HAZARD COMMUNICATION
For Health Care Workers
Your health care facility works hard to provide high-quality patient care. It cares equally about keeping you—its skilled employee—safe and healthy, too. Because you work around hazardous substances, your employer wants you to know more about these substances and their risks. OSHA (Occupational Safety and Health Administration) also outlines safety guidelines for handling these hazardous substances. Put these guidelines into practice. Understand your risks and take steps to protect yourself and your coworkers.

**KNOW THE HAZARDS**
Hazardous substances can be hard to recognize. For example, radiation and medical gases can't be seen. Chemicals and asbestos may be safe until disturbed or used incorrectly. Knowing the hazards and following your training can keep you safe—maybe even save your life.

- **Chemotherapy**
  Anticancer drugs damage normal cells, too. Improper use can place workers who mix, administer, or come in contact with these drugs at increased risk for birth defects or cancer.

- **Radiation**
  Radiation consists of waves or particles used to image or treat areas of the body. When safety guidelines aren't followed, radiation can cause sterility, genetic damage, or cancer.

- **Ethylene Oxide**
  Ethylene oxide is a gas used to sterilize hospital equipment. Used improperly, it can damage skin and the respiratory and nervous systems. The result can be sterility or cancer.

- **Chemicals**
  Thousands of chemicals are a necessary part of hospital life. But when handled incorrectly, they can burn, explode, cause skin damage, or lead to other serious health hazards.

- **Medical Gases**
  Medical gases include oxygen and anesthetic gases. If gas leaks occur, dangers range from fire to serious health problems such as respiratory disease.

- **Asbestos**
  Asbestos is a mineral once used in construction and fireproofing. When disturbed or aged, it can break into very small fibers. If inhaled, it can lead to respiratory disease or cancer.

This booklet is not intended to replace your employer's health and safety policies. Only your employer can establish the specific safety guidelines appropriate for your job. ©1994 by Krames Communications, 1100 Grundy Lane, San Bruno, CA 94066-3030. (800) 333-3032. All rights reserved. It is a violation of United States copyright laws to reproduce any portion of this publication in any form or by any means without written permission from the publisher. Lithographed in Canada.
UNDERSTANDING OSHA GUIDELINES

If you work with hazardous substances, OSHA requires that your employer provide a four-part hazard communication program, which includes employee training, a written program, Material Safety Data Sheets, and container and warning labels. The level of training you receive depends on your level of risk for exposure to hazardous substances. If you have questions about safe work practices, talk to your supervisor or safety coordinator.

YOUR HAZCOM PROGRAM

1. **Employee Training**
   You’ll learn how to handle hazardous substances safely, and how to use personal protective equipment (PPE) such as gloves, eye protection, and headgear. You’ll also find out where to get more information when you need it. This booklet is part of the training program. See pages 6-10.

2. **Written Program**
   The written program outlines the steps your healthcare facility is taking to tell you about hazardous substances. It includes an inventory of dangerous substances in your work area. Ask your supervisor about your employer’s program.

3. **Material Safety Data Sheet (MSDS)**
   An MSDS gives you detailed information about health risks and safe handling procedures for each substance you work with. These are available to you in your work area. See page 4 for more information on how to read an MSDS.

4. **Container and Warning Labels**
   The container label lists the substance name, hazardous ingredients, and safety warnings. The warning label lists hazard ratings for each substance. See page 5 for more information.
The MSDS [Material Safety Data Sheet] for each hazardous substance in your work area tells you how to use, handle, and store the substance safely. Emergency and first-aid procedures are listed, as well. Each MSDS may look a little different, but all give you the same basic information. This sample MSDS identifies the ten sections you are most likely to see.

- **Chemical Identification** lists the name of the substance and the company who developed the MSDS. Also listed are hazardous components—by generic or specific name. The manufacturer's name, address, and phone number are included here, too.

- **Composition** identifies the ingredients that contribute to hazards or are considered hazardous by OSHA. Also listed are the chemical and common names of hazardous components.

