2014 Annual Regulatory Training

General Safety, Clinical
Learning Objectives

Upon completion of this training, you will be able to:

• Recognize common safety concerns
• Identify the three phases of the Emergency Operations Plan
Introduction

This course has been designed for health care staff to review and update your knowledge of:

- Safety
- Environment of Care
- Emergency Preparedness

*If you have concerns about any aspect of the safety or quality of patient care in your organization, be aware that you may report these concerns directly to the Joint Commission.*

*While you always have the option of speaking with the Joint Commission, we hope you always feel comfortable speaking directly with your supervisor or manager.*
This lesson covers:

- General Safety
- Fire Safety
- Electrical Safety
- Ergonomics
- Back Safety
- Slips, Trips, and Falls
- Hazard Communication / Global Harmonized System
- Respiratory Protection
- Security and Workplace Violence
- Reporting Incidents
- Utility Safety
- Medical Equipment
- Emergency Management
Workplace violence is any violence in a work setting.

To help keep your workplace safe from violence:
• Recognize aggressive behavior and warning signs of potential violence.
• Respond appropriately to the level of aggressive behavior.
• Report all unsafe situations immediately.
General Safety: Emergency Management, Emergency Codes

Emergency codes are identified below.

<table>
<thead>
<tr>
<th>Code Names</th>
<th>Events Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Red</td>
<td>Fire</td>
</tr>
<tr>
<td>Code Blue</td>
<td>Medical Emergency</td>
</tr>
<tr>
<td><strong>Code Pink</strong></td>
<td><strong>Infant/Pediatric Abduction</strong></td>
</tr>
<tr>
<td>Code White</td>
<td>Medical Emergency Infant/Mother</td>
</tr>
<tr>
<td><strong>Code Orange</strong></td>
<td><strong>Tornado</strong></td>
</tr>
<tr>
<td><strong>Code Silver</strong></td>
<td><strong>Active Shooter</strong></td>
</tr>
</tbody>
</table>

**Click through the next three slides to review code Pink, Code Orange, and Code Silver.**
General Safety: Emergency Management, Emergency Codes

Select codes are identified below.

**CODE PINK** = the potential or actual abduction of any infant or child.

- If you see suspicious behavior:
  - University Campus: Call 9-1-1
  - Memorial and Hahnemann Campuses: Call 9-1-1
- Check with your manager about department-specific Code Pink policies
- All employees should search work areas and exits and report any suspicious activity
# General Safety: Emergency Management, Emergency Codes

## QUICK FACTS: CODE ORANGE, TORNADO

<table>
<thead>
<tr>
<th>Tornado General Information</th>
<th>Tornadoes usually strike with little to no warning!</th>
</tr>
</thead>
</table>
| Tornado Watch vs. Warning: What's the difference? | • Tornado Watch: Weather conditions are conducive to the formation of a tornado (it is likely that one may occur)  
• Tornado Warning: A tornado is either occurring or imminent based on radar |
| Where is the safest place to be in a hospital during a tornado? | • An enclosed, windowless area in the center of the building, away from glass  
• Stay off elevators (you could be trapped inside them if the power is lost) |
| What should I do if I am working in the hospital and a CODE ORANGE is announced? | • Immediately report to your department.  
**Safety of patients and visitors:**  
• Move ambulatory and wheelchair-bound patients and visitors to interior hallways  
• Place non-ambulatory (bed-bound) patients in the flat position (if tolerated) and move their bed away from windows toward the center of the room – turn the bed so that patient is facing the hallway allowing headboard to block potential flying debris)  
• Draw curtains and shades  
• Cover patients with blankets and pillows  
**Your personal safety:**  
• Seek shelter in interior hallways  
• Crouch down and cover your head  
• Be alert for any damage to the building that may lead to an unsafe environment |
| Who should report to the Command Center after the announcement of a CODE ORANGE? | Managers should report immediately to their departments to ensure safety of their patients and staff.  
Administrator on call / Administrative Clinical Supervisor should report to the Command Center when a Code Orange is announced. |
### General Safety: Emergency Management, Emergency Codes

