

PREVENTING DERMATITIS

if you work with

EPOXY RESINS



U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service

A few years ago, epoxy resins were introduced to American industry and to American workers. Epoxy resins have many uses because they are strong, resistant, lightweight, and join firmly to other materials. In manufacturing, such as aircraft, automobile and electrical industries, as well as in painting and many other operations, the epoxy resins are being used more and more widely.

But working with epoxy resins can spell trouble for the worker who does not know what the hazards are and how to guard against them. Employees working with the resins may develop a disabling skin condition, or dermatitis, within a few weeks. Careless workers, or those who have had the disease before, may contract the dermatitis even sooner.

Reading this booklet and observing the precautions for handling the materials, plant housekeeping procedures, and personal hygiene rules, can make your working days happier and healthier.

GUARD AGAINST

Improper handling of materials



Breathing their vapors



When completely cured, epoxy resins are inactive and have little potential danger for the workers. Wet, or uncured, resins and chemicals used to harden the resinous mixture, thin it, strengthen it, or make it flexible should be regarded and handled as hazardous materials.

WHAT TO WATCH FOR

Operations in which hazards are found include:

★ MIXING

Workers who mix the resins and hardeners without safeguards will have direct contact with the basic components or breathe the vapors from the mixture.

★ MOLDING AND CASTING

Workers often mold or brush the mixture onto a form, cast it in a mold by hand, or laminate it with fiberglass using no protection from direct contact. Other workers may wear adequate protection on the hands and forearms, but leave the neck and face unprotected.

★ TOOLING

Sanding, grinding, or drilling the cast of hardened epoxy resins or laminates (made by alternating layers of epoxy resins with layers of other materials) may cause tiny particles of materials to be imbedded in the skin. Often the imbedded material will lead to mechanical irritation of the skin with possible infection from scratching the irritated areas.

WHAT THE HAZARD CAN PRODUCE

Dermatitis, an inflammation of the skin, is the disease that most often attacks workers handling epoxy resins and the chemicals used to manufacture them. Redness, itching, swelling, blisters, oozing, crusting, and scaling can result from primary irritation or allergic sensitization dermatitis.

★ Primary irritation

A direct reaction experienced by most people from skin contact with strong chemicals such as acids, alkalis, solvents, and other materials. The face, neck, forearms, and hands are most commonly affected.

★ Allergic sensitization

A severe type of dermatitis often occurring over widespread areas of the body about a week or more after the first contact. Swelling, redness, and oozing are present and the employee is usually not able to work.

★ Mechanical dermatitis

A reaction of the skin to an irritating foreign body. Tiny bits of fiberglass or other materials become imbedded in the skin and lead to irritation, itching, and sometimes secondary infection.

Other conditions . . . Respiratory, nose and throat irritation, headache, nausea, intestinal upsets and other conditions may result from breathing the vapors or other materials used in manufacturing processes. Eyes are also affected by the fumes or by direct contact.

WHAT TO DO TO AVOID ILLNESS

Meticulous workroom housekeeping and constant employee awareness should be maintained to guard against the two chief dangers in epoxy plant operations . . .

1. Skin contact with the resins or other materials.
2. Exposure to their vapors.

Outbreaks of dermatitis and other diseases can be avoided by following these basic rules.

- ★ Inform workers of possible hazards.
- ★ Provide ventilation to control vapors produced while mixing the resins and hardener as well as to control the glass and epoxy particulates during tooling.
- ★ Maintain plant and personal hygiene through good plant housekeeping procedures, appropriate industrial cleansers, protective clothing, and where needed, protective creams.

