HOW TO GET ALONG WITH YOUR SOLVENT

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Services
Center for Disease Control
National Institute for Occupational Safety and Health

This booklet is for employees who handle and use industrial organic cleaning fluids. It's about SOLVENTS and YOU.

SOLVENTS? Well, SOLVENTS are great tools and helpers if YOU treat them right, but they can be downright mean if YOU don't.

YOU, who work with SOLVENTS want to stay healthy on the job. Your employer, the Occupational Safety and Health Administration (OSHA), and the National Institute for Occupational Safety and Health (NIOSH) also want YOU to stay healthy on the job. That's why this booklet was prepared — to give YOU the low-down on SOLVENTS. We urge YOU to read it carefully — for safety's sake!

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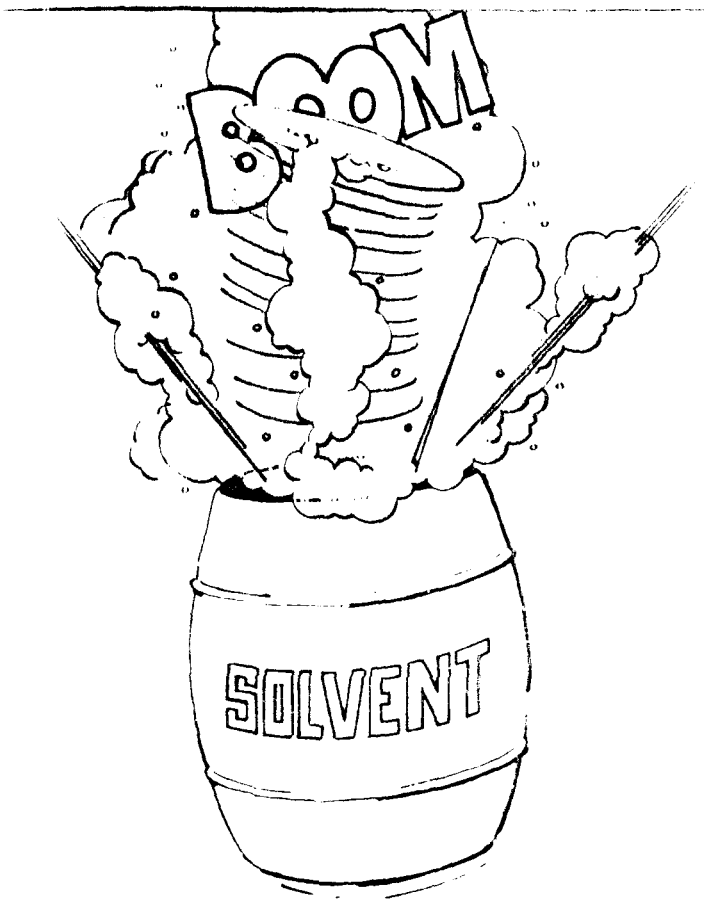
Solvents are easy to work with, but you have to know their hang-ups.

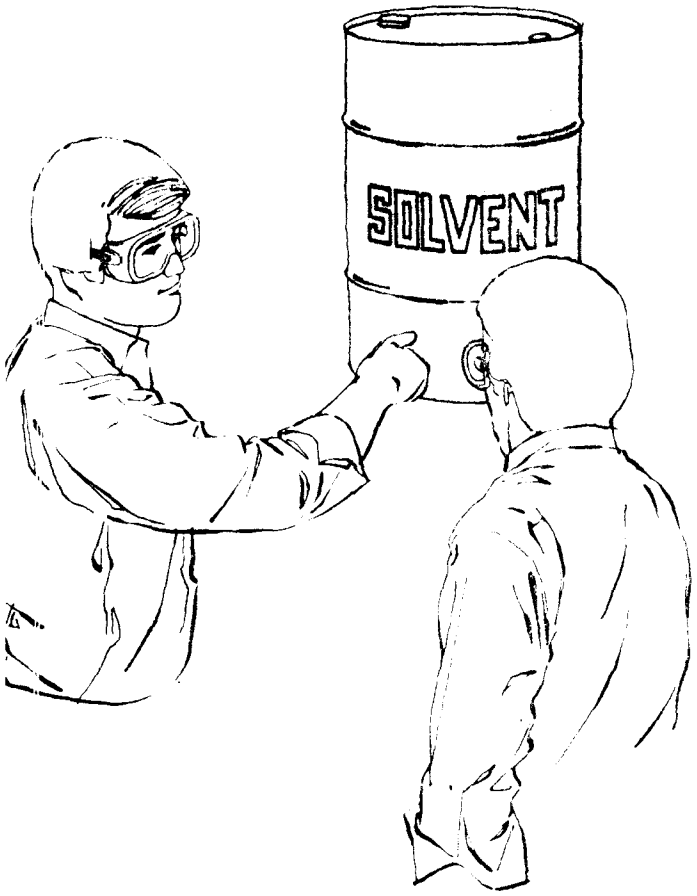
***Some* solvents are flammable.**



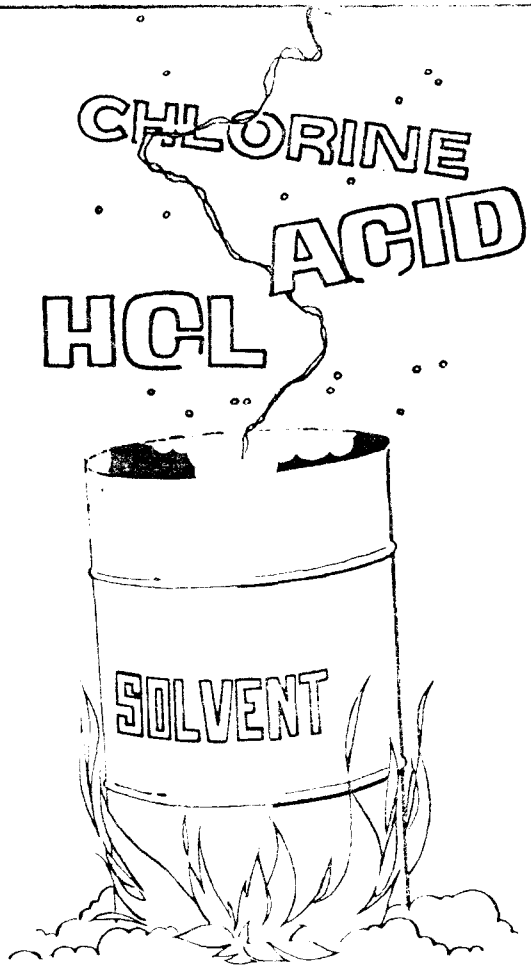
***Some* solvents can explode.**

Know your solvent! No two solvents are alike, so it pays to know the specific hazards of the solvent you're working with.

Check the label on the container and be sure you know what the hazards can be.

