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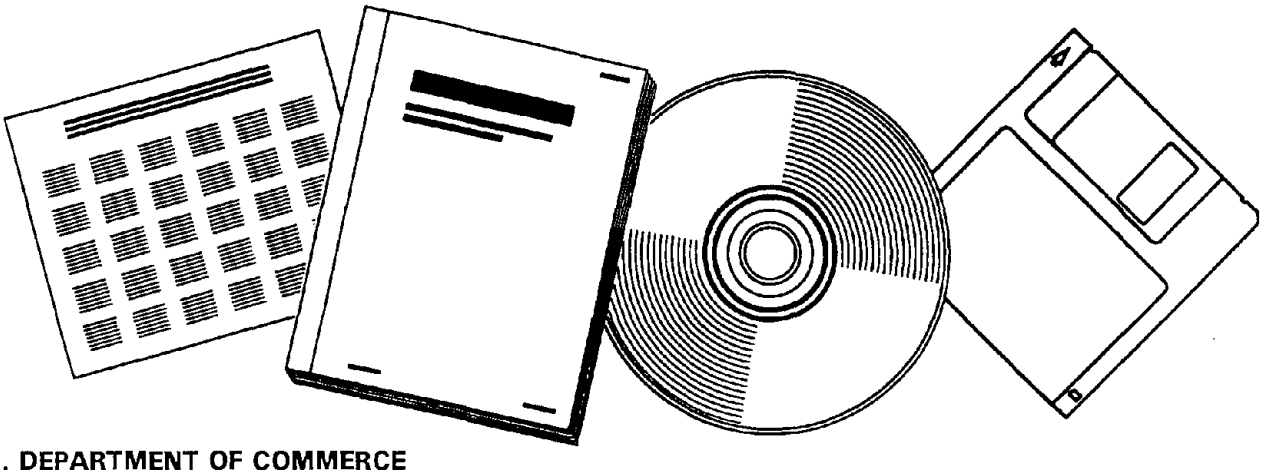
URETHANE FOAMS- GOOD PRACTICES FOR EMPLOYEES HEALTH AND SAFETY

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH
CINCINNATI, OH

APR 76



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The production of urethane foams and the hazards caused by the chemicals involved are described briefly. The good work practices, ventilation systems, and respiratory protective equipment to be used to prevent excessive exposure are discussed. Safe work practices to protect the skin and respiratory system, and to prevent accidental fires and explosions, are described for foaming operations, spraying and finishing operations. Local exhaust systems are more effective than dilution systems. Respirators are used where proper ventilation cannot be maintained; their use and fitting are described. The handling and storing of isocyanates, the most hazardous components of urethane foams, are described, also the storage of foam, fire precautions, and first aid.

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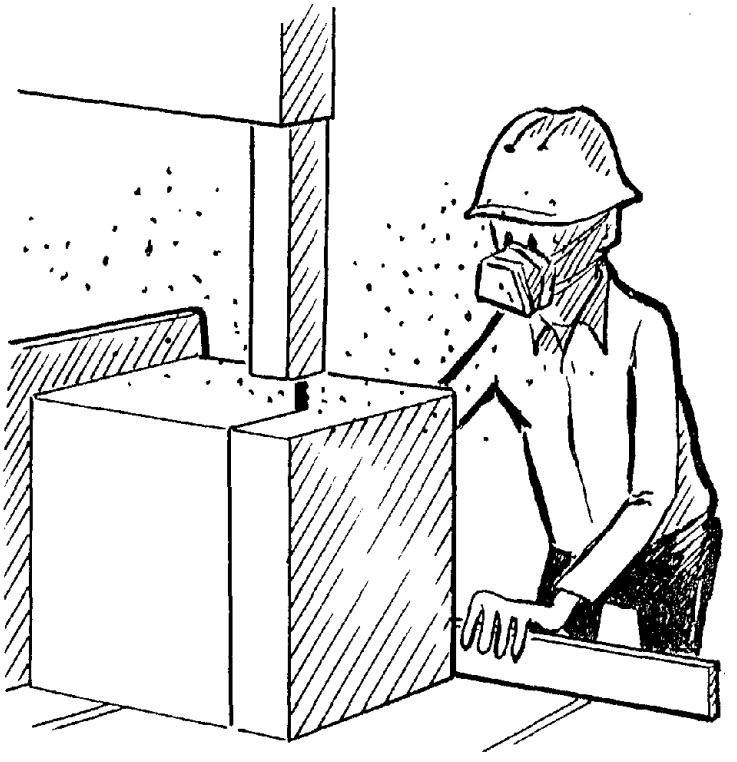
URETHANE FOAMS

Good Practices for Employees' Health and Safety



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URETHANE FOAMS

EMPLOYEES' GOOD PRACTICES FOR HEALTH AND SAFETY

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Technical Services
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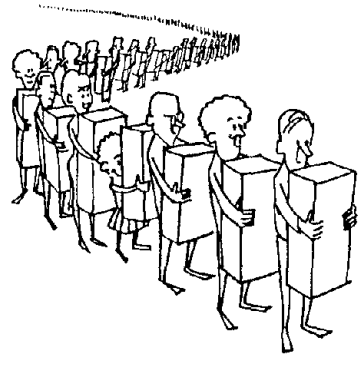
URETHANE FOAMS

Urethane foams were first produced commercially about 20 years ago. Since then the increase in production of these versatile plastics has been remarkable. Last year, six pounds of urethane foam were manufactured for every person in the United States.