- **Hazards** describes the substance's appearance, any hazards associated with emergency response situations, and potential health effects and symptoms of exposure, such as a rash.

- **First-aid Measures** tells you about emergency procedures—simple steps that you can take before professional medical assistance is available—if someone has been exposed.

- **Firefighting Measures** lets you know the fire and explosive properties of the material, appropriate extinguishing devices, and basic firefighting guidelines.

- **Accidental-Release Measures** tells how to contain and clean up a spill, leak, or other release.

- **Handling and Storage** discusses safe practices that minimize contact between you and the substance. These guidelines include risks from fire or reactions with incompatible substances.

- **Exposure Controls and Personal Protection** explains any engineering controls, such as proper ventilation, and personal protective equipment (PPE), such as respiratory protection.

- **Physical and Chemical Properties** identifies the substance's characteristics, such as odor and boiling or melting points, if any.

- **Stability and Reactivity** describes conditions that could result in a hazardous chemical reaction. This might include contact and reaction with other substances, or environmental conditions to avoid, such as heat.
UNDERSTANDING LABELS

You can help prevent illness and injury by reading the container label and warning label for each hazardous substance you use. There should always be a label on a container, but you may not always see a warning label. If you have any questions after reading the container label or warning label, check the MSDS. The MSDS is probably the most detailed source of information for the hazardous substance you are using.

CONTAINER LABELS

Always check the container label before handling any substance. All container labels list basic warnings. Others may give more detailed precautions. Container labels may have information such as the following:

- A brief description of the substance
- The main ingredients of the substance
- The kind of personal protective equipment you should wear while handling the substance
- A list of hazard warnings, such as the need to keep the substance away from flame or the need to avoid skin contact
- Directions on how to use the substance safely
- Steps to take if you splash the substance in your eyes or on your skin
- The procedure for storing the substance safely
- The manufacturer's name and address
- The procedure for disposing of the container

WARNING LABELS

You may see a warning label on a container or box of containers, such as a case of chemical jugs. These labels provide the most important information you need to know about the substance you are handling. Hazard ratings — from 0 to 4, with 4 being the most hazardous — are used for three categories: Health, Flammability, and Reactivity. For example, if the substance has a low risk of flammability, a "1" may appear in the Flammability section. The Special Notice category shows other important hazards to be aware of.

Sample Warning Label

<table>
<thead>
<tr>
<th>HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Extreme hazard — avoid contact or breathing vapor</td>
</tr>
<tr>
<td>3 Severe hazard — use special clothing and masks</td>
</tr>
<tr>
<td>2 Hazardous — use masks or special ventilation</td>
</tr>
<tr>
<td>1 Lightly hazardous — irritating</td>
</tr>
<tr>
<td>0 Normal material</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLAMMABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Extremely dangerous fire and explosion hazard — below 73°F</td>
</tr>
<tr>
<td>3 Fire and explosion hazard at normal temps — below 100°F</td>
</tr>
<tr>
<td>2 Will burn at temps above 100°F</td>
</tr>
<tr>
<td>1 Will burn at temps above 200°F</td>
</tr>
<tr>
<td>0 Will not burn</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Extreme hazard — vacate area in case of fire</td>
</tr>
<tr>
<td>3 Severe explosion hazard</td>
</tr>
<tr>
<td>2 Violent chemical change possible</td>
</tr>
<tr>
<td>1 Unstable if heated</td>
</tr>
<tr>
<td>0 Normally stable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECIAL NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXY — Oxidizing agent</td>
</tr>
<tr>
<td>ACD — Reacts violently with alkalis</td>
</tr>
<tr>
<td>ALK — Alkali — reacts violently with acids</td>
</tr>
<tr>
<td>COR — Corrosive</td>
</tr>
<tr>
<td>W — Use no water</td>
</tr>
<tr>
<td>P — Polymerizes</td>
</tr>
<tr>
<td>□ — Radioactive</td>
</tr>
</tbody>
</table>
Chemotherapy
Anticancer drugs can save or prolong the lives of cancer patients. But they can pose a hazard to nurses and pharmacists who mix them or to housekeeping staff who clean up spills and remove waste. Follow your employer’s safety standards and you’ll help keep everyone safe.