#### QUICK FACTS: **CODE SILVER, ACTIVE SHOOTER**

<table>
<thead>
<tr>
<th>What should I do if I am working in the hospital and a CODE SILVER is announced?</th>
<th>If an active shooter alert has been made by a person within the hospital or by the police department, a <strong>Code Silver</strong> will be announced on the overhead paging system. This is a dangerous situation that often evolves very quickly.</th>
</tr>
</thead>
</table>
| **How do I get help?** | If you witness a shooting occurring on campus and it is safe to do so, call for help:  
  - University campus: call 911 (this will connect you with Campus Police)  
  - Memorial campus: call 911 (this will connect you with Campus Police)  
  - Hahnemann campus: call 911 (this will connect you with Campus Police) |
| **Information: What should I report?** | Try to give the police as much information as possible:  
  - Specific location of the shooter, and number of assailants  
  - Gender, race, age, and language of the shooter, and name, if known  
  - Physical features - e.g., height, weight, facial hair, glasses, clothing color and style  
  - Number and type of weapons - e.g., handguns, rifle, shotgun, explosives |
| **Will the Command Center open in response to a CODE SILVER?** | **The Hospital Command Center will not open in response to a Code Silver announcement.** An active shooter is a dangerous, quickly evolving situation and all staff should focus on staying safe. Trying to get to a Command Center may put staff in harm’s way. Once it is deemed safe to do so, the Emergency Operations Plan may be activated and the appropriate announcements made to announce a Phase I or II activation. At that time, all appropriate staff (managers, etc.) should report to the Command Center. |
Responding to an Active Shooter incident in the Medical Center

• **Click here** to watch a brief video about how an Active Shooter incident at the medical center may evolve. Note how the hospital personnel respond as the incident unfolds. Every incident will be different, but there are some good ideas in this video.

• The URL is: [http://vimeopro.com/lmpgeneral/armed-are-you-ready/video/73974126](http://vimeopro.com/lmpgeneral/armed-are-you-ready/video/73974126)
Health care facilities have many potential hazards.

OSHA separates these hazards into five categories:

- Biological (Covered in the Infection Control module)
- Chemical
- Psychological
- Physical
- Environmental / Mechanical

As shown in the table on the next screen, take appropriate measures to:

- Eliminate as many of these hazards as possible
- Safeguard against exposure to the hazards that cannot be eliminated

**Note:** Many of the hazards mentioned in the table are addressed in greater detail later in this module.
## Hazards and Safeguards

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Definition</th>
<th>Examples</th>
<th>Safeguards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>“Germs”</td>
<td>HIV, VRE, MRSA, BNV, HCV, TB</td>
<td>Infection control</td>
</tr>
<tr>
<td>Chemical</td>
<td>Toxic or irritating materials</td>
<td>Detergents, solvents, disinfectants, sterilizing agents, waste anesthetic gases, hazardous drugs, mercury</td>
<td>Engineering controls, work practice controls, personal protective equipment (PPE)</td>
</tr>
<tr>
<td>Psychological</td>
<td>Factors that cause emotional stress or strain</td>
<td>Working with terminally ill patients, patient deaths, overwork, understaffing, tight schedules, equipment malfunctions</td>
<td>Stress management, relaxation exercises, meditation</td>
</tr>
<tr>
<td>Physical</td>
<td>Agents that can cause physical harm</td>
<td>Radiation, lasers, noise. Electrical equipment, extreme temperatures</td>
<td>Dependent on hazard</td>
</tr>
<tr>
<td>Environmental &amp; Mechanical</td>
<td>Factors that increase risk of accident, injury, strain or discomfort</td>
<td>Lifting &amp; moving patients, tripping hazards, poor air quality, slippery floors, clutter</td>
<td>Maintenance of a safe work environment, prompt reporting of hazardous conditions</td>
</tr>
</tbody>
</table>
Fire Safety: Prevention

Prevention is the best defense against fire.

Corridors
- Only items in use should be in corridors. "In use" means accessed within 30 minutes and under the control of the user.
- Exceptions: code carts and infection control carts are considered in use.
- Items in use must be kept on one side, not blocking doors or fire safety systems, etc.