Several of the chemicals used to form urethane foams can be hazardous to your health. This booklet will help you to understand these hazards and will explain good work practices that polyurethane foam workers can use to avoid risk . . . if you read it.



Terms we use and what they mean

Blowing agents	Substances that give off gas to produce the cell structure in foams.
Catalysts	A compound that acts like a marriage broker in getting the isocyanates and polyols to react into polyurethanes. Causes or accelerates the chemical reaction.
Isocyanates	Family of highly reactive chemicals that are the backbone of polyurethane foam reactions. Most common type is TDI, others in wide use include MDI and PAPI.
Polyisocyanurates	A new family of foams related to the polyurethanes but which are less flammable and more heat stable.
Polymerization	A type of chemical reaction where building block units (isocyanates and polyols) link together to build large, repeating chemical structures (polyurethanes).
Polyols	Several different kinds of liquid resins that combine with isocyanates to form polyurethane foam.
Sensitization	An allergic-like reaction where a person dramatically becomes sensitive to a chemical compound, even a compound worked with for years. For TDI, either the respiratory system or the skin can become sensitized.
Surfactants	Chemical additives used in foam systems to make the cell structure uniform and fine grained.

HOW FOAMS WORK

To understand the possible hazards you face working in polyurethane foaming, you should understand how foams form. The backbone of polyurethane foams is a family of chemicals called isocyanates. This family is very reactive with other chemicals. There are several types used, but the most common type is called TDI. Others in wide use are MDI and PAPI.

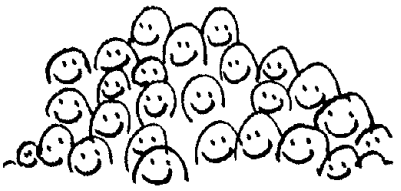
Foam is produced by reacting isocyanates with compounds called polyols. A catalyst is needed, not to enter the reaction, but to act as a helper in getting the isocyanates and the polyols to react together to build large, repeating chemical structures. This repeating chemical structure is called a polymer and forms the plastics which we call polyurethane.

And go ye forth and polymerize

HOW FOAMS WORK

Foaming Action

The foaming action is caused by adding either water or chemicals called blowing agents, which give off gas to produce the cell structure. To make the cell structure uniform and fine-grained, additives called surfactants or surface agents are added. Another additive is used to make the foam fire retardant.



Without our agent, our act would be flat.

Polly Who?

A related family of foams called the polyisocyanurates is coming into wide use because these foams are more fire resistant and are more stable under hot conditions than the regular polyurethanes. This new family is somewhat different in chemistry. Polyisocyanurates are formed by a catalyst acting on isocyanates to cause them to react with themselves to form polymer building blocks without polyols. Whenever we discuss polyurethanes throughout this booklet the information will also apply to polyisocyanurates.

WHAT ARE THE HAZARDS?

You should know the materials you are using and the possible hazards, as well as the safe work practices to prevent these hazards.

Our lungs are vulnerable to attack by the hazardous components of foam systems even if the concentration of harmful vapor, dust, or mist is quite low. This is because our lungs have a large surface area, about 700 square feet, and because we inhale a large volume of air, over 10,000 quarts during an eight hour shift.

Isocyanates are the greatest potential health hazard to you in your work. If you use a foam system where the chemicals are packaged together into two components, the isocyanates are in the A component.

Exposure to high isocyanate vapor levels or skin contact with liquids or mists can make you sick. Exposure for even a short time can cause severe irritation of the nose, throat, and lungs. Some other symptoms are breathlessness and chest pains. Excessive exposures can result in severe coughing spasms and may lead to bronchitis or chemical pneumonia. If splashed in your eyes, isocyanates will cause severe irritation, and skin contact may cause reddening, swelling, or blistering.

Isocyanates can have another effect called sensitization on certain susceptible individuals. Sensitization is an allergic reaction that may occur at any time you are working with isocyanates, even after years of exposure without any reaction. Once you are sensitized, contact with even the smallest amount can cause a severe reaction. TDI sensitization usually takes the form of a severe allergic or asthma-like reaction of the lungs.

The greatest risk from isocyanates is from breathing their vapors. Chemicals of this family present different risks. TDI, which is the most common isocyanate in most flexible foam plants, is the most hazardous. Many rigid foams do not use TDI. Instead they are formed with other members of the family — MDI and PAPI. The risks these compounds present to you are quite different because TDI evaporates easily and becomes airborne. MDI does not evaporate as easily and under normal conditions is not as great a risk as TDI. PAPI evaporates more slowly than the other isocyanates and is rarely a vapor hazard.