Work Safely
Mix drugs in a safety cabinet. For extra safety, use negative-pressure hypodermic needles to withdraw drugs.

Check Labels
Clearly label drugs and equipment and replace any torn labels.

Transport Safely
Hand-carry or transport materials in a leakproof container, such as a zipper-locked bag.

Use PPE
Wear PPE during preparation and administration of drugs.

Clean Up Spills
Clean up spills immediately. Use a circular motion to wipe up spills, moving from outside in. Wear full protective clothing.

Dispose of Waste
All chemotherapy waste should be placed in sealed bags and discarded in labeled chemotherapy waste bins.
RADIATION

Used properly, radiation can help detect illness and treat cancer. But it, too, can be a hazard if accidental exposure reaches x-ray technicians, nurses, or others working near it. Your health care facility has set safe work practices to keep both workers and patients safe, and advises that pregnant women take additional precautions.

Use PPE
Wear film badges so your employer can monitor your exposure. Wear lead aprons and gloves when appropriate.

Follow Safe Work Practices
When radiation is given, stand behind a lead shield or wall.

Observe Signs
Recognize radiation warning signs, and never enter a room while patients are undergoing radiation therapy.

Avoid Unnecessary Exposure
Transport patients with radioactive implants in empty elevators, so you don't expose others to needless radiation.
ETHYLENE OXIDE

Ethylene oxide gas is commonly used to sterilize equipment. But if it isn’t fully evaporated during aeration procedures, it can damage skin and other body tissue. You’ll be trained to work with this gas safely and to use the sterilization and aeration equipment correctly. Ask your supervisor if you have any questions.

TRANSPORT SAFELY

Transfer equipment quickly and safely from the sterilizer to the aeration chamber. Keep equipment at arm’s length and away from your breathing area.

FOLLOW AERATION SAFETY STEPS

Aeration allows gas to evaporate completely under controlled conditions in an approved chamber. Never open the door before the process is finished.

USE PPE

Wear the protective gloves, gowns, and masks your health care facility provides. Also follow your employer’s system for monitoring your exposure to gases.

WASH YOUR HANDS

Wash your hands before eating, drinking, or smoking.
CHEMICALS

It's hard to imagine work without chemicals: They make jobs easier and faster. But many of these substances can be dangerous, too. You'll be trained on the hazards of chemicals you work with. For your own benefit, follow safety guidelines and, when your training dictates, wear personal protective equipment and clothing.

<table>
<thead>
<tr>
<th>Type of Chemical</th>
<th>Work Safely</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solvents</strong></td>
<td>Safe work practices are your key to avoiding accidents with chemicals. Take advantage of training.</td>
<td>Know the specific personal protective equipment you need to use with different chemicals.</td>
</tr>
<tr>
<td>Solvents, such as disinfectants, are used in many housekeeping and engineering jobs because they easily dissolve other substances. But they also can “dissolve” skin and other sensitive tissue like the eyes. Learn the hazards of chemicals you work with. Follow the protective measures you've been taught.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrosives</strong></td>
<td>Always add acids to water.</td>
<td></td>
</tr>
<tr>
<td>Corrosives are commonly found in the pharmacy and in laboratories. By their nature, they can't help destroying or changing what they touch. This means that they can easily “eat through” clothing or exposed skin. Mix them safely and handle them with care.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flammables</strong></td>
<td>Store chemicals properly.</td>
<td></td>
</tr>
<tr>
<td>Flammables, usually liquid chemicals, are found throughout your facility. They catch fire easily, so store them away from sparks and flames.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reactives and Explosives</strong></td>
<td>Know your chemicals.</td>
<td></td>
</tr>
<tr>
<td>Reactives explode easily and may release dangerous vapors. Store and handle them properly to protect everyone's safety.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Toxics</strong></td>
<td>Safety shoes or booties</td>
<td></td>
</tr>
<tr>
<td>Many health care chemicals are toxic or “poisonous” if you accidentally inhale them, swallow them, or let them be absorbed through your skin. If you have any questions about whether a chemical is toxic, check the MSDS or warning label.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## PROTECT YOURSELF: HANDLING HAZARDS SAFELY