PROTECT YOURSELF BY OBSERVING THE FOLLOWING BASIC RULES

1 RULE

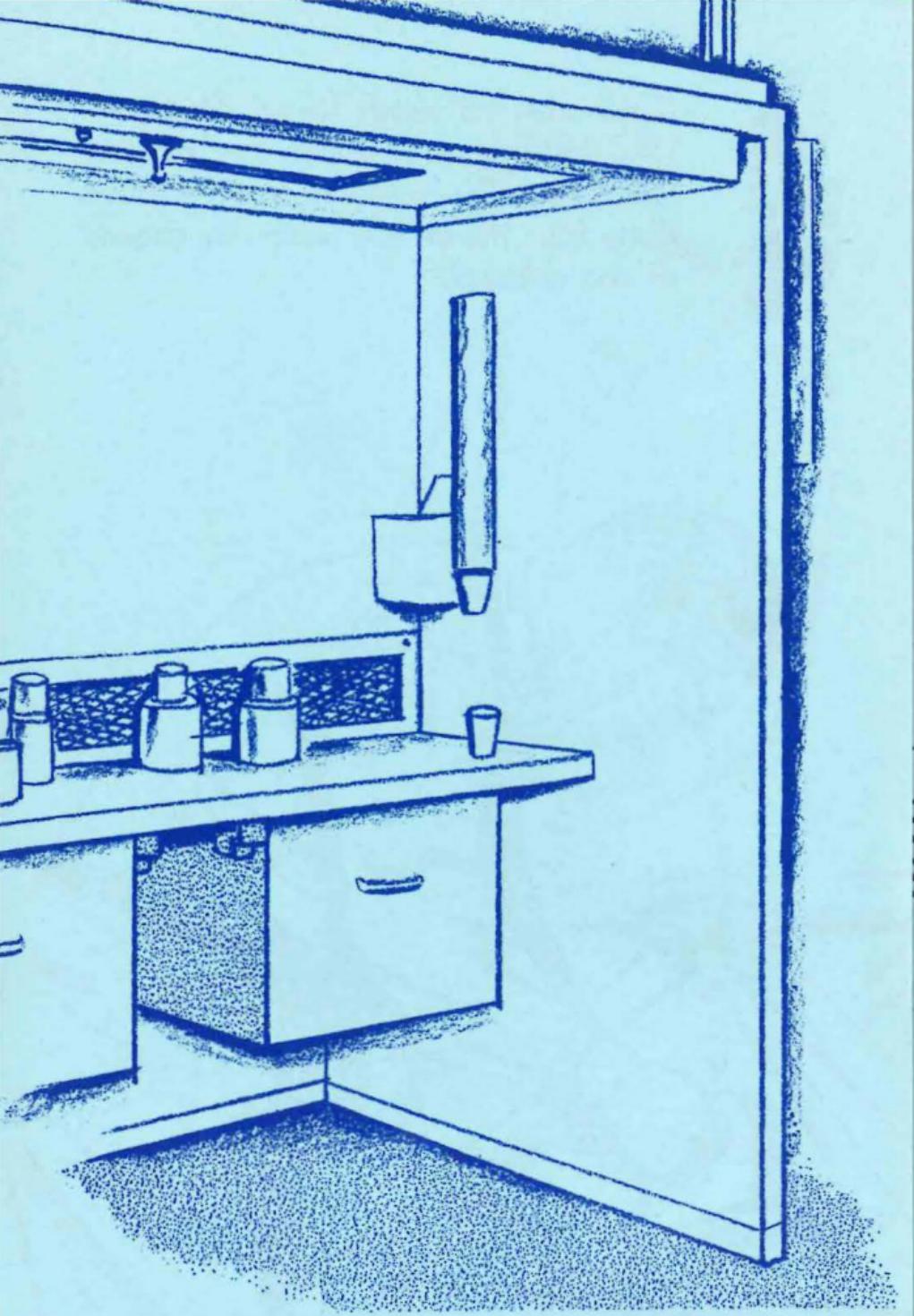
Learn what the hazards of epoxy resin operations are and how to avoid direct contact. Handling the materials or breathing their fumes should be avoided.





Avoid unnecessary contamination of the plant and other employees. Use special isolated areas of the plant for mixing, molding, curing, casting, and tooling of the resins.





9
RULE

Use a ventilated hood when mixing batches of the resins and hardener to prevent the escape of hazardous vapors. Limit the batch mixing to only a few workers.



Use ventilated hoods for grinding, sawing, drilling, or polishing the molded laminate. The ventilation will remove dusts from the air and lessen the chance of skin contact.





5
RULE

Wear protective sleeves and cotton-liners under rubber gloves during the molding operations to protect the skin.

Water soluble skin-protective gels provide some help in protecting skin against the action of the solvents.