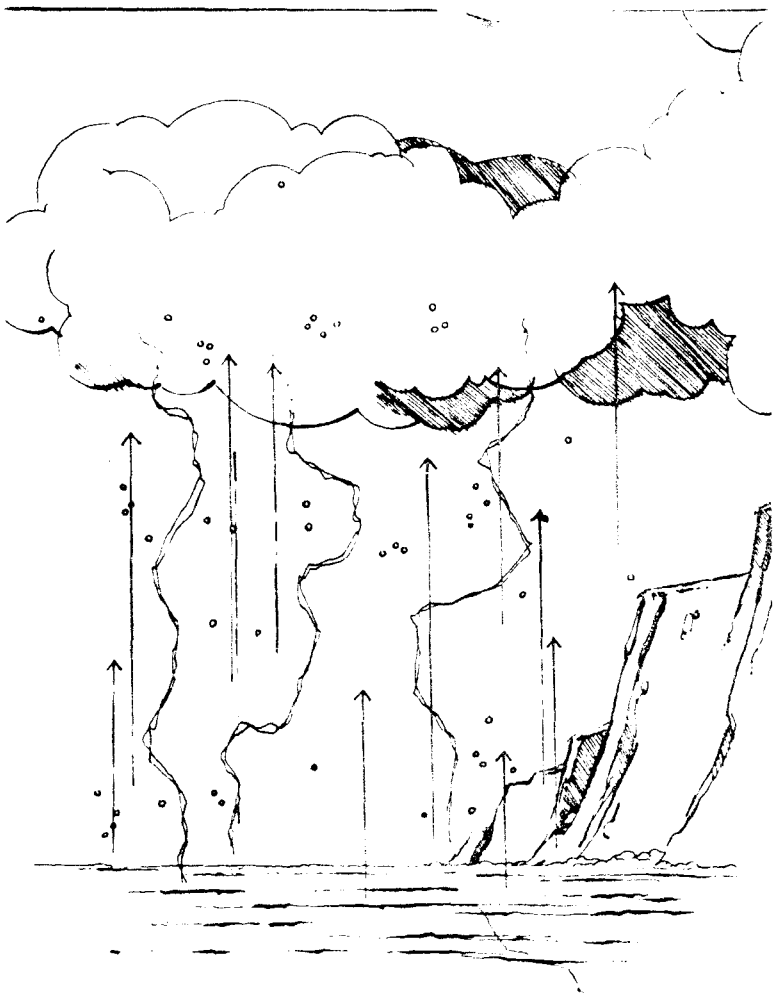


When in doubt, ask your supervisor.



Some **solvents can break down into acids, poisonous gases, or corrosive components if exposed to hot surfaces — trichloroethylene,1,1,1-trichloroethane, fluorocarbon solvents, perchloroethylene, methylene chloride are examples.**

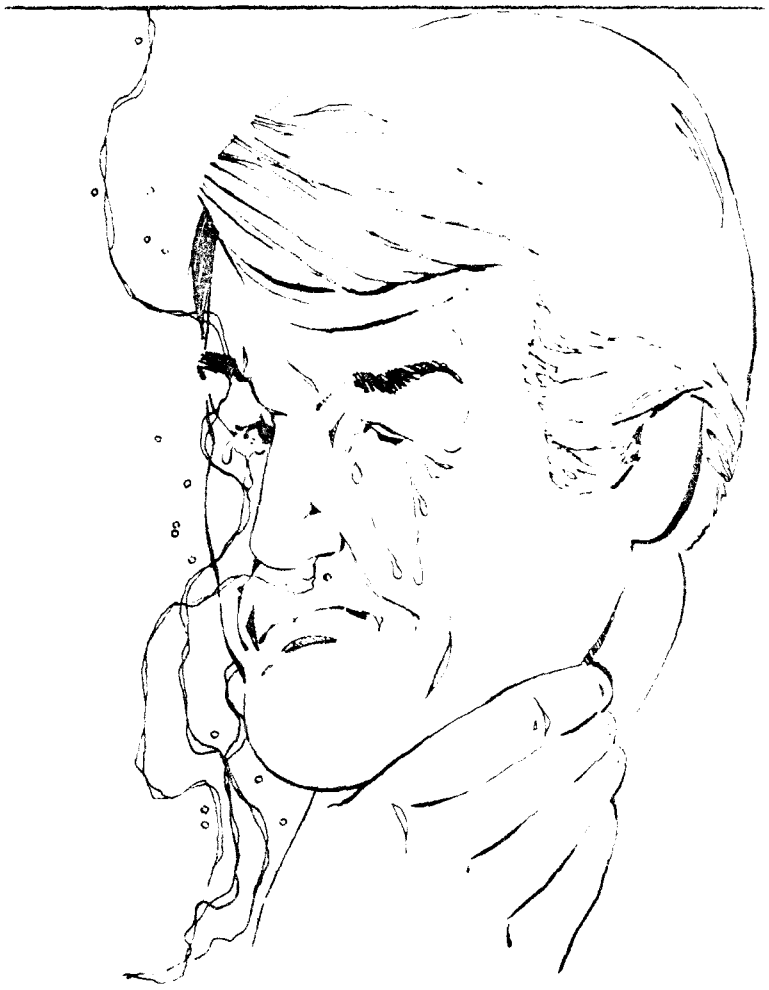
Some **solvents can react chemically with many other substances.**



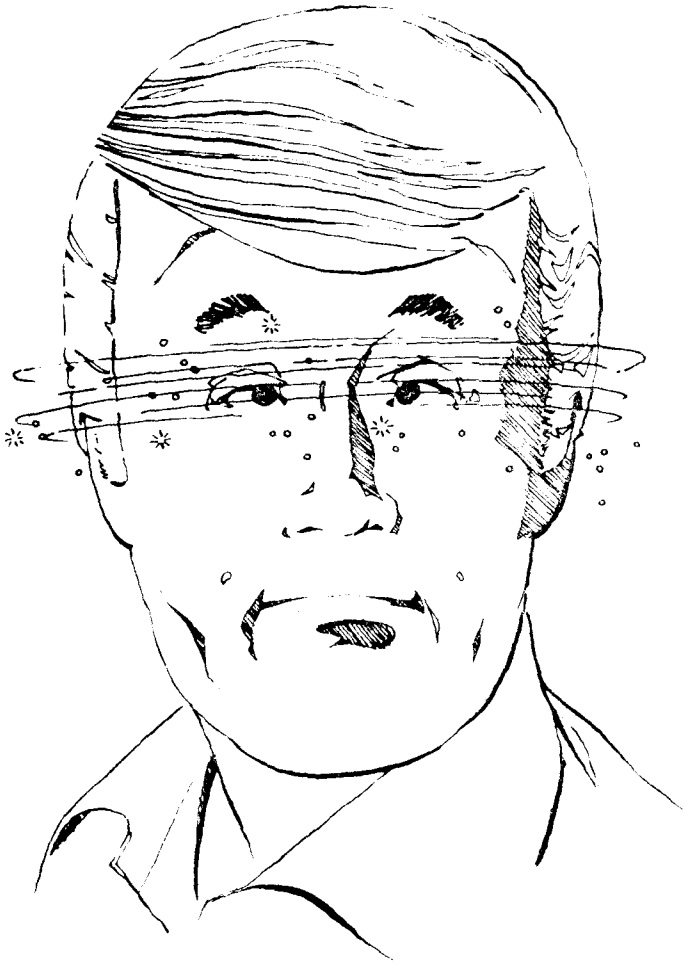
Even without heating, *all* solvents produce vapors that can cause problems if the concentration gets too high.

Just as the water in an ocean or lake can evaporate, making the surrounding air more humid . . .

. . . so can solvents evaporate, making the surrounding air less pure . . .



Exposure to too much solvent vapor can irritate your eyes . . . your nose . . . or your throat.



You can feel dizzy.

You can feel sick to your stomach.

Your ability to work safely can be affected.