### MEDICAL GASES

Medical gases are especially hazardous because they’re hard to smell and can’t be seen. Operating and recovery room staff are at highest risk if gas leaks from tubing or from the patient’s mask. The longer the gases are inhaled or are in contact with your body, the more harm they can do.

**Oxygens**

Oxygens is dangerous because it makes other materials highly flammable. The gas is found in operating, patient, and recovery rooms. It also is commonly transported between floors and nursing stations and may be piped throughout your facility.

**Anesthetic Gases**

Most exposure from anesthetic gases, such as nitrous oxide, occurs through leakage of tubing. Your facility has a scavenger system to collect waste gas and route it outside.

### ASBESTOS

If your facility was built before the 1970s, asbestos may have been used as a fireproofing agent on steel beams above ceilings and on the framework of walls. Most healthcare workers won’t come in contact with asbestos, but maintenance people may come across it and should know how to work around it safely.

**Report Asbestos**

Tell your supervisor if you think you see unlabeled or damaged asbestos.

**Know Your Role**

Don’t try to remove asbestos on your own. Licensed asbestos specialists are trained to remove it safely.

**Observe Signs**

Stay clear of areas where work with asbestos is taking place, so you won’t inhale fibers.
HAZARD COMMUNICATION QUIZ

Test your hazard communication knowledge. Remember, the more you know, the safer your workplace can be—for you, your coworkers, and patients. See if you can answer the following questions.

1. You need training in handling hazardous materials only if you’re a full-time employee.
   True  False

2. Your Hazard Communication Program should include employee training, a written program, an MSDS, and label information.
   True  False

3. OSHA outlines safety guidelines for handling hazardous substances.
   True  False

4. A Material Safety Data Sheet (MSDS) contains information on how to use, handle, and store substances safely.
   True  False

5. All MSDSs have exactly the same format.
   True  False

6. Container labels list the main ingredients of the substance.
   True  False

7. Warning labels identify fire hazards and health hazards.
   True  False

8. It isn’t necessary to check a container label before handling its contents.
   True  False

9. There should always be a container label on a hazardous-substance container.
   True  False

10. If you’re not sure whether a chemical is dangerous or not, check the MSDS.
    True  False

Optional Questions

11. When giving radiation treatments, it is not necessary to wear a film badge.
    True  False

12. Some chemicals can be poisonous if absorbed through your skin.
    True  False

13. When working around solvents, it is not necessary to wear any PPE.
    True  False

14. Any health care facility worker can remove asbestos.
    True  False

15. Oxygen is one of the most hazardous medical gases, because oxygen makes other materials highly flammable.
    True  False
Your health care facility's hazard communication program is designed with your health and safety in mind. But you, too, are an important part of making this program work. Knowing how to handle the dangerous materials you come into contact with can help prevent injuries and keep you healthy and safe on the job. Working together, you and your employer can help keep your workplace safe.
HAZARDOUS MATERIALS MODULE

The best way to protect your health and safety is to know about each of the chemicals you work with. Some chemicals can explode or start fires. Others can cause skin rashes, breathing problems, or more serious illnesses. But if you handle hazardous chemicals carefully, following the right precautions, these chemicals can be handled safely and your health will not be jeopardized.

WHAT ARE HAZARDOUS MATERIALS?

Substances that are potentially dangerous to your health and safety.