Catalysts

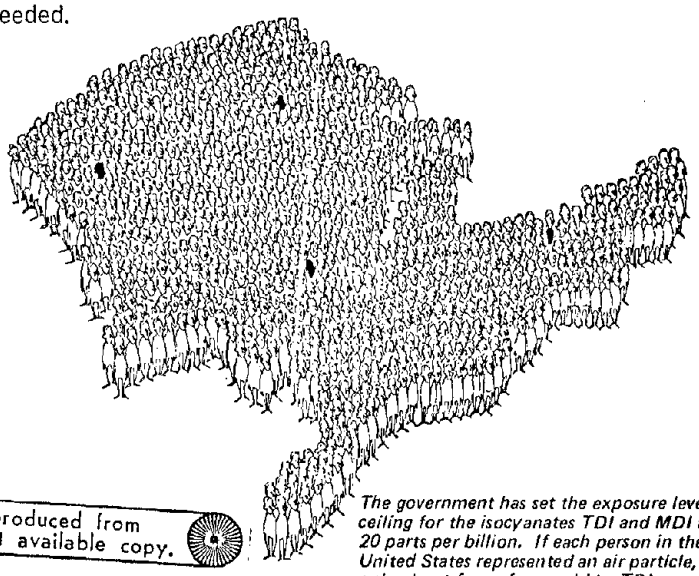
The catalysts used to cause the isocyanates to combine with the polyols can be a health hazard to you. Their vapors are very caustic and can burn your eyes, lungs, and nasal passages. Some types can be absorbed through your unbroken skin and cause skin sensitization or lead to a condition called dermatitis — a rash with considerable itching. Vapors of some catalysts can also cause vision problems. In two-component systems, catalyst is in the B component.

Solvents

Excessive vapor concentrations from process solvents such as methylene chloride may cause you to feel drunk, uncoordinated, numb, dizzy, or sick to your stomach. Repeated skin contact with the liquid takes the oil out of your skin which may result in dried, cracked skin.

PROTECTING YOU

Because isocyanates can be dangerous to your health, the government has set a safe limit for exposure that you must not exceed. The concentrations that are considered hazardous are so small that they are measured in parts per billion. The safe ceiling level that must not be exceeded for TDI and MDI is 20 parts per billion. Numbers as small as this are hard to imagine. But 20 parts per billion is the same as if you were to have to look for 4 specific people out of the whole population of the United States. Isocyanates have distinctive odors. However, when you can smell isocyanates you are getting more than the maximum acceptable concentration and a potentially hazardous condition exists. For this reason, your employer must test for isocyanate vapors to ensure that the standard is not exceeded.



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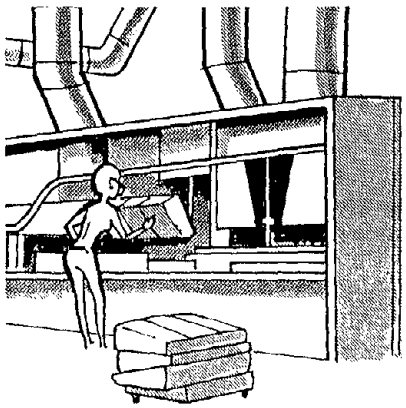
The government has set the exposure level ceiling for the isocyanates TDI and MDI at 20 parts per billion. If each person in the United States represented an air particle, only about four of us could be TDI without exceeding the limit.

The following pages discuss the good work practices, ventilation systems, and respiratory protective equipment that can be used to prevent excessive exposure.



WHEN

Isocyanate vapor level below health hazard ceiling.

WHAT IS RECOMMENDED

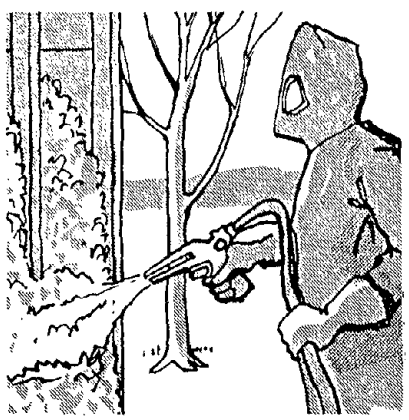
No respirator required — chemical workers goggles recommended if splashing a possibility. Gloves should be worn.

WHEN

Isocyanate vapor level greater than ceiling but less than 500 parts per billion.

WHAT IS RECOMMENDED

Full facepiece industrial gas mask approved for organic vapors and particles or supplied air respirator with full facepiece.

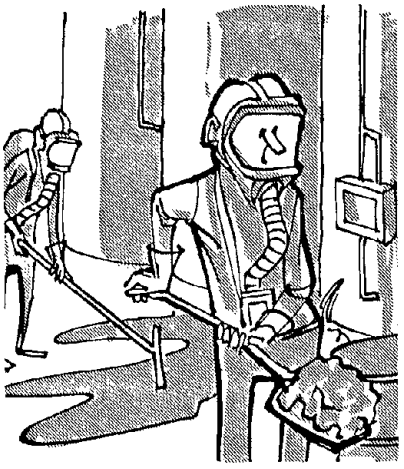


WHEN

All spraying operations — indoor and out and on-site frothing and pouring.

WHAT IS RECOMMENDED

Supplied air respirator of the continuous flow, positive pressure type and impervious hood, footwear, and protective clothing. Workers within 10 feet of spraying mist must also wear this equipment.



WHEN

Concentrations unknown — emergency — fire, or spill.

WHAT
IS
RECOMMENDED

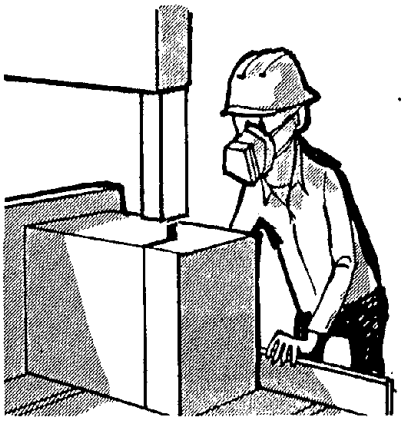
Self-contained breathing apparatus of the pressure-demand type.

WHEN

Finishing operations should not be dusty.