6
RULE





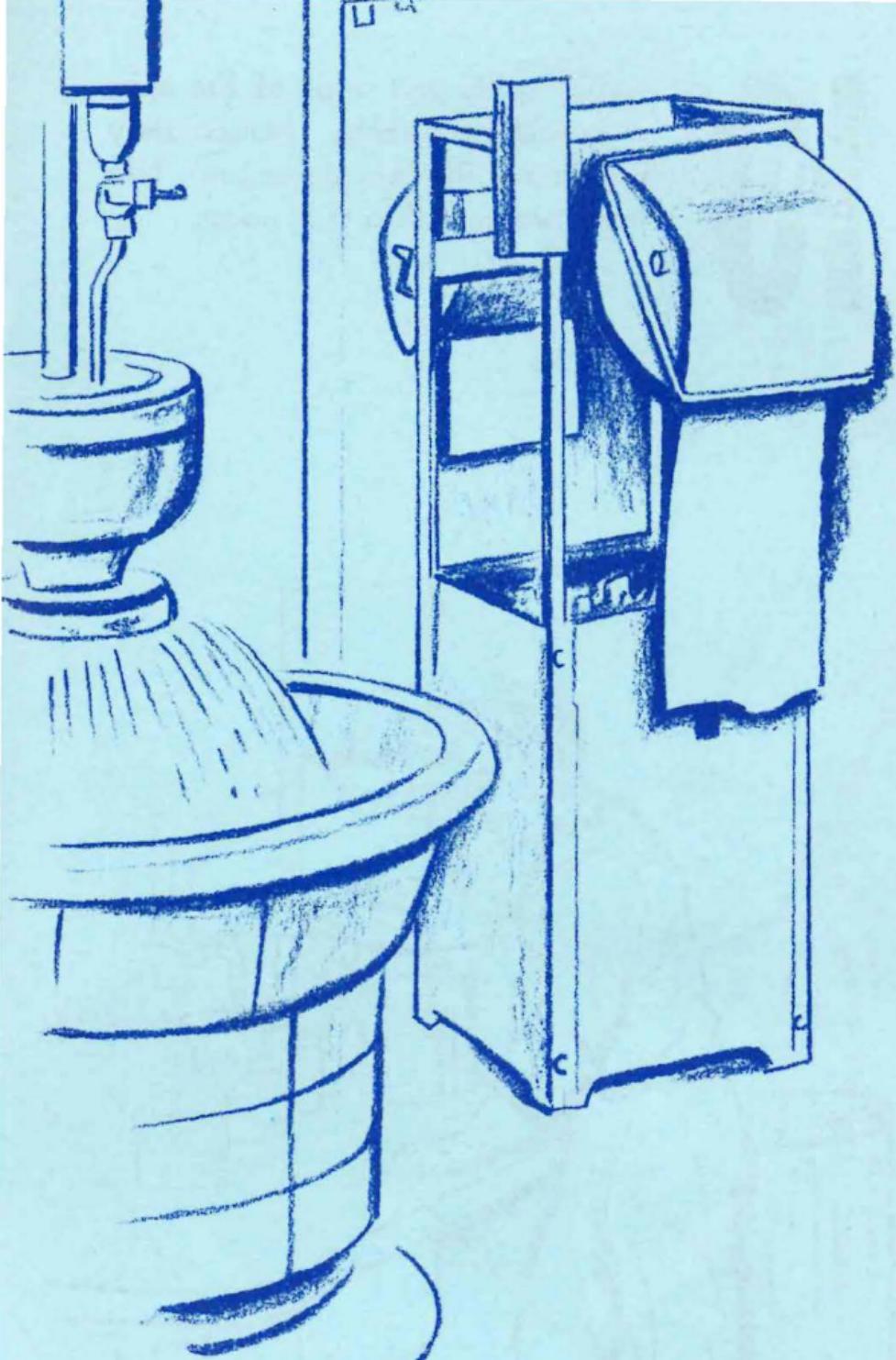
7 RULE

Use neutral or acid soaps instead of alkaline, powdered, or abrasive cleansing agents.



Avoid using acetone or similar solvents to cleanse the skin. These solvents may cause dermatitis or other skin irritations.





**RULE
9**

Replace clean-up rags with disposable paper towels to avoid contact with materials still on the rags.

10 RULE

Avoid spills and drips of the resin or hardening agents. Immediately wash up spills that do occur. Use warm water with a mild soap.





11 RULE

Keep tables, machinery, tools, floors, walls, and windows free of fiberglass particles and dusts. Use heavy disposable paper on the tables, and change it as often as possible.

TO THE SUPERVISOR

This is a capsule review of the hazards involved in working with epoxy resins and how to prevent illness.

Safe handling can be achieved only through the cooperation of every individual involved. Observance of *proper methods of handling, housekeeping, and personal hygiene* will prevent dermatitis and other health problems. Failure to follow precautions can cause a troublesome dermatitis and other complaints.

For additional information on occupational safety and health problems and proper control measures, write to:

*National Institute for
Occupational Safety and Health
U. S. Public Health Service
5600 Fishers Lane
Rockville, Maryland 20852*

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 15 cents

Public Health Service Publication No. 1040

**May 1963
Reprinted 1971**



**U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE**

**Public Health Service
National Institute for Occupational Safety and Health**

Rockville, Maryland 20852