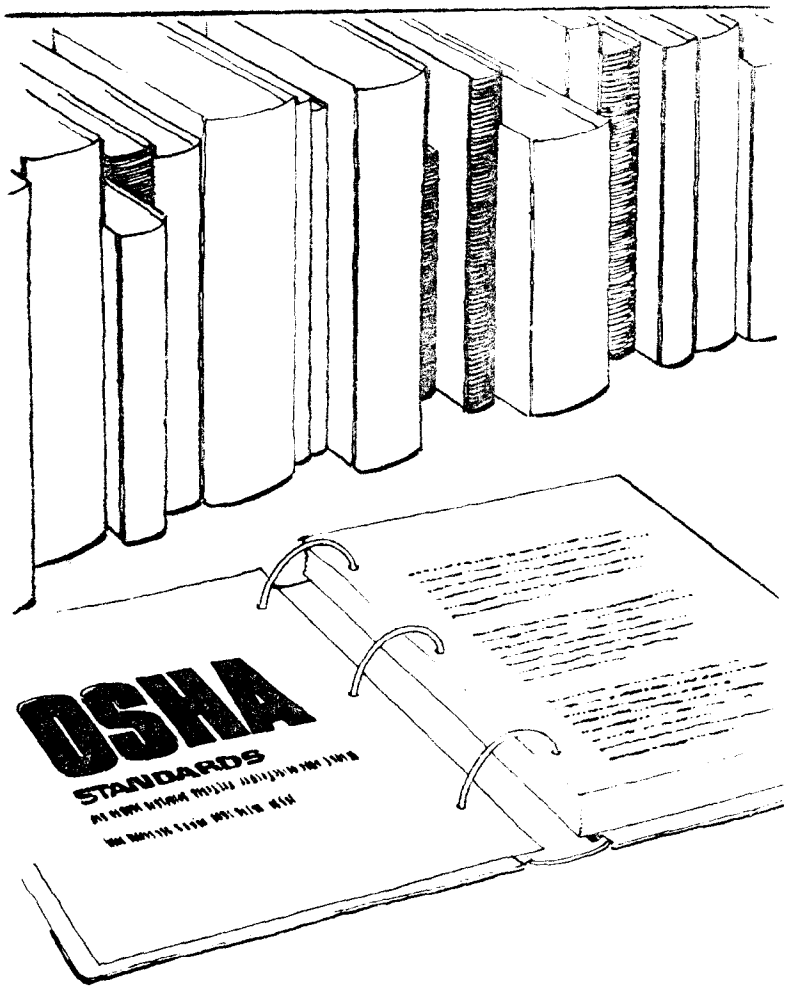
Repeated exposure of the skin to any organic solvent can cause a rash or more serious complications.

All **solvents can cause irritation or more serious complications if they are splashed into the eyes — especially hot solvents.**

But despite these hazards, working properly with solvents is less dangerous than driving your car in heavy traffic.

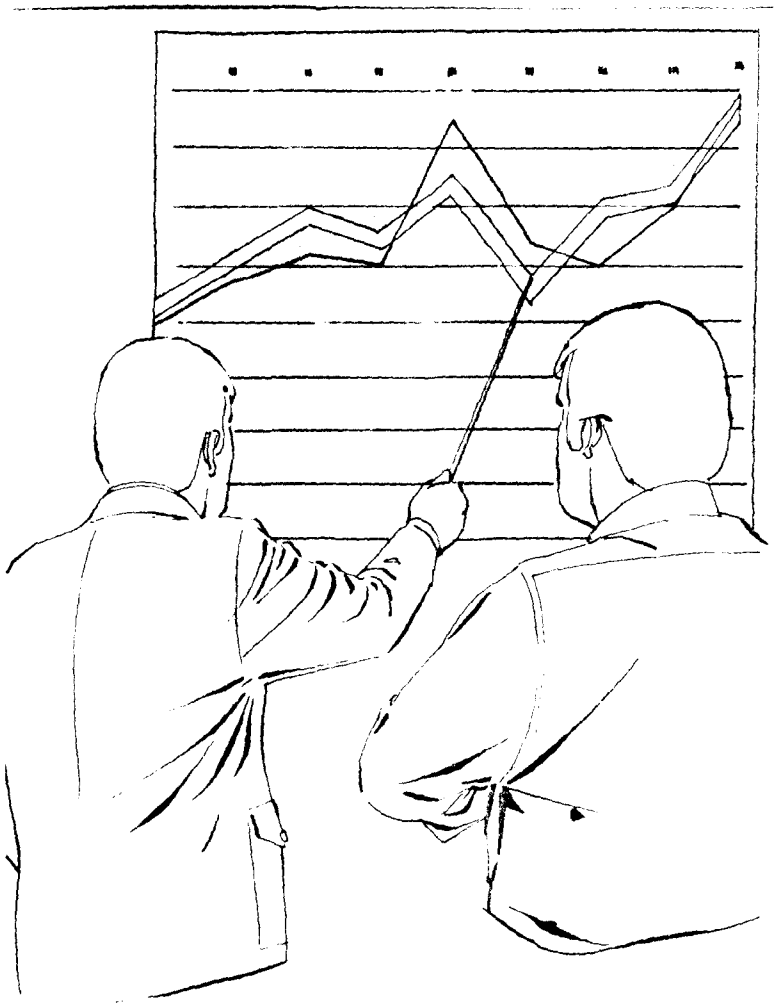
Safe solvent exposure levels are part of the OSHA standards. OSHA stands for Occupational Safety and *Health Administration.*

OSHA Regulations help *everybody*. We all win when OSHA Standards are observed.



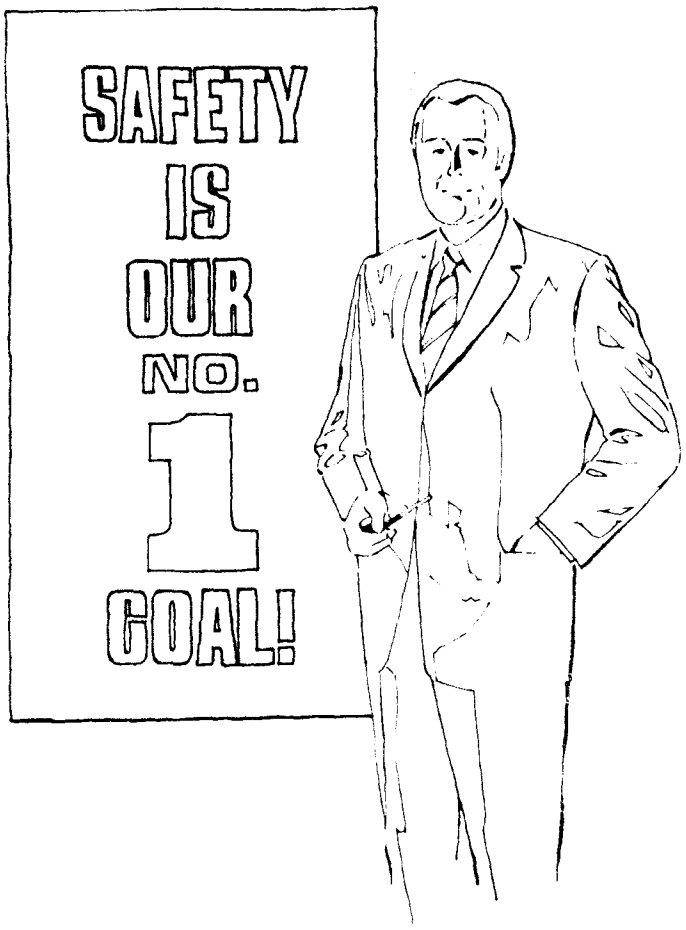
Health and safety is a team effort, and management has responsibilities, too. These are:

1. **Comply with OSHA Standards.**



2. Monitor the working conditions in the plant or shop to make sure no health hazards exist and keep accurate records of worker exposure to those substances regulated under the law.