WHAT
IS
RECOMMENDED

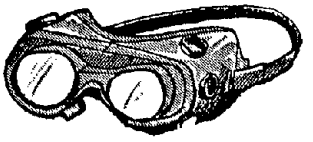
Excessive dust should be controlled by local exhaust system. If adequate local exhaust is not feasible, approved dust respirators must be furnished.



TWELVE GOOD WORK PRACTICES

Good work practices and proper ventilation or adequate respiratory protective equipment will prevent the hazardous components of foam systems from harming you. Twelve good practices for all types of foaming operations include:

- Adequate ventilation should be provided by your employer. If it is not feasible to provide adequate ventilation to meet exposure standards, respirators must be furnished and worn.



- Wear chemical workers' goggles wherever foam components could splash. If there is little chance of a splash, safety glasses with side shields may be used. Wear impervious gloves if you handle liquid components.
- Isocyanates react with water, giving off gas which can cause closed containers to rupture. Store isocyanates with dry air or nitrogen occupying any empty container space. Keep containers closed.
- Don't let scrap foam build up; it can catch fire.
- Report any symptoms of skin or lung irritation or breathing problems, allergies, or dermatitis to your supervisor immediately.

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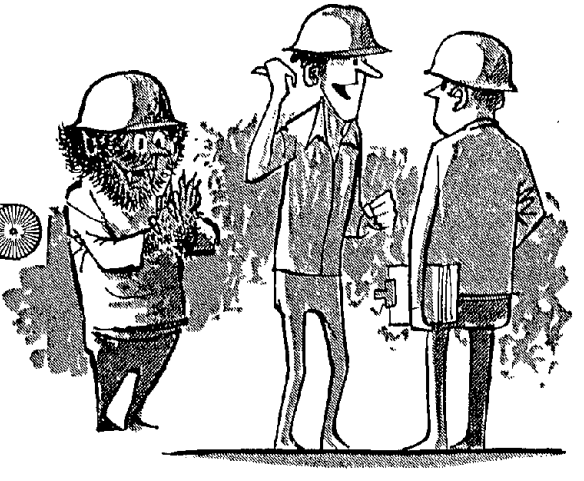
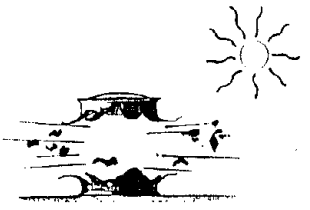


Report health problems to your supervisor.

Work practices

- Never smoke or use open flame in any foaming or storage areas. In addition to the fire hazards, smoking breaks down the blowing agents into toxic (poisonous) gases. Employers should post "No Smoking" signs and enforce the regulation.
- Know the locations of emergency showers and eye wash fountains. Be familiar with your employer's emergency plan.



- Foam components in closed containers must be stored away from temperatures over 100°F. Heat can start chemical reactions that will explosively rupture drums.
- Report any spill or ventilation failure to your supervisor immediately.
- Don't use process solvents to clean your hands. They remove your natural skin oils and can lead to dermatitis or be absorbed through the skin.
- Keep unauthorized people out of areas where foams are made and where components are stored or transported.
- If you have a medical history of lung or breathing problems or allergies, you should not be exposed to foam components.

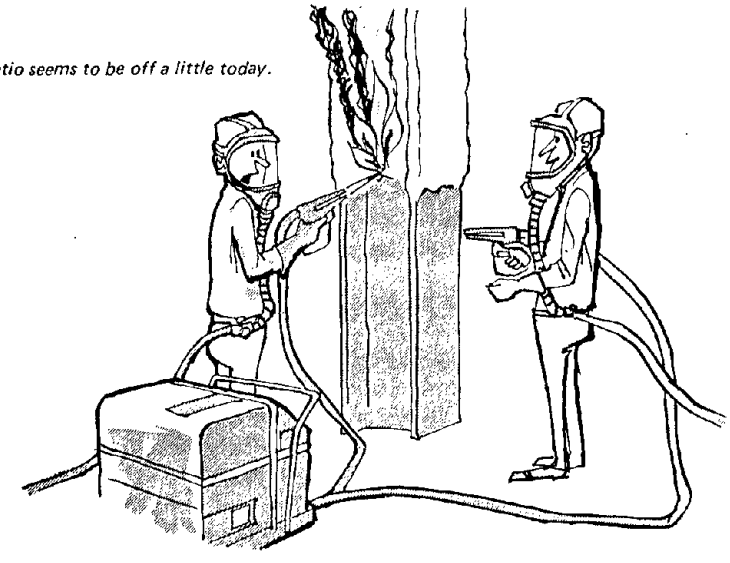
Special work practices are recommended for workers who perform spraying or finishing operations.

Spraying Urethane Foams Safely

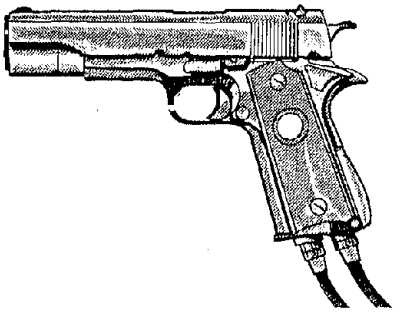
Spraying urethane foam components requires special precautions because spraying breaks up liquids into vapors and mists that can easily drift to you. These precautions include the following:

- You must wear a hooded, air-supplied mask to protect your lungs, your eyes, and skin. Canister gas masks are not sufficient protection. The potential hazard is not only from isocyanate vapor but also from mists that can affect your skin and eyes and could possibly lead to sensitization, when even small amounts can cause serious health effects.
- Calibrate your spray equipment daily to the manufacturer's specifications. Off-ratio foam can catch fire spontaneously.