Smoking
- We are a smoke free facility, inside and out.
Fire Safety: Prevention

**Electrical**
- Always shut off electrical devices before removing the electrical plug.
- Remove damaged or faulty equipment from service.
- Submit malfunctioning equipment for repair.

**Equipment Misuse**
- Do not use any piece of equipment before being trained.
- NEVER leave food cooking in toasters or microwave ovens unattended.
- Space heaters are prohibited.
Fire Safety: Safeguards in Event of Fire

Not all fires can be prevented. Therefore, our facility has fire safety features. These features include:

- Fire alarm systems
- Fire extinguishers
- Emergency exit routes and doors
- Smoke and fire doors and partitions
- A fire plan

Be familiar with the location and use of each of these and keep access clear at all times. Items in corridors are limited to 30 minutes, except for code carts and Infection Control carts.
Respond to fires using the RACE protocol:

- **R**: Rescue
- **A**: Alarm
- **C**: Confine
- **E**: Evacuate

Click on each of the links above to learn more about each element.

When you have reviewed all four… click here to continue this lesson.
Fire Safety: Response

Respond to fires using the **RACE** protocol:

- **R**: Rescue
  
  Rescue anyone in immediate danger.
Respond to fires using the **RACE** protocol:

**A: Alarm**

Give the alarm by:

- Calling out for help
- Using a manual pull station, and
- Phoning the campus police department:
  - 911 from an in-house phone
Fire Safety: Response

Respond to fires using the RACE protocol:

C: Confine

Confine the fire by closing the door to the room where the fire started.

In the hospital, place patients in their rooms, close all doors, clear corridors and speak to visitors in waiting areas.

In ambulatory buildings, evacuate according to the Fire Plan.
Respond to fires using the **RACE** protocol:

**E: Evacuate**

Prepare to evacuate patients to a safe area.

Extinguish if trained.
The fire types on the left are associated with a letter. The letters of the fire types directly correspond to the appropriate fire extinguisher types on the right.

**Types of Fires**

- A  (Ash) paper or wood
- B  (Burning liquids) flammable liquids and gases
- C  (Current) energized electrical equipment
- K  Kitchen grease

**Types of Extinguishers**

- A  Pressurized water
- ABC Dry chemical (powder)
- BC  Carbon dioxide (gaseous) Horn applicator
- K  Dry chemical or mist

The majority of extinguishers at UMMMC are ABC extinguishers.
Remember to PASS

- Pull the pin (stand back 8 to 10 feet).
- Aim at base of the fire.
- Squeeze the handle.
- Sweep side to side.

You must activate the Fire Alarm before using an extinguisher!

You can watch a video on how to use a fire extinguisher on Ournet (Environmental Health & Safety page in the Administrative link)
Electrical Safety: General

Most equipment in the health care setting is electric. This means there is risk of electric shock.

Electric shock can cause:
- Burns
- Muscle spasms
- Ventricular fibrillation
- Respiratory arrest
- Death
Other best practices for preventing electrical accidents in our facility are:

- Use power cords and outlets properly.
- Use circuits safely.
- Protect patients from electrical shock.

Click on each of the links above to learn more about each element.

When you have reviewed all three… click here to continue this lesson.
Other best practices for preventing electrical accidents in our facility are:

Use Cords and Outlets Properly

- Unplug by turning the power off on the machine and pulling the plug not the cord.
- A hot outlet can be an indication of unsafe wiring. Unplug cords from the outlet. Report the potential hazard.
- Use tape to attach power cords to walls or floors.
- Use power cords with three-prong plugs. Never use adapters or broken three-prong plugs.
- All equipment within 6 ft. radius where patient contact is likely must have a three-prong plug or be double insulated.
- Do not use worn or frayed cords
Electrical Safety: Hazards

Other best practices for preventing electrical accidents in our facility are:

Use Circuits Safely

- Do not overload circuits.
- Breaker boxes must be accessible at all times.
- Power strips must be plugged directly into the wall outlet. No piggy backing.
Electrical Safety: Hazards

Other best practices for preventing electrical accidents in our facility are:

- Manage wiring by wrapping it up.
- Keep wiring clear of travel areas.