3. Advise the worker of hazards or potential hazards in the workplace.



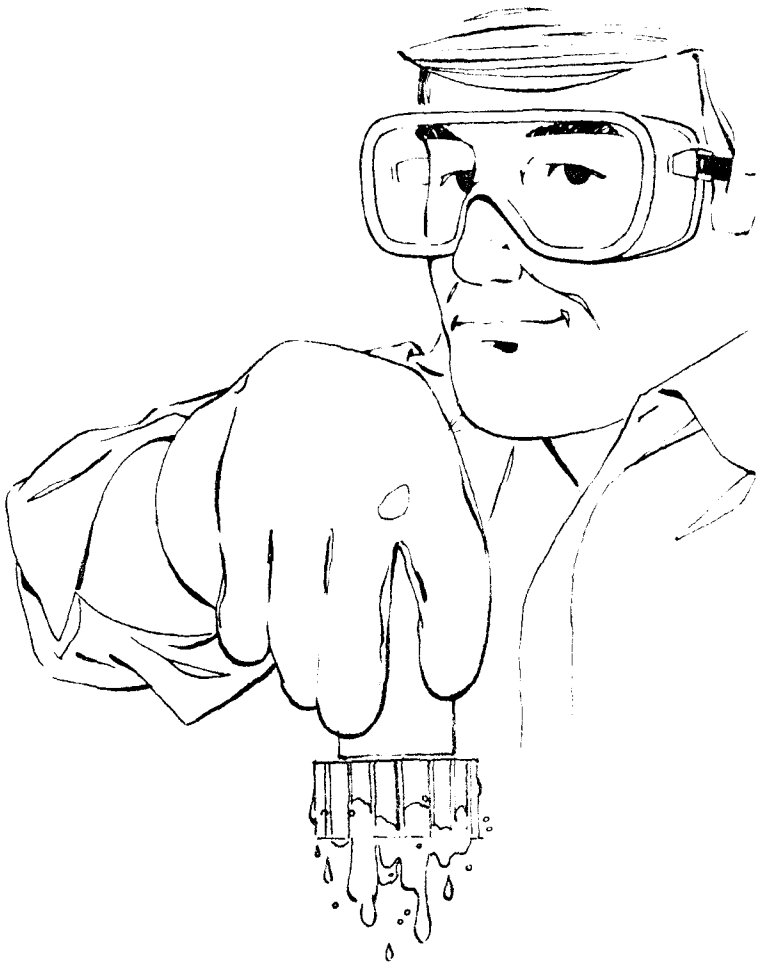
By doing these things, management will be furnishing a place of employment free of hazards.

If you think there's a problem in your work area, tell your supervisor what and where it is.

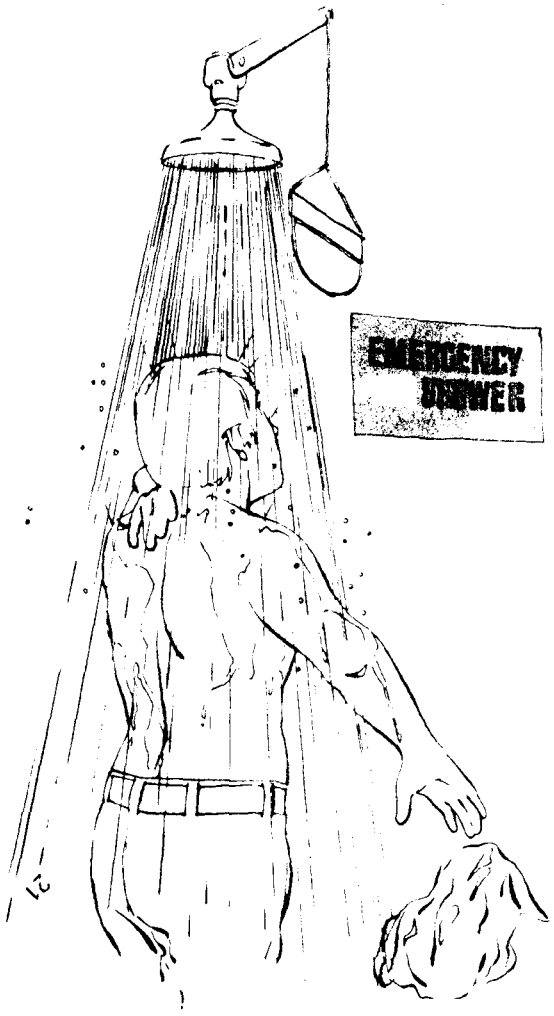
An industrial hygienist can measure the amount of solvent in the air. It is one sure way of determining how much solvent vapor you are breathing.

If you believe your operation is unsafe, you can request a Health Hazard Evaluation from NIOSH.

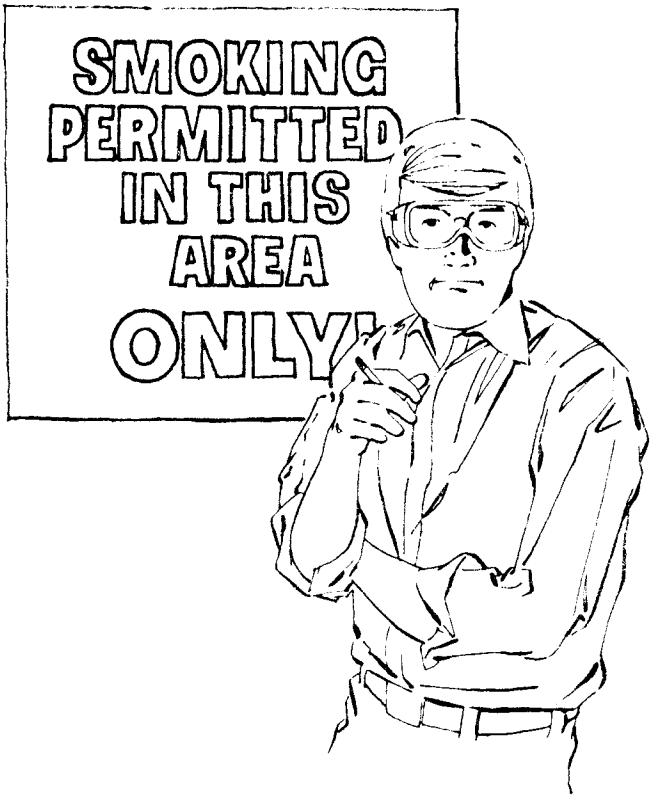
While you're actually using solvents, you should wear splash-proof chemical goggles . . . and know where the nearest eye-wash fountain is.



To protect your skin, wear suitable gloves and protective garments where required (see the label on the solvent drum and other technical information sheets your employer may have). Cotton or leather gloves should not be worn.



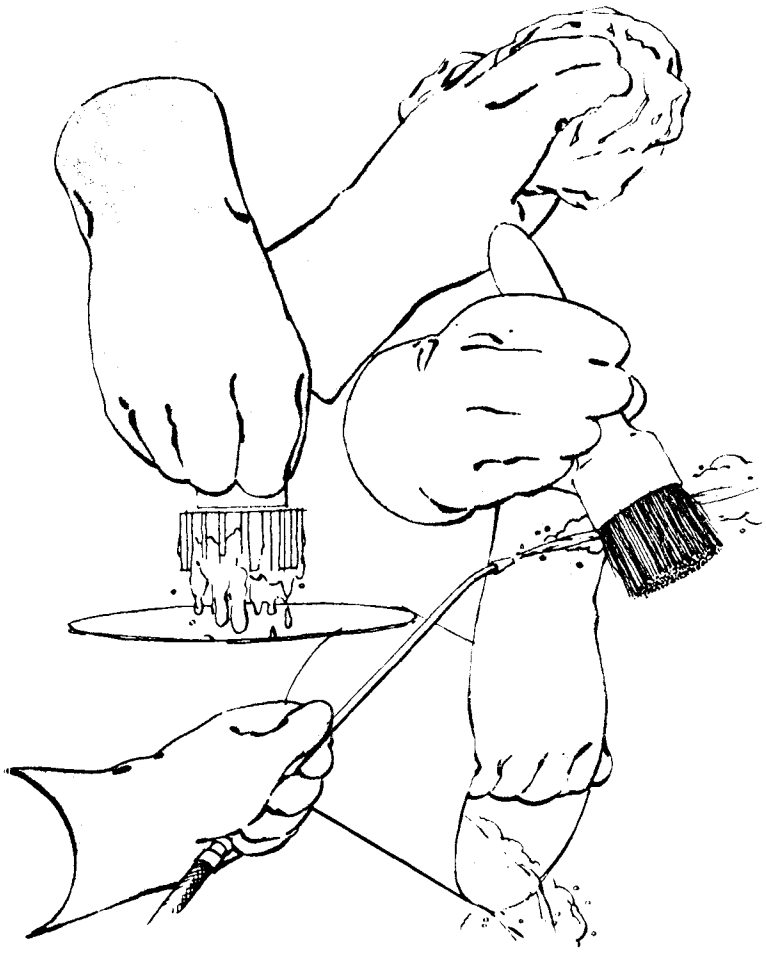
If your clothes become soaked with solvent, remove them and take a shower. Don't put your clothes back on until they're thoroughly dry.



