevent contamination.

Sample Handout

Protective Clothing Safety Checklist

To protect against corrosives, wear:

- impermeable rubberized or neoprene clothing that fully covers the body.

To protect against fire, wear:

- suits made of fire-resistant fabrics like Nomex.

To protect against toxic substances, wear:

- clothing recommended on the substance's MSDS (often rubberized or neoprene).

To protect against abrasion, splinters, or cuts, wear:

- cotton or heavy cotton duck clothing.

For highly toxic or corrosive substances (Level A), wear:

- a fully encapsulated chemical-resistant suit.

For Level B toxic or corrosive exposure, wear:

- chemical-resistant clothing that fully covers the arms and legs.

When wearing ordinary work clothes, be sure that:

- Clothing is not too loose and shirttails are tucked in
- Shirts have long sleeves, buttoned at the wrist
- Pant legs are not too long and are uncuffed and unrolled
- Jewelry is removed before starting work
- Clothes are kept clean, with special attention to grease, oil, and skin irritants.

Before putting on protective clothing:

- Inspect it for cuts, tears, punctures, stiffness, and discoloration.
- Report—and don't wear—any clothing that doesn't look or feel right.
- Be sure it fits comfortably—not too loose or too tight.
- Fasten all snaps, zippers, etc., and have someone else check them.

When you take off protective clothing:

- Take every precaution to avoid contamination.
- Remove clothing only in assigned changing area.
- Follow EPA decontamination procedures, including:
 - Remove most contaminated articles first.
 - Remove clothing from the top down.
 - Wear gloves as you unfasten zippers or snaps or have someone else do it for you.
 - Place contaminated clothing in proper containers for cleaning or disposal.