The ratio seems to be off a little today.



- Scrap foam from when you start the shift may be off-ratio and should not be allowed to accumulate at the job site. Catch it in a metal container and immediately take it to a safe outdoor area. At start-up the probability of the material being off-ratio is higher and the excess heat can start a foam fire.
- Mists build up rapidly on the facepieces or the eyepieces of hoods and respirators. Keep them clean. Rubbing alcohol (isopropyl alcohol) will remove this buildup easily.



- Spray guns can be dangerous. Never point them at anyone. Treat them as you would a loaded pistol.
- Wear full protective clothing whenever spraying isocyanates, including wearing gloves. Footwear should be made of impervious material such as rubber. All protective equipment must be cleaned regularly.

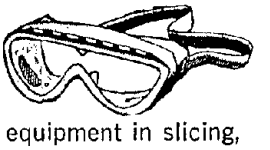
Because of the problem of mist reaching your skin, these precautions must be taken even when you are spraying with exhaust ventilation. Anyone who works within 10 feet of spraying operations should also observe the same precautions. In construction work or field operations where TDI and other isocyanates are being used in pouring, frothing, or insulating operations, the same work practices listed above should be followed.

Work practices

Finishing Operations

Sawing, fly cutting, machining, and other finishing operations can create considerable polyurethane dust. Polyurethane dust can be a hazard to your health because it irritates your eyes and the linings of your nose and throat and may affect your lungs. Avoid any unnecessary exposure. Fine dusts can also be an explosion hazard. Good work practices for finishing operations include:

- Use local exhaust ventilation, if provided.



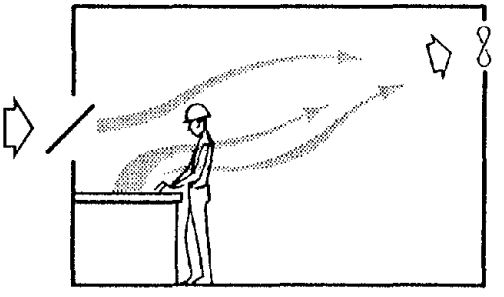
- Wear eye protection if you operate power equipment in slicing, sawing, and fly cutting operations.
- Practice good housekeeping to prevent urethane dust buildup. Clean machinery, exposed beams, piping, floors, and work benches frequently.
- Conduct finishing and fabrication operations in the areas so designated.

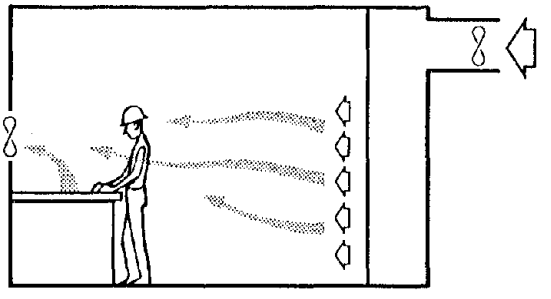
CONTROL METHODS

Ventilation

Proper ventilation is the most important element in preventing airborne hazards from reaching you. There are two types of ventilation — local exhaust systems that trap and remove contaminants near their source and dilution systems that bring in clean air and remove contaminated air. Local exhaust systems are the most effective because they move the air toward a hood, removing contaminants before they can reach you.

Bad system - incoming air draws vapors past worker. Moving the work bench would help.





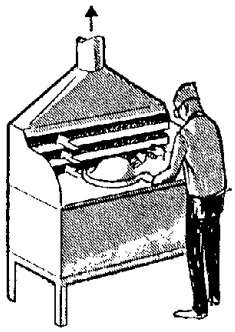
Good system - fresh air carries fumes away from worker

Fixed location polyurethane operations whether they be large-scale bun foaming lines or froth, pour-in-place lines, or spray systems almost always require local exhaust systems to prevent isocyanates from exceeding the safe limit.

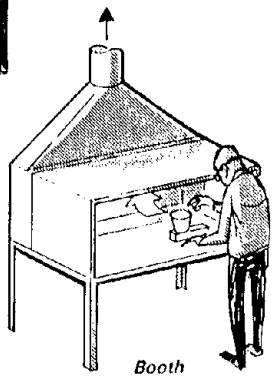
Ventilation

Some features of good ventilation systems are:

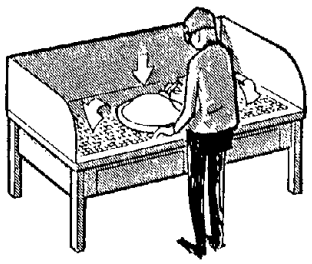
- The process should be enclosed as completely as possible.
- Hoods work best if they are as close to the process as possible. A hood 12 inches from the source of the contaminant is only about one fourth as effective as a hood 6 inches away. Therefore, it is important for the work to be as close to the hood as possible.
- Position yourself so vapors or mists are not drawn past your face and so that hoods do not interfere with your work.