Smoke only in approved areas. Smoking too close to areas where solvents are used can be a fire or explosion hazard.

Here are some special tips for protecting yourself in *cold-cleaning operations.*

Keep your head back so you won't be in the direct line of escaping solvent vapor.



Always wear suitable gloves when using solvents for wiping, brushing, dipping, spraying, or flushing. This prevents skin rash.

Use lots of soap or mild detergent and water to clean grease, oil, dirt, or anything else off your skin. DON'T use solvents.

Place all rags, waste, paper towels, etc., soaked with solvent in air-tight, all metal safety containers.

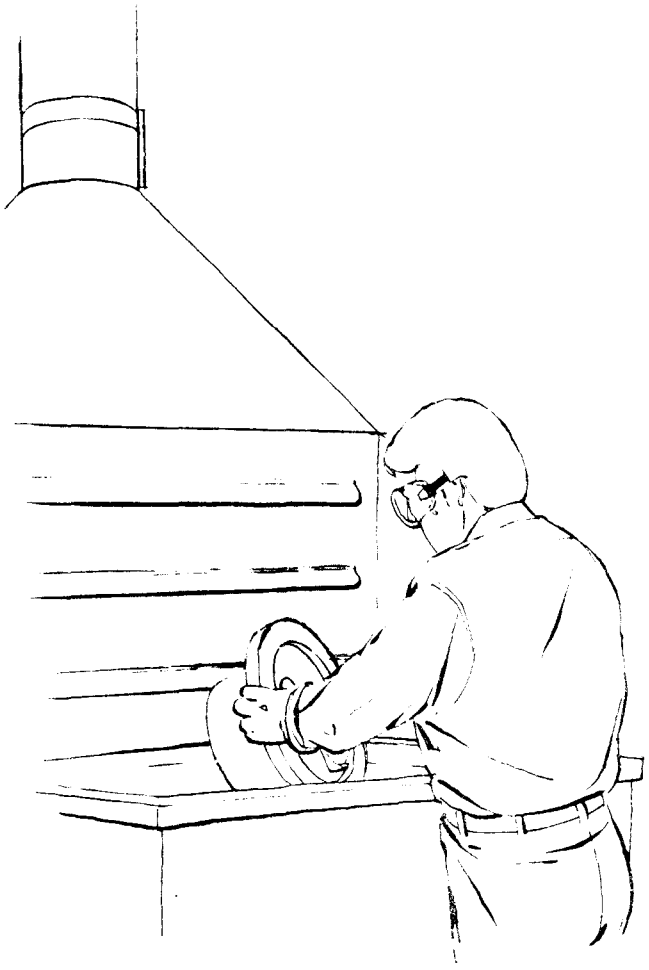
Store and transport small quantities of solvent only in approved safety containers. The containers should be properly marked.

Ground and bond all metal containers when transferring a flammable solvent from one container to another. Pumping solvent is better than gravity flow — it's safer!

Some solvents shouldn't be used for cold cleaning because of health hazards . . .

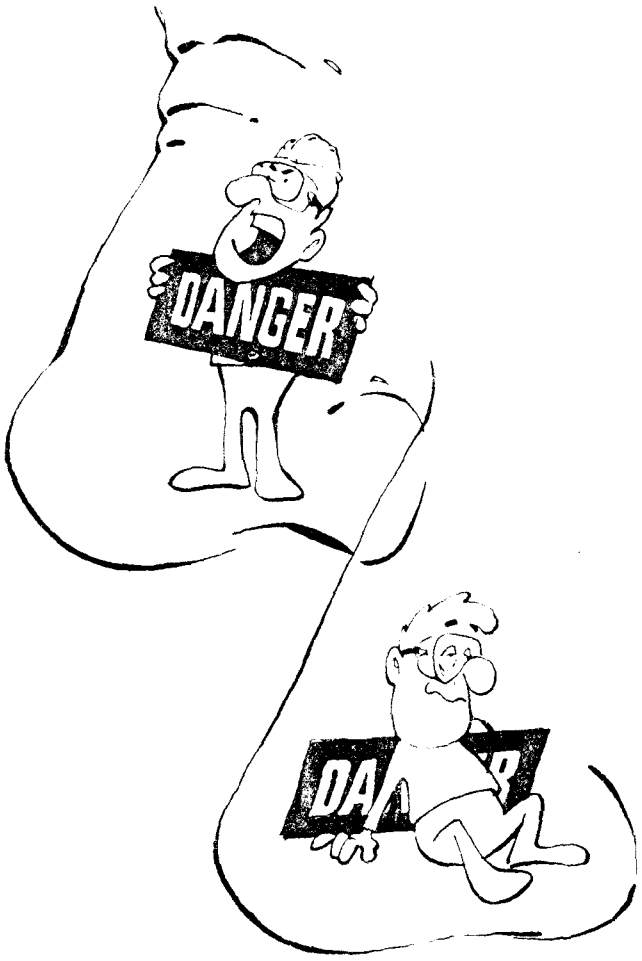
. . . or fire hazards.

Remember this: repeated exposure to small amounts of carbon tetrachloride or benzene evaporating in a small unventilated room can cause liver damage or blood disorders.

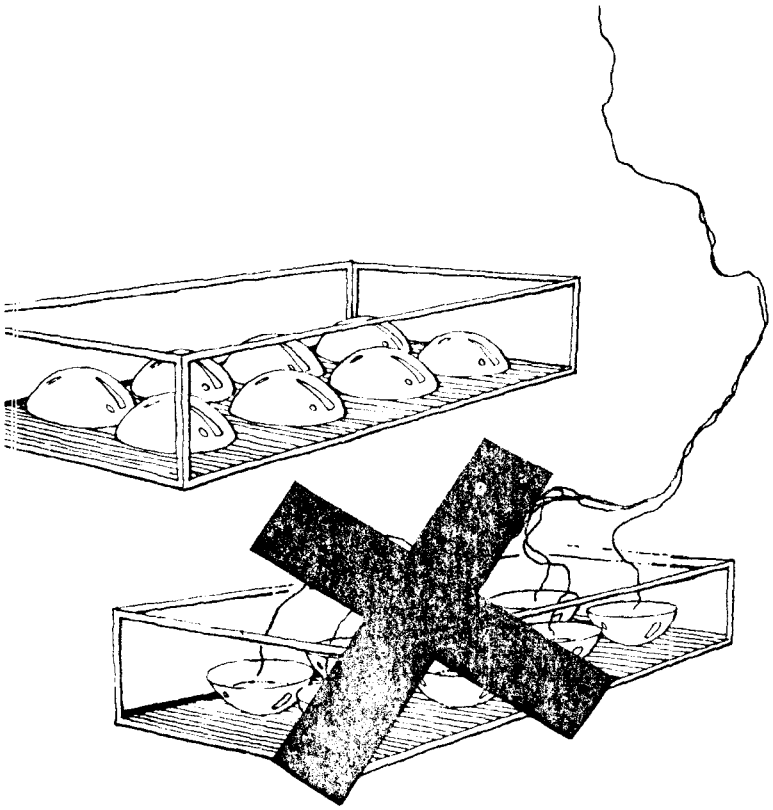


You need adequate ventilation when you use cold-cleaning solvents in a small room.

You need adequate breathing equipment when you enter areas where the solvent-vapor levels are — or might be — high.