Protect Patients
Electrical Safety: Preventing Accidents

To help prevent electrical accidents in our facility:

- **Remove and report electrical hazards**
- **Use electrical equipment properly**
- **Maintain, test, and inspect equipment**

Click on each of the links above learn to more about each element.

When you have reviewed all three… **click here** to continue this lesson.
To help prevent electrical accidents in our facility:

Remove and Report Hazards

Remove electrical equipment from service when it:
• Malfunctions
• Shows signs of damage
• Shows signs of unusual heating
• Produces a burning smell when used
• Shocks staff or patients

Report the hazard to Facilities and submit the equipment for repair.
• 508-856-3292 University
• 508-334-6501 Memorial
• 508-334-5866 Hahnemann
To help prevent electrical accidents in our facility:

Use Equipment Properly

- Learn how to correctly operate equipment before using it.
- Do not use damaged equipment.
- Turn equipment off before plugging in or unplugging.
- If alcohol based hand cleanser is used, it must be completely rubbed in and dried before using any electrical equipment.
Electrical Safety: Preventing Accidents

To help prevent electrical accidents in our facility:

Maintain, Test, and Inspect

All medical equipment should be inspected and tested on a regular schedule.
Exposure to radiation can increase the risk of cancer. Therefore, it is important to protect against exposure.

The three key factors for limiting exposure are:

- **Time.** Minimize the amount of time that you are exposed.
- **Distance.** Maximize your distance from the radiation source.
- **Shielding.** Use appropriate shielding to absorb the energy of radioactive particles.

The goal is to keep your radiation exposure *As Low As Reasonably Achievable* (ALARA).
MRI Safety: Hazards

An MRI system is not an inherent biological hazard.

However, hazards can arise when certain items enter the Magnetic Resonance Imaging (MRI) system:

- Ferromagnetic objects are attracted to the core of the MRI magnet. This causes them to accelerate toward the core and become dangerous projectiles (the "projectile effect").
- Implanted or embedded ferromagnetic objects (e.g., aneurysm clips) will try to align with the magnetic field. This can cause these objects to rip through soft tissues.
- Pulsed radiofrequency fields in the MRI system can produce electric currents in metal implants or monitoring cables. This can result in burns.
- Electronic devices (such as pacemakers) can malfunction.
MRI safety is largely a matter of ensuring that potentially hazardous items stay outside the MRI field.

Therefore:

• Control access to the magnetic field.
• Ensure signs are posted outside the magnetic field warning of the projectile effect and the danger of metallic implants.
• Remove metallic objects from clothing and pockets before entering the magnetic field.
• Thoroughly screen patients prior to entering the MRI room. Ensure that patients do not have MRI-unsafe implants or embedded objects.

In addition, patients should be positioned for MRI so that electrically conductive loops are not formed. This will help to prevent burns.
Ergonomics includes designing work to fit the human body. Good ergonomic practices can lead to fewer work-related injuries. Ergonomic best practices include:

- Avoid lifting without using proper devices or equipment.
- Avoid highly repetitive tasks.
- Use proper posture and body mechanics when sitting, standing, or lifting.
- Avoid reaching, twisting, and bending for items. Keep frequently used items close to you.
- Respond promptly to aches and pains. This can help you take care of slight injuries before they become severe.
- Be willing to make changes that reduce your risk of injury.
- Ask for help. Talk to your supervisor to develop a plan to reduce the risk.
- When you are injured at work, report your injury to your supervisor. Complete a "First Report of Employee Injury" form. If needed, seek immediate medical attention. Contact Worker’s Compensation at x41355 or Employee Health Service at x36400 for further instructions.
Take proper care of the spine while:

- **Sleeping**
- **Standing**
- **Sitting**
- **Lifting a static load vertically**

Click on each of the links above to learn more about each element.
Take proper care of the spine while:

### Sleeping

- Sleeping on the back is best for back health.
- Sleeping on the side is next best.
- Sleeping on the stomach is least healthy for the back.
Take proper care of the spine while:

**Standing**

- Wear comfortable shoes.
- Stand up straight.
- Keep the knees flexed.
- When you must stand for long periods of time, put one foot on a footrest. Alternate feet every few minutes.
Back Safety: Proper Care of the Spine

Take proper care of the spine while:

**Sitting**

- Form 90-100 degree angles at the knees and the hips.
- When the hands are on a desk or keyboard, also form:
  - 90-110 degree angles at the elbows.
  - The wrists should be kept straight.
Back Safety: Proper Care of the Spine

Take proper care of the spine while:

Lifting a Static Load Vertically

• Bend at the hips and knees.
• Maintain the three natural curves of the spine.
• Hold the load close to the body.
• Lift with the muscles of the legs using a staggered stance.
Slips, Trips, and Falls: Prevention

Slips, trips, and falls in the workplace cause injuries and deaths every year.