Lateral slot table



Booth



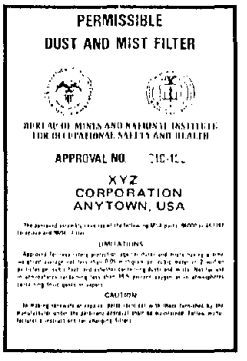
Downdraft table

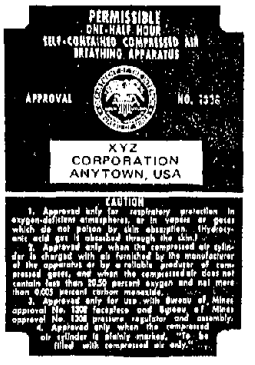
Respirators

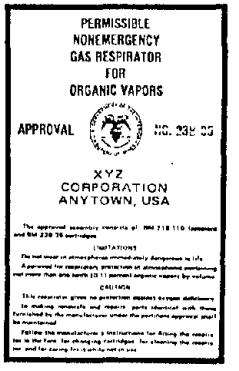
Well-designed and maintained ventilation systems are the best defense against airborne hazards, but where proper ventilation is not feasible, respirators are required. Respirators must be chosen to match a particular job and must be properly worn and maintained.

Government Approval

The government tests and evaluates respirators to be sure that they provide adequate protection for you. Use **only** approved respirators under the conditions intended. Approval for the particular contaminants is shown by labels like those below. The label may be either on the respirator or the container in which it comes.







Wearing Respirators

If your job requires that you wear a respirator, your employer must see that you are physically capable of wearing one; you must have a physical examination. If you have a breathing problem, wearing a respirator can be harmful. Your employer must also train you in how to use, clean, and inspect the respirator.

Danger Signals

If you sense any of the following danger signals, **immediately** get into fresh air. Your canister or cartridge may be used up, or abnormal conditions are creating vapor concentrations which are beyond the limit of your respirator.

- If you smell or taste chemicals, or if your eyes, nose, or throat become irritated.
- If it becomes difficult to breathe.
- If the air you are breathing becomes uncomfortably warm.
- If you feel like vomiting or become dizzy.
- If the specified lifetime of the canister or cartridge is used.

Respirator Fit

Make sure that your respirator fits properly. Here are some hints on proper fit:

- Facial hair can cause your respirator to fit badly. You cannot have a beard, and mustaches should not extend beyond the corners of your mouth. Bushy or long sideburns (below the bottom of your ears) also will cause a poor fit.
- Wear your dentures while you are wearing a respirator. If you are missing teeth, you may not get a good fit.
- Always inspect any respirator before you wear it. Be sure it is in good condition and working properly.
- Tighten the respirator so that it doesn't dig into your face or so that you don't feel a lot of pressure. It should fit snugly, but still be comfortable.

Facial hair can cause a bad respirator fit.

Wearing Respirators

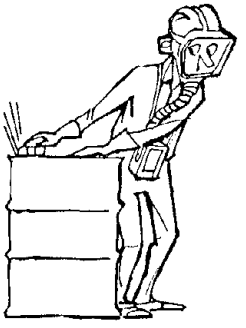
- Check for any air leaks around the edges when you breathe.
- If the respirator has a full facepiece, pinch off the hose leading into the facepiece and breathe in. The facepiece will collapse if you have a good face seal.
- Don't wear regular glasses when you are wearing a full facepiece respirator. The temples break the seal. Special glasses that clip on your respirator should be used.

Special glasses without temples must be worn with full facepiece respirators.

HANDLING AND STORING ISOCYANATES

Transferring isocyanates can lead to excessive vapor or skin exposure. Whenever you are transferring isocyanates wear a face shield or cup-type chemical goggles (wearing goggles **and** a face shield is best) and impervious gloves. Exhaust ventilation at transfer points like unloading stations, mixing equipment, and prepolymer preparation kettles helps to prevent hazardous vapor concentrations. If exhaust ventilation isn't feasible, a respirator is required. If you use isocyanate in drums:

- Handle gently and block the drum before opening so that it will not shift.



- When removing the bung, use a plug wrench and stand to the side of the drum with your face turned away from the opening.
- Loosen the bung a single turn and allow any built up pressure to escape before completely removing the plug.
- Never leave containers open.

Spill Clean Up

If you are part of a cleanup crew you should have special training and follow plant emergency procedures carefully. All others should leave the area. TDI spills can create an immediate health hazard. Spill cleanup requires skin, eye, and respiratory protective equipment. Because the vapor concentration isn't known, self-contained breathing apparatus must be used. Wear impervious footwear to avoid contaminating shoes. Procedures to follow include:

- Ventilate the area — open windows and doors.
- Absorb the liquid isocyanate using sawdust, sand, vermiculite, fuller's earth, or commercial oil-absorbing products.
- Shovel the mixture into steel drums and take the drums outside.
- Soak the mixture in the drums with water containing 1% ammonia and 10% isopropyl alcohol. When isocyanate and water react, heat develops and this could cause a fire. Don't seal the drums for 24 hours.
- Neutralize the spill area by mopping with water containing a neutralizing solution such as 1% ammonia and 10% isopropyl alcohol. (There are several kinds of neutralizing solutions. Follow your supervisor's directions.)
- Small spills can be cleaned up using rags soaked in isopropyl alcohol.