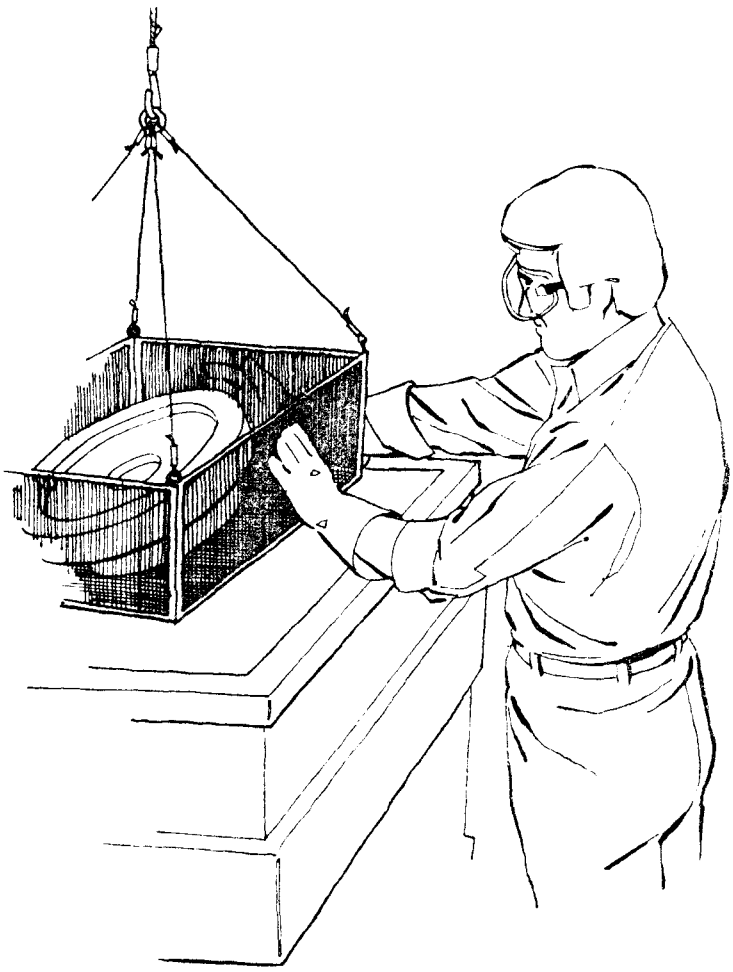


CAUTION: Don't rely on the odor of a solvent to warn you of excessive concentrations. The olfactory organs in your nose (your "sense of smell") can easily and quickly become tired and stop warning you that odor is present. Some dangerous vapors have no odor warning at all.

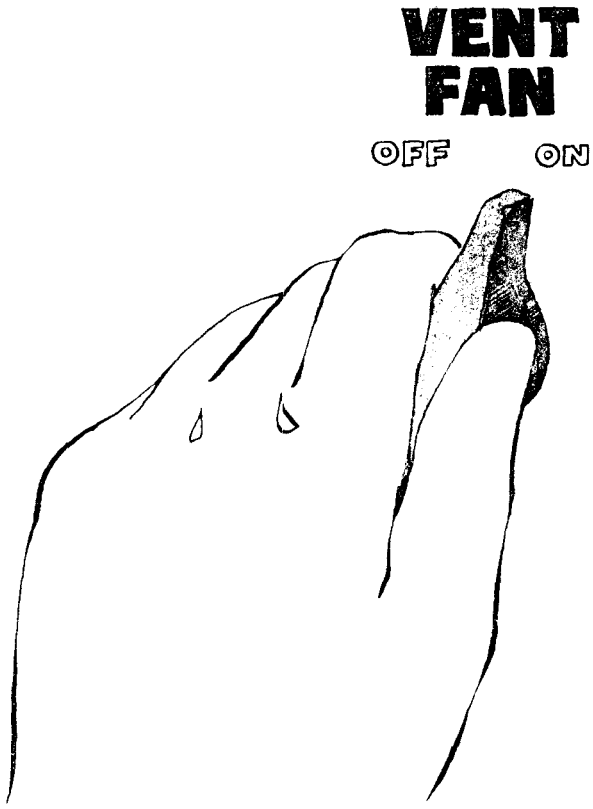


Here are some special tips for protecting yourself in *Vapor Degreasing Operations.*

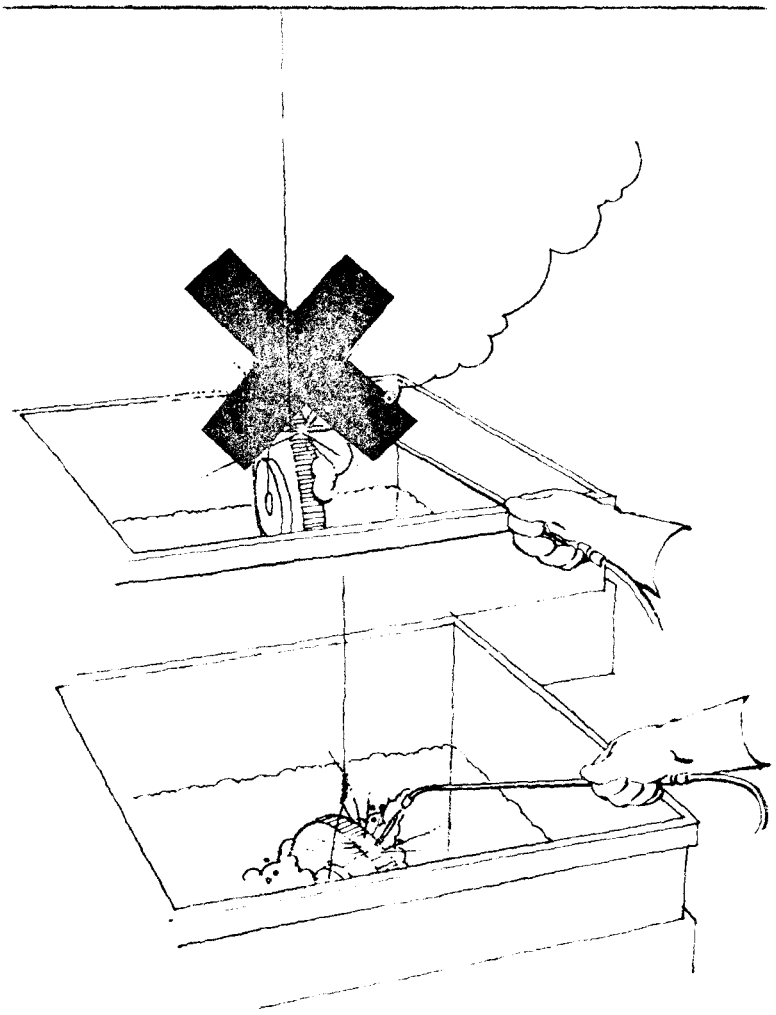
Rack the parts so they'll drain properly.



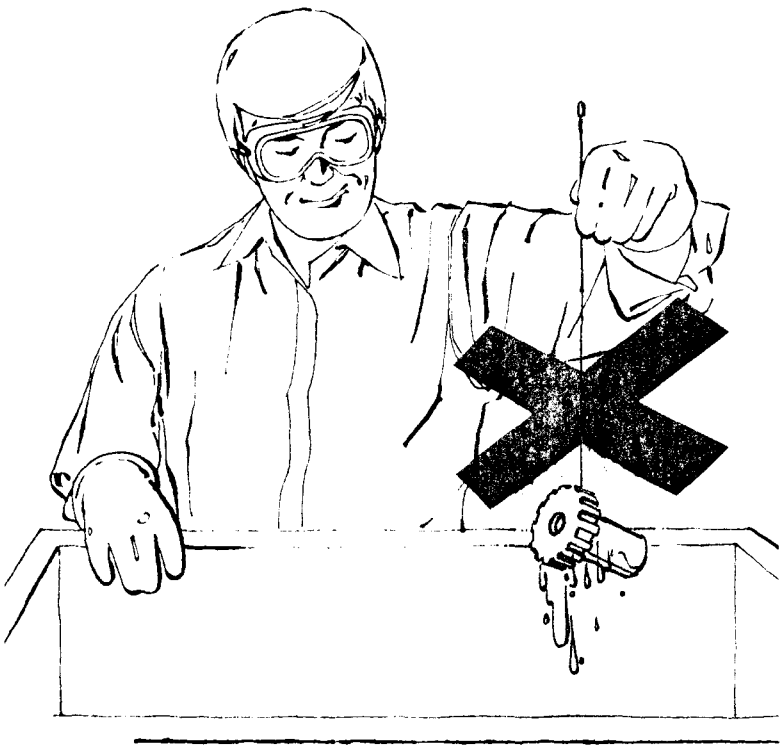
Don't lean directly over an open-top degreaser. Keep your nose out of the way of rising solvent vapors.