Tips for preventing these include:
- Report hazards as soon as you see them.
- Keep floors clean, dry, and uncluttered.
- Wear appropriate footwear.
  - Soft rubber shoes have good traction
  - A large amount of surface area in contact with the floor (no high heels).
  - Patterned soles that increase friction.
- Report uneven flooring.
- Use proper lighting (not too bright and not too dim).
- When using the stairs, keep one hand free to hold the handrail.
- Hold onto the side rails with both hands while climbing up or down a ladder.
- Never stand on the top step of a ladder.
Slips, Trips, and Falls: Minimizing Risk

When conditions are hazardous (icy sidewalks, wet floors), avoid slipping and falling by walking like a duck:

- Keep your feet flat and slightly spread apart.
- Point your toes slightly outward.
- Take slow, short steps. Keep your center of balance under you.
- Make wide turns at corners.
- Keep your arms at your sides. This gives additional balance. It also keeps your arms available for support if you fall.
Keys to Hazard Communication

- Right-to-Know
- Hazard Communication & Globally Harmonized System
- Hazard Class
- Chemical Inventory
- Chemical Labels
- Pictograms
- Safety Data Sheets
You must receive documented department training prior to working with hazardous chemicals
Hazard Communication / GHS
Changes to the Regulations

• Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is a worldwide system developed by the United Nations

• Replaces various classification and labeling standards currently being used in different countries

• A logical, standard, comprehensive approach to Hazard Communication

• Primary Benefit of the Revised Standard
  • To increase the quality and consistency of information provided to workers
Globally Harmonized System (GHS): The Purpose

- Common approach to classifying chemicals
- Consistent communication of hazards on labels & SDS’s
- Improve quality & consistency of hazard info
- Provide easily understandable info
GHS: Major Areas of Change = Consistency

- **Hazard Classification**
  - Definitions of hazard have changed
  - Provides specific criteria for classification of health and physical hazards

- **Labels**
  - Chemical manufacturers and importers will be required to provide a label that includes, Harmonized signal word, Pictogram, Hazard statement, Precautionary statement

- **Safety Data Sheets (SDS)**
  - Establish an order of information that is standardized
  - Will now have a specified 16-section format
Chemical manufacturers and importers are required to determine the hazards of the chemicals they produce or import.

- Provides specific criteria to address health and physical hazards.
- Establishes both hazard classes and hazard categories for most of the effects.
  - Classes are divided into categories that reflect the relative severity of the effect.
### Hazard Classification: Physical Hazards

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>Physical Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>- EXPLOSIVES</td>
<td>- SELF-HEATING</td>
</tr>
<tr>
<td>- FLAMMABLE GASES</td>
<td>- PYROPHORIC SOLIDS</td>
</tr>
<tr>
<td>- FLAMMABLE AEROSOLS</td>
<td>- PYROPHORIC LIQUIDS</td>
</tr>
<tr>
<td>- OXIDIZING GASES</td>
<td>- EMIT FLAMMABLE GAS</td>
</tr>
<tr>
<td>- GASES UNDER PRESSURE</td>
<td>- OXIDIZING LIQUIDS</td>
</tr>
<tr>
<td>- FLAMMABLE LIQUIDS</td>
<td>- OXIDIZING SOLIDS</td>
</tr>
<tr>
<td>- FLAMMABLE SOLIDS</td>
<td>- ORGANIC PEROXIDES</td>
</tr>
<tr>
<td>- SELF-REACTIVE</td>
<td>- CORROSIVE TO METAL</td>
</tr>
</tbody>
</table>
Hazard Classification: Health Hazards