Cold Weather Spills

Special procedures are needed for TDI spills in cooler temperatures (some begin to freeze at 68°F). If the material is frozen, it cannot be absorbed. Attempts to neutralize spills with ammonia solutions fail too because only the surface reacts. For spills of any isocyanate where the material doesn't remain liquid, follow this procedure:

- Cover the spill with a half and half solution of isopropyl alcohol and perchlorethylene. (This solution should be made up in advance.) Use an amount of solution that is equal to the volume of the spill.
- Keep unauthorized personnel away from the area.
- Rope off the area and post "No Smoking" signs. The alcohol is flammable.
- Wait an hour to allow the solution to neutralize the isocyanate.
- Wash down the spill area thoroughly with water if the temperature is above freezing. If this can't be done, shovel the slurry into steel drums, neutralize with a 1% ammonia solution for 24 hours, and dispose of the waste at a landfill.

Handling and storing

Foam Storage

If foams are off-ratio with excessive isocyanate, the reaction generates so much heat that fires can spontaneously ignite. Such fires were once common, particularly in plants producing flexible foams, which burn more readily than rigid foams. With today's highly accurate, metered foam dispensing equipment, fires are less likely to occur, but care is required in storing.

Good practices to follow are:

- Keep metering equipment calibrated so off-ratio foam is not produced.
- Cool individual buns before storing.
- Use spacers between stacked buns.
- Store flexible foam in areas equipped with a sprinkler system. Clearance from a stack to the sprinkler heads must be at least three feet.
- Don't smoke in storage rooms. Your supervisor's permission should be required before using open-flame equipment such as for welding operations in storage areas.

Disposing of Empty Containers

Even "empty" isocyanate containers can be hazardous. Isocyanate clings to container walls and, if sealed, can react with trapped water vapor to release enough carbon dioxide to explosively rupture the container.

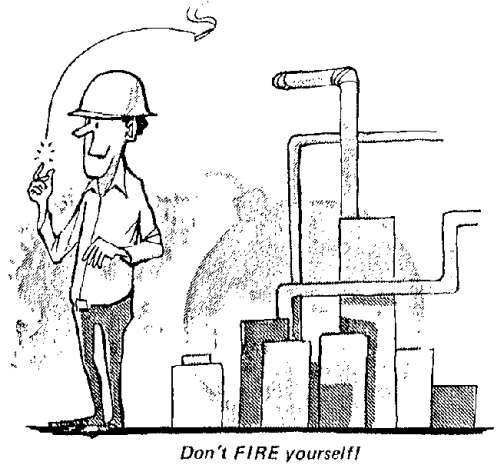
DRUMS — Decontamination is best done outdoors. Fill empty drums with water and allow to stand for 48 hours with the bung removed. After 48 hours, the drums may be drained and returned to the supplier. This procedure should be followed even for disposable drums that are to be scrapped. Disposable drums also should be crushed or pierced so that no one can reuse them. NEVER cut up a drum and take it home for use as a barbecue. It could explode.

TANK CARS AND WAGONS — As isocyanates are drained from tank cars and wagons, they are padded with nitrogen or dry air. If water vapor gets into the empty tank, the isocyanates will react, forming solids that plug up lines and valves. As soon as a tank is drained, any gaskets should be replaced and all covers and valves closed. Any flexible hoses or fittings used should be cleaned immediately and stored in sealed containers with a drying agent such as silica gel.

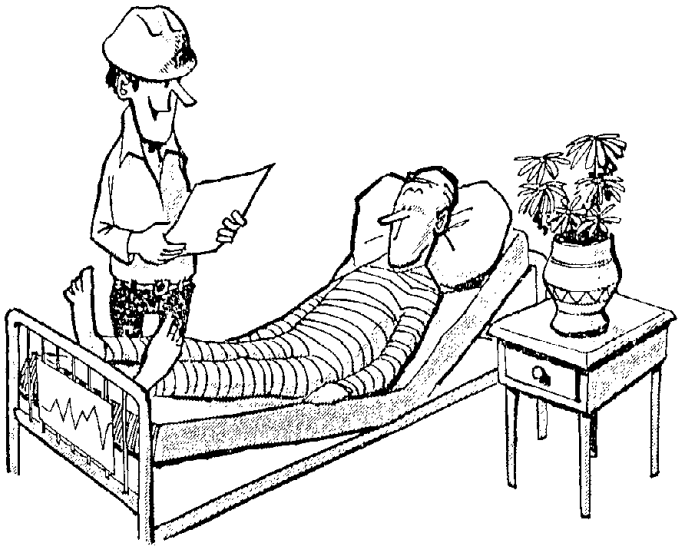
FIRE

Urethane foams burn readily, often with dense clouds of black smoke which can make it difficult to escape from the fire area. When some types of foam burn in confined spaces, deadly gases are formed. Important points to remember are:

- Know where all exits are located. Keep access to all exits clear.
- Don't allow scrap foam to pile up, it can be a fire hazard.
- Be familiar with your plant's fire emergency procedures.
- Never smoke in areas where foams are made or stored.
- Know where all fire extinguishers are located and how to use them.
- Welding or open flames should not be permitted in any area where foam is stored or made.



Don't FIRE yourself!

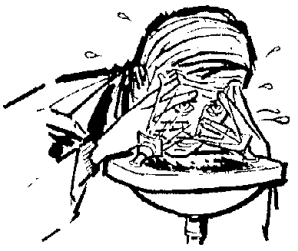


The guys at the local voted 21 to 19 to wish you a speedy recovery.