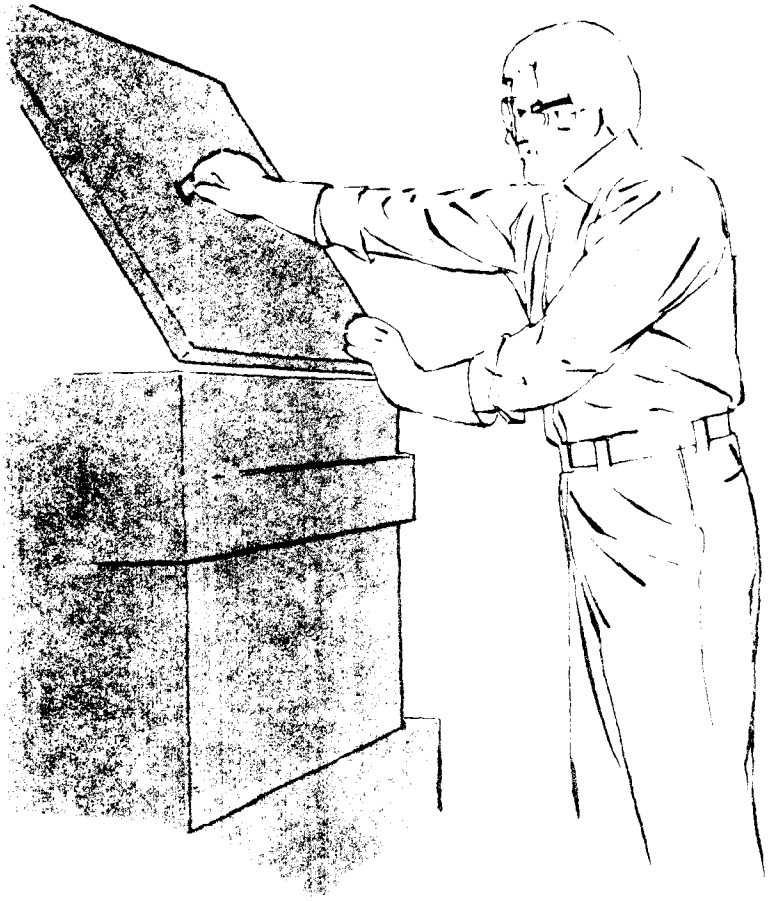
Local exhaust ventilation may be provided.
If so, be sure it's turned on and working.



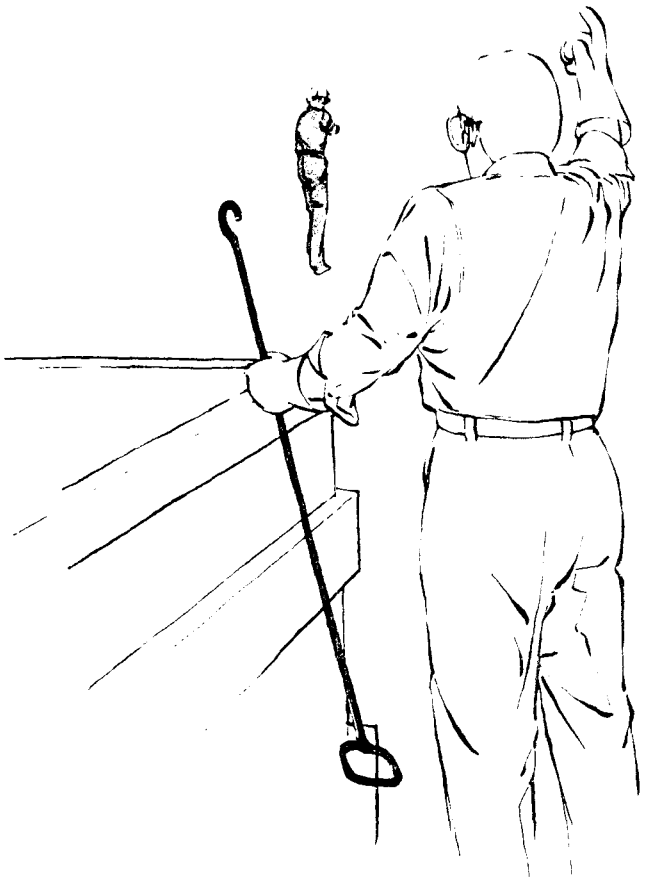
During spray cleaning, the nozzle should be below the vapor level. This will keep vapor from being forced out of the degreaser and into the workroom air.



Don't remove parts from an open-top degreaser before they are dry. If parts are still dripping, the solvent will escape to the workroom air.

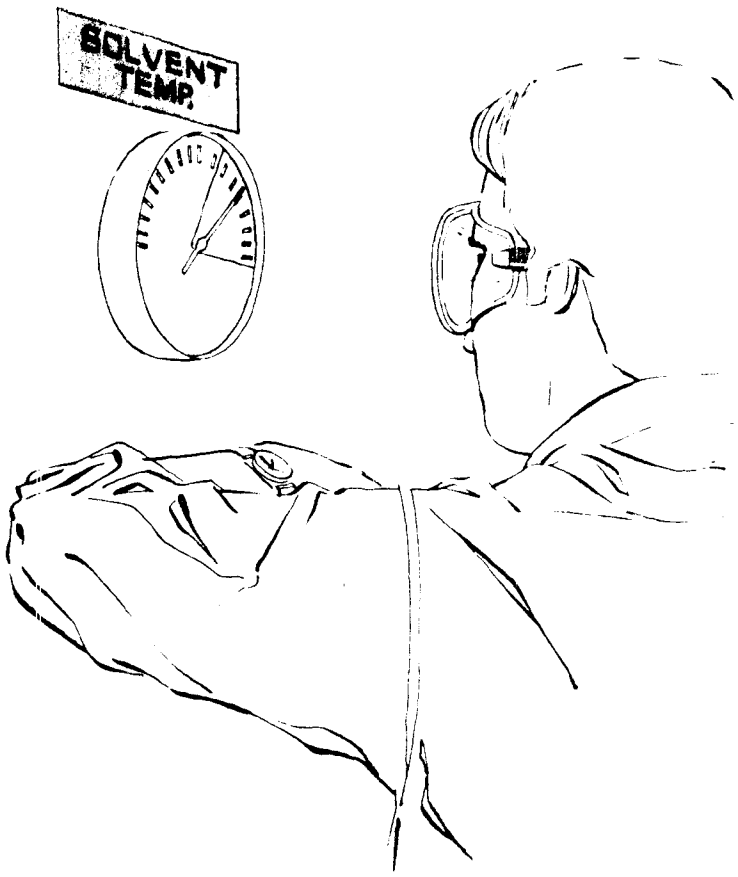


Keep the lid closed on an open-top degreaser at all times when not in use.