- Radiation
- Ethylene Oxide
- Medical Gases (oxygen/anesthetic gases)
- Chemicals (disinfectants/germicidal/flammmables)
- Formaldehyde

Know the hazards you face and know how to protect yourself and others from their dangers.

There is no room for error when handling hazardous materials. Your actions affect:

YOU: Your own health and safety are at stake every time you handle these materials.
THE PEOPLE AROUND YOU: Includes those you work with, visitors, patients, who must rely on you for their safety and well being.
THE FACILITY: Because hazardous materials can endanger such a large area, your actions affect the safety of the entire facility.

USE PERSONAL PROTECTIVE EQUIPMENT (PPE):

- Respiratory or mask
- Protective apron/gown
- Goggles
- Proper footwear
- Protective gloves

PRACTICE GOOD HYGIENE:

- Handwashing
- Cleaning cuts/wounds immediately
- Eating: keep food out of work area.

FIRST AID MEASURES:

- Know first aid measures for each hazardous material you come in contact with.
- Get immediate first aid when exposed.
PREVENTION OF INJURIES:
- Let falling objects fall.
- Don’t reach into containers.
- Practice safe handling techniques.
- Dispose of equipment/supplies appropriately.
- Spills: Act quickly, clean up small spills immediately and properly
  Wear appropriate PPE
  Contain spill
  Notify other personnel (call code orange)

READ THE MSDS AND LABELS:

You can help prevent illness and injury by reading the MSDS (Material Safety Data Sheets) and warning label for each chemical you use. These give you key health and safety information about the hazardous chemicals in your work area. The hospital has MSDS’s and labels available to you in your department. Know their location and how to read a MSDS. Assure you have read the MSDS before your use a new product/chemical.

WARNING SIGNS:

Each warning label lists the chemical name, hazardous ingredients, hazard warning, and the chemical manufacturer’s name and address. Chemical producers review scientific studies and provide an updated warning label and MSDS for each hazardous chemical in your work place. Every container holding a hazardous substance must have a label indicating its contents, hazardous warnings, and the manufacturer’s name. If you transfer a chemical from one container to another (diluting from concentrate), both containers must have warning labels.

MATERIAL SAFETY DATA SHEETS (MSDS):

Each MSDS gives you more detailed health and safety information, precautions for handling, emergency and first aid procedures. The MSDS for hazardous chemicals you are handling are available through your supervisor. Emergency Department, Maintenance/Safety Chairman and Purchasing Department have master copies of all chemicals requiring a MSDS used in the hospital.

The MSDS for each hazardous chemical in your work place tells you how to use, handle, and store the chemical safely. Each MSDS may look a little different, but all give you the same basic information:

CHEMICAL IDENTIFICATION:
The first section of the MSDS helps you identify the chemical. It lists the name of the chemical, any trade names, and the chemical manufacturer’s name and address.

COMPOSITION:
This section lists what is in the chemical that can harm you. It also lists the concentration of the chemical to which you can safely be exposed, often listed and the permissible exposure limit (PEL) – or the threshold limit value (TLV). These safe exposure limits are usually figured for average exposures over a typical work shift.
PHYSICAL AND CHEMICAL DATA:
This section describes the chemical’s appearance, odor, and other characteristics. Percent volatile, for instance, is how much of the chemical evaporates at room temperature. Sulfuric acid has a low percent volatile but fumes easily, so respiratory protection or extra ventilation may be needed.

FIRE FIGHTING MEASURES:
Here you can find at what temperature the chemical ignites, called flash point. This section also lists extinguishing media: what you should use to put out a fire safely, such as foam, water or any other type of extinguisher.

HEALTH HAZARDS:
This section lists symptoms of overexposure, such as skin rash, burn, headache, or dizziness.

FIRST-AID MEASURES:
Advises first aid and emergency procedures in case of overexposure (such as flushing you exposed skin with running water for 15 minutes). It may also list any medical conditions that can be aggravated by exposure to the chemical.

