Hazard Communication

University of Rochester Off-site Locations
your “Right to Know”

...about the hazardous chemicals in your workplace...

What are they?

Why are they hazardous?

How can you protect yourself?
Haz Com Basics

• All UR staff have both the **right** and the **responsibility** to be aware of the hazards and safe work procedures for hazardous chemicals used in your work area

• The primary objective of Hazard Communication training is for you to know **how** and **where** to find specific hazard information
Hazardous Chemicals

Hazardous chemicals can include many common products. Paints, cleaners, disinfectants, and glues can all contain hazardous chemicals - and can be found in almost every home and workplace.
• Types of chemical hazards include
  – Health Hazards
  – Physical Hazards
Hazardous Chemicals: Health Hazards

Examples of chemicals that may cause adverse health effects upon exposure

- Irritants – Ammonia
- Sensitizer – Formaldehyde
- Target Organ Effects – Methanol
- Toxic – Carbon Monoxide
- Reproductive Effects – Chemo Drugs
- Carcinogens - Benzene
How do hazardous chemicals affect the body?

The effect a certain chemical has on the body depends on several factors:

• The physical form of the chemical
• How the chemical enters the body
• The amount of chemical that actually enters the body - the dose
• How toxic (poisonous) the chemical is
How Chemicals Enter the Body

- **Ingestion** – swallowing the chemical
- **Inhalation** – breathing in the chemical
- **Absorption** – the chemical soaks through the skin
- **Injection**
Ingestion

• Chemicals that are swallowed are absorbed in the digestive tract.

• Chemicals can rub off dirty hands and contaminate food, drinks or tobacco products.

• Chemicals in the air can settle on food or drink and be swallowed.
An example of a solid entering a body by ingestion

• Dust in the air can settle out on work surfaces, cups, plates, utensils, and food.

• The settled dust can be swallowed with food or drinks.
Inhalation (Breathing)

Airborne chemicals are breathed in through the mouth or nose.

- The size of particles or droplets can affect where the chemical settles in the respiratory tract.

- Where the chemical settles in the respiratory tract determines what symptoms or diseases will develop.
An example of a solid entering a body by inhalation

- Dust or powder can be released into the air by cutting, drilling, grinding or sanding and inhaled.

- Dust can also be stirred up by dry sweeping and inhaled.
Skin Absorption

• Some chemicals can pass through the skin and be taken into the body’s systems.

• Solvents and pesticides are examples of compounds that can be absorbed through the skin.
Toxicity: how poisonous are chemicals?

**Dose** - The effects of any toxic chemical depends on the amount of a chemical that actually enters the body.

**Acute Toxicity** - the measure of how toxic a chemical is in a single dose over a short period of time.

**Chronic Toxicity** – the measure of the toxicity of exposure to a chemical over a long period of time.
Chronic Toxicity and Acute Toxicity

Some chemicals will only make you sick if you get an ‘acute” or high dose all at once. Example - ammonia

Some chemicals are mainly known for their chronic or long-term effects. Example - formaldehyde

Most chemicals have both acute and chronic effects. Example – carbon monoxide
Unknown Substances: Limit the Contact Time

- If you come into contact with any unknown substance, immediately wash the area and remove any contaminated clothing. Report to your supervisor.
Hazardous Chemicals: Physical Hazards

Chemicals that may catch fire, explode, or react in some way

- Compressed gases
- Oxidizers
- Flammables & Combustibles
- Reactives
- Corrosives
Flammables & Combustibles

Flammables & combustibles are substances that can catch fire & burn

- Liquids (flammable) ➢ acetone, gasoline
- Liquids (combustible) ➢ motor oil, mineral oil
- Gas (flammable) ➢ hydrogen, propane
- Solid (flammable) ➢ metal powders, matches
- Aerosol (flammable) ➢ spray paint
Flammables & Combustibles

Safe Handling & Storage

- Keep container closed when not in use
- Do not use near open flame or ignition source
- Flammable liquids:
  - Store in flammable storage cabinets
  - Ground & bond containers over 5 gallons
Oxidizers

Oxidizers are substances that increase the burning of fuels by increasing the oxygen

- Benzoyl peroxide
- Concentrated nitric acid
- Sodium hypochlorite (bleach)

Safe Handling & Storage

- Do not mix with fuels
- Store separately from flammables and combustibles
  - Oxidizers are generally very reactive. In many cases, contact with combustible material will result in fire.
Compressed Gases

A compressed gas is a gas or mixture of gasses in a container that is under pressure.