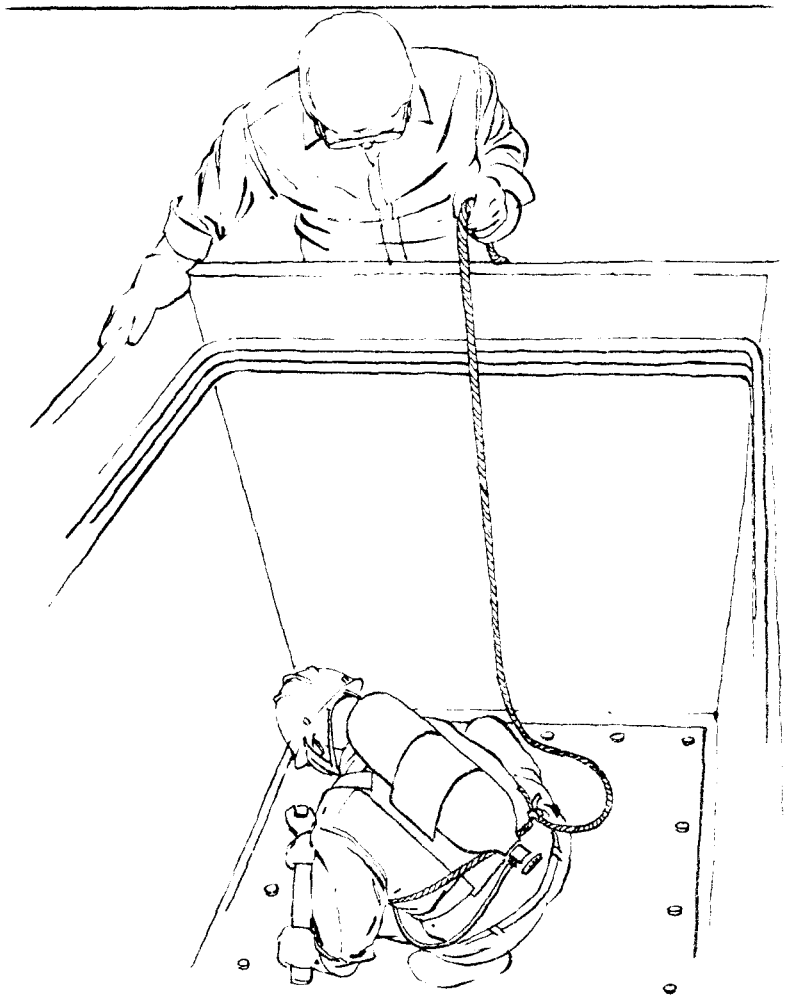


If a part falls into the degreaser, think twice about how to get it out. You could fall in yourself!

It is unsafe to enter a degreaser tank or pit while excessive vapor concentrations are present. Excessive concentration can cause unconsciousness, even death.



During maintenance, don't enter a pit or tank containing solvent. Wait until the pit or tank has been completely drained and aired out and has cooled down to room temperature.



Even then, continue to treat the pit or tank as a potential hazard. Enter only if you are sure there are no vapors left. Wear a lifeline and breathing protection equipment. Use the buddy system.

Don't do any welding (or let anyone else weld) close to areas where solvents are being used. Also, don't weld on tanks or machines which contain or have contained solvents until the solvents *and fumes* have been completely expelled. The heat of welding can cause the dangerous solvent break-down conditions described on page ` as well as fire or explosion.

Here's what to do in case of accident or emergency:

If someone is overcome by solvent vapors:

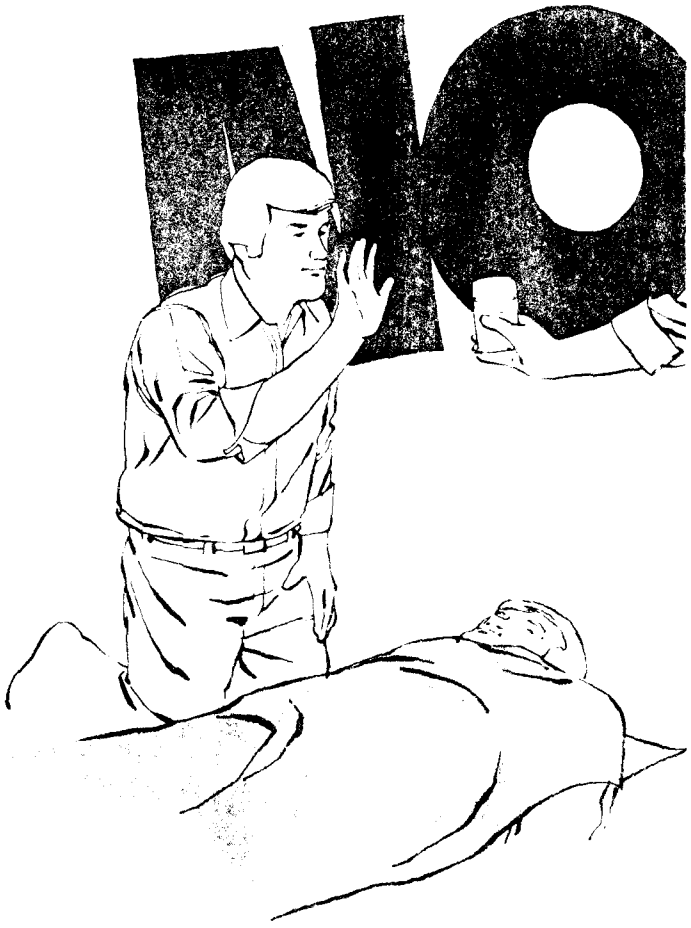
Get medical help.

Remove him or her to fresh air

Loosen clothing.

Give artifical respiration if breathing has stopped.

Keep patient quiet and warm (but not hot).



Don't give anything by mouth to an unconscious person.

When a spill occurs:

If it's a big spill, evacuate the area.

Clean it up as soon as possible. Wear proper protective equipment—impervious boots and gloves, self-contained breathing equipment.

If the solvent can't be reclaimed for further use, put it in a galvanized or stainless steel pail with a tight lid.

Later on, the solvent should be disposed of safely in accordance with local regulations. *Don't pour solvents down a sewer!*

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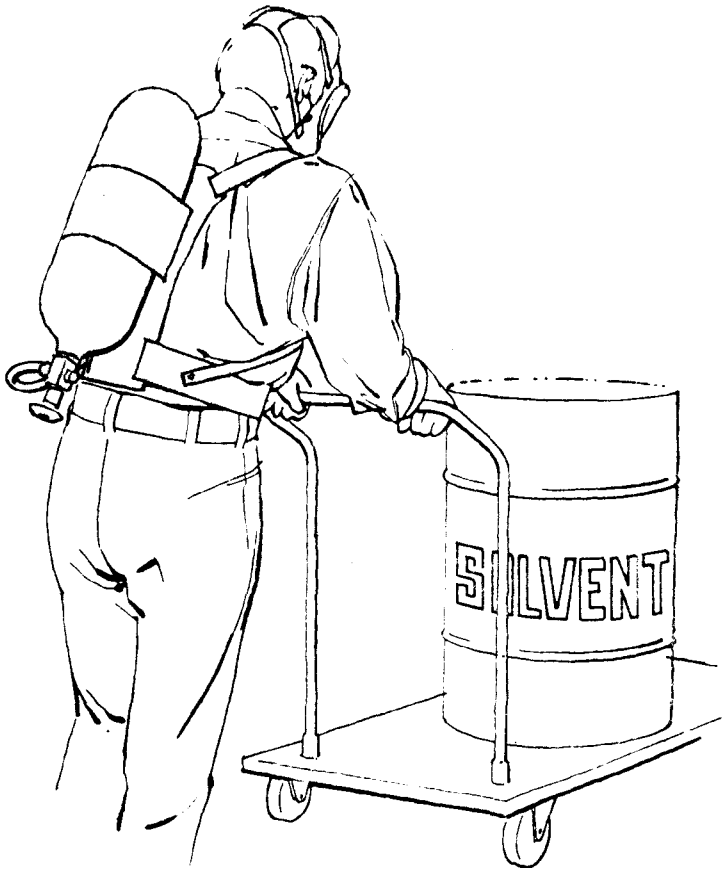
In case of fire:

Evacuate the area. At high temperatures, solvents break down into harmful components (see page 6).

Personnel trained for fire fighting should extinguish the fire with carbon dioxide, dry chemical, foam, or a water fog.



Handle the burned solvent as though it were an acid. ***Handle with care!***

Observe good operating procedures at all times. It is essential to be a careful, well-trained operator.

Observe all safety rules at all times.

If you need additional information, or if you have a problem, here are some people who can help you:

Your supervisor . . . or

the staff at your nearest NIOSH Regional office.

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