STABILITY AND REACTIVITY DATA:
Here you will find whether the chemical “reacts” with materials or conditions. Incompatibility lists the environmental conditions, such as heat or direct sunlight that cause a dangerous reaction.

ACCIDENTAL – RELEASE MEASURES:
This section tells you what to use to clean up an accidental spill or leak. No matter what the chemical is, notify your immediate supervisor right away. Before cleaning up a chemical spill, you may need to wear respiratory protection, gloves, safety goggles, or protective clothing. This section may also include notes on how to dispose of the chemical safely.

EXPOSURE CONTROLS AND PERSONAL PROTECTION:
Here you will find a listing of any personal protective equipment (PPE) you will need to work safely with the chemical. If protective equipment is needed, this section may list required use. Engineering controls will also be listed.

SPECIAL PRECAUTIONS:
This section lists any other special precautions to follow when handling the chemical. This may include what to have nearby to clean up a spill or put out a fire, and what safety signs to post near the chemical.
**HOW TO USE CONTAINER LABEL**

**BASIC WARNING:**

The warning label lists the chemical name, its main ingredients by name, hazardous ingredients, hazard warnings, and the name and address of the chemical manufacturer, storage and first aide. It also lists hazard warnings, such as to keep the chemical away from flame or avoid skin contact. And how to dispose of the container.

**FIRST AID:**

The label may explain what to do if you splash the chemical in your eyes or on your skin. You may need to flush your eyes at an eye wash station for 15 minutes or wash skin contaminated skin in a full body shower.

**FIRE:**

The label may explain how to put out an accidental fire. There are four different types of fire extinguishers: water, foam, and dry chemical and carbon dioxide. Using the wrong one can spread the fire instead of putting it out. Be sure you know which extinguisher is appropriate for this particular fire.

**NON-LABELED CONTAINERS:**

If a container does not have a warning label, report it to your manager immediately. Find out what the chemical is, and affix the proper label.

**SPILLS:**

There may be a section on how to handle spills. For any spill, contact your supervisor right away — call Code Orange and put out any source of nearby flame. Maintenance and Housekeeping personnel will arrive to ascertain requirements for spill cleanup. PPE should be worn when required to clean up a spill.

**HANDLING AND STORAGE:**

The label may list the PPE, such as gloves or goggles. The chemical may also need to be stored with extra ventilation or away from other chemicals.

**DISPOSAL:**

Treat empty containers as if they were still full, and do not fill them with anything else. Empty containers can be hazardous, since they often hold residues that can burn or explode. Follow the label and know how to dispose of empty containers.

**TRANSFER CONTAINERS:**

If you move a hazardous chemical from its primary container to a new one, be sure your transfer container is labeled. Then your co-workers will know how to handle it safely, too.
TORN LABELS:
If a label is torn, damaged, or misplaced, report it immediately so it can be repaired or replaced. Remember that the only way you can handle a chemical safely is if you know what you are handling.

The hazard communication program is designed with your safety in mind. But it will work only if you help. Your department provides MSDS and labels, know how to use then so you will know how to handle material safely. Each employee must assure knowledge of the MSDS for each chemical he/she uses.

REMEMBER: IF A CONTAINER IS NOT LABELED
DO NOT HANDLE IT!
REPORT TO SUPERVISOR FOR LABELING

BE SAFE AROUND HAZARDOUS MATERIALS
KNOW WHAT YOU ARE HANDLING
KNOW WHERE MSDS ARE LOCATED

BE AWARE OF HAZARDOUS MATERIALS THAT YOU WORK WITH
USE PROPER TECHNIQUES FOR HANDLING, STORING, AND
DISPOSING OF HAZARDOUS MATERIALS

DO NOT LEAVE ROOM FOR ERROR
HUMAN HEALTH AND SAFETY ARE PRICELESS!

WHEN A SPILL REQUIRES CLEAN UP—
ADVISE SUPERVISOR AND CALL CODE ORANGE