- Nitrogen
- Oxygen
- Compressed Air

Safe Handling & Storage

- Ventilate areas where gases are used
- Identify cylinders by name, not color
- Firmly close valve when not in use
- Keep safety cap on cylinder when not in use
- Firmly secure cylinders during storage and use
Reactives

A reactive is a compound that is capable of catching fire or exploding if subjected to certain conditions

– Water reactives: sodium metal
– Shock sensitive: dry picric acid
– Explosive: nitroglycerin

Safe Handling & Storage

– Substitute with less hazardous materials whenever possible
– Store in isolation from other chemicals
Corrosives

Acidic or caustic (base). Capable of destroying human tissue. Acids can also destroy metal.

– Acids: sulfuric acid (battery acid), hydrochloric acid
– Bases: sodium hydroxide (Draino), ammonium hydroxide

Safe Handling & Storage

– Store acids & bases separately
– Do not use metal containers to store or dispose of acids
– Work near an eyewash, shower or hose
Hazard Communication Program: OSHA Requirements

- **Written Program**
  - A written Hazard Communication Program for UR off-site locations can be found at: [www.safety.rochester.edu](http://www.safety.rochester.edu)
  - Call EHS at 274-3241 with questions

- **Training**
- **MSDS**
- **Labels**
How & Where to find specific chemical hazard information

3 Primary Sources of Information:

• Training
• Labels
• Material Safety Data Sheets
OSHA Requirements for HazCom Training

2 types of hazard communication training:

- **General training** on what types of chemical hazards exist and how to get specific information about chemical hazards

- **Job-specific training** from your supervisor about the specific chemicals and hazards of your position
Container Labels

- Must be on every chemical container
- Do not deface or remove the original label from the supplier or manufacturer
- Read labels before beginning work
- Replace labels if necessary
- If you pour a chemical into a different container, label it!
Getting Information

What is on the product label?

• The manufacturer,

• The name of the product,

• a hazard warning,

• a list of hazardous ingredients
MSDS

- Manufacturers are required to supply an MSDS for any hazardous chemical with the first shipment
- MSDS provides in-depth chemical safety information
- Where are your MSDSs located?
MSDS Information

- Manufacturer info
- Ingredients, Composition
- Hazards identification
- First aid measures
- Fire fighting measures
- Accidental Release Measures
- Handling and Storage
- Personal Protective Equipment
- Physical and chemical properties
- Toxicological information
- Ecological Information
- Disposal Considerations
- Regulatory information
MSDS Information

Be able to identify potential hazards and methods for safe use, handling and storage of the material. Know what to do in the event of an accident.

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Protecting Yourself

You can protect yourself from hazardous chemicals by:

Knowing what is in the products that you work with

Using the smallest amount of a chemical to do the job

Maintaining machinery and equipment to prevent leaks or releases
Protecting Yourself

Protect yourself from hazardous chemicals by:

Using ventilation to reduce amounts of chemicals in the air

Enclosing a chemical process as much as possible

Wearing necessary personal protective equipment.
Protecting Yourself

If you may have been exposed to a chemical and feel sick:

Let your supervisor know,
Find out what the chemical was,
Follow the first aid directions in the MSDS,
Get medical attention as needed,
Check your PPE before going back to the area.
Chemical Disposal

Questions regarding chemical disposal can be directed to the Hazardous Waste Management Unit at:
275-2056
Emergency help:

• Fire/Police: **911**

• Poison Control: **275-3232**

Direct (non-emergency) questions to EHS at: **275-3241**
Monday – Friday, 8 am – 5 pm
HazCom Essentials

• Know the chemicals in your workplace and their hazards including:
  – Chemicals you use
  – Chemicals used by people you supervise

• Use proper protective equipment & procedures

• Know what to do in an emergency involving the chemicals in your work area…
BEFORE THE EMERGENCY OCCURS!