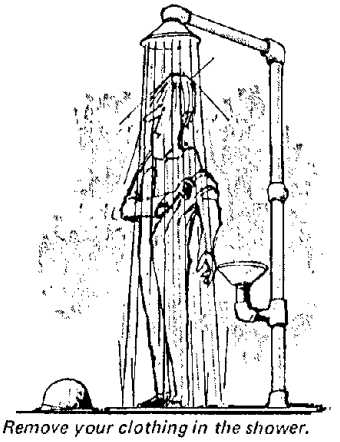
FIRST AID

Despite the most careful precautions, accidents can happen. Although some foam system components are hazardous, sufficient time is usually available to prevent serious effects if you know what to do beforehand and act promptly. Be familiar with these first aid procedures. Know where emergency showers, eye wash fountains, and first aid supplies are located. Post the emergency phone numbers near all telephones. Workers at field sites should always know where the nearest supply of running water is located.

INHALATION — Overexposure to isocyanates results in severe coughing, difficulty in breathing, tightness of the chest, or an asthma-like attack. Get the person out of the contaminated area immediately. Get medical aid.



EYE CONTACT — Flush the eyes immediately with large amounts of water. Open the eyelids and roll your eyes. Continue the flushing for 15 minutes. Get medical attention as soon as possible.



Remove your clothing in the shower.

SKIN CONTACT — If large amounts of chemicals are splashed on the body, rush to a safety shower or flush with a hose. Remove contaminated clothing and shoes while under the shower. Wipe the isocyanate from the skin with a clean cloth. If a rash or irritation develops, see a doctor. Contaminated clothing and shoes should not be worn until decontaminated or laundered.

SUMMARY

What are the hazards?

Usually Called	Chemical	Hazard To You
Isocyanates (a family or related chemicals). In two-component systems isocyanates are the A component.	Includes: TDI MDI PAPI	Isocyanates are the foam component most likely to harm you. Vapors can severely irritate the lining of your nose, throat, and lungs. Even short exposure to excess vapor makes it difficult to breathe. Heavy overexposure results in coughing spasms and asthma-like attacks that can be so severe that workers have died. Some people become sensitized and any later exposure can trigger an attack. Liquid or mists burn the skin and eyes. **Avoid all possible contact with isocyanate liquids or vapors.** Effects of all isocyanates are similar but MDI and PAPI do not vaporize as readily as TDI and are not nearly as hazardous.
Catalysts — two types used. Catalysts are in the B component in two-component systems and C in three-component systems.	Amines	Are alkaline; vapors burn eyes, lungs and respiratory tract. Absorbed through the skin easily and can cause dermatitis or skin sensitization. Avoid breathing vapors or skin or eye contact. Concentrations below the point that irritates your eyes or lungs can cause you to see haloes or fog your vision.
	Organic metal salts	Little known about health effects but they can pass through skin and may cause sensitization. Avoid contact.

What are the hazards?

Usually Called	Chemical	Hazard To You
Polyols. Often labeled as B.	Polyols	Most are not harmful; few can irritate skin so avoid contact. Catalysts are often blended with the polyols, so avoid contact.
Blowing agents	Freon-like compounds of fluorine and chlorine	Unusually high (for foaming) concentrations can make you numb or unconscious. Smoking, flames, or an electrical arc can break these compounds into deadly gases. NEVER SMOKE IN FOAMING AREAS.
	Carbon dioxide	No hazard in normal foaming operations.
Surfactants	Silicones	Little hazard but some may mildly irritate eyes.
Flame and fire retardant additives	Phosphate esters	Can cause blurred vision, headaches, breathing problems, cramps, or nausea. May be absorbed directly through your skin. Avoid contact.
Process solvents	Usually methylene chloride	Vapor concentrations have anesthetic effects; overexposed workers may appear drunk, uncoordinated, or may become numb, dizzy, or sick to their stomach. Repeated skin contact can cause dermatitis. Irritating to eyes and respiratory system.

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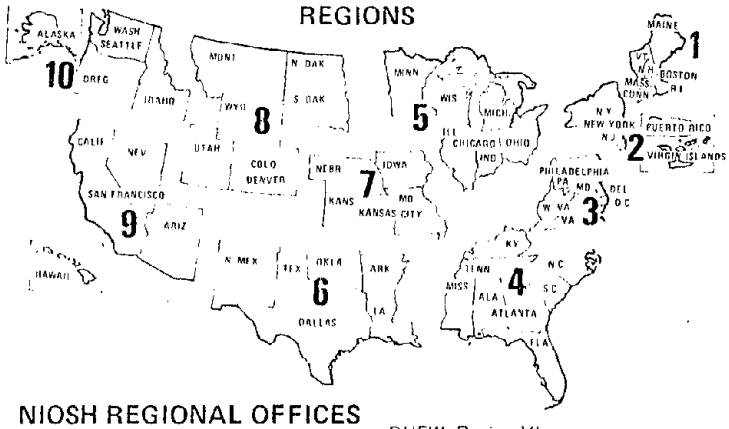
REGIONS



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FIRE

Telephone Fire Department _____

Nearest Alarm Box at _____

CRIME

Telephone Police _____

INJURY/ILLNESSES

Avoid infection of minor injuries; always get medical attention or skilled first aid.

Doctor _____

Office _____ Tel. _____

Residence _____ Tel. _____

_____

_____

Hospital _____

Address _____ Tel. _____

Ambulance _____

Address _____ Tel. _____

(In emergencies, get medical attention and transportation elsewhere if necessary.)

In all cases of Fire, Crime, Accident, or Sickness, promptly notify:

1. Name _____ Office Tel. _____
   Address _____ Res. Tel. _____

or

2. Name _____ Office Tel. _____
   Address _____ Res. Tel. _____

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