- ACUTE TOXICITY
- SKIN CORROSION OR IRRITATION
- EYE DAMAGE OR IRRITATION
- RESPIRATORY OR SKIN SENSITIZATION
- GERM CELL MUTAGENICITY (CAN ALTER DNA)
- CARCINOGENICITY (MAY LEAD TO CANCER)
- REPRODUCTIVE TOXICITY (AFFECTS THE ABILITY TO HAVE CHILDREN)
- ORGAN TOXICITY – SINGLE OR REPEAT EXPOSURE
- ASPIRATION HAZARD
# Hazard Classification: Changes, GHS Compared to Others

<table>
<thead>
<tr>
<th></th>
<th>Flashpoint</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Old definition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFPA 704 Diamond</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>EPA / DOT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFPA 30 class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GHS category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal Word</td>
<td>Danger</td>
<td></td>
</tr>
<tr>
<td>Hazard Statement</td>
<td>Extremely flammable liquid and vapor</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>Pictogram</td>
<td>![Flammable Symbol]</td>
<td>![Flammable Symbol]</td>
</tr>
</tbody>
</table>
Chemical Inventory

• The chemical inventory, a list of chemical products used throughout UMMMC, must be updated annually

• Department specific chemical inventories can be found on the Environmental Health & Safety (EH&S) Ournet HazCom Binder page

• EH&S will request an updated inventory of chemicals on an annual basis

• Units must review/revise the inventory of chemicals used by employees in that work area

• Units must notify the EH&S Office whenever a new product is added to their inventory
The Importance of Labeling
Labels: The Basics

- Labels are brief, but immediate and conspicuous summary of hazard information.
- Every container must be labeled, tagged or marked with the identity of the hazardous chemicals contained in them.
- Chemical labels serve as an immediate warning and as a reminder of the more detailed SDS.
- OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. Although requirement is June 2015, we will start to see these labels sooner, especially on products from international companies.
Labels: What Goes Into A Label

- Built from a recipe
- Copied from the SDS
- Based on the hazards of the chemical
- Nothing is left to chance
- Much less ambiguity
Labels: Product Identifier

Names or numbers used on a hazardous product Label that provides a unique means by which the product user can identify the chemical substance or mixture

Sample Label

Sulfuric Acid

Danger!

May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.


IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Safety Data Sheet for further details regarding safe use of this product.

Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone: +18003255832
Labels: Supplier Information

Includes the name, address and telephone number of the manufacturer or supplier

Sample Label:

**Sulfuric Acid**

*Danger!*

May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.


IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Safety Data Sheet for further details regarding safe use of this product.

Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone: +18003255832
Labels: Signal Word

Describes relative severity of the hazard

- Danger
- Warning

Sample Label

Sulfuric Acid

Danger!

May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.


IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Safety Data Sheet for further details regarding safe use of this product.

Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone: +18003255832
Labels: Hazard Statement

Describes hazards associated with the chemical

Example
  • Harmful if Swallowed

Sample Label

**Sulfuric Acid**

Danger!

May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.


IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Safety Data Sheet for further details regarding safe use of this product.

Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone: +18003255832
Labels: Precautionary Statement

Describes measures to be taken to protect yourself

Example

• Keep away from flame
Symbol inside a diamond with a red border, denoting a particular hazard class and conveying the health, physical and environmental hazards

Sample Label

**Sulfuric Acid**

Danger!

May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.


IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Safety Data Sheet for further details regarding safe use of this product.
Labels: Ournet

Ournet > Administrative > Environmental Health & Safety > Hazard Communication

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. Although requirement is June 2015, we will start to see these labels sooner, especially on products from international companies.

Chemical labels serve as an immediate warning and as a reminder of the more detailed SDS. They are brief, but immediate and conspicuous summary of hazard information. Every container must be labeled, tagged or marked with the identity of the hazardous chemicals contained in them.

Labels may have a signal word to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are “danger” and “warning.”

“Danger” is used for the more severe hazards
“Warning” is used for the less severe

The hazard statement describes the hazards associated with the chemical. Examples of a hazard statement include “highly flammable liquid or vapor” or “harmful if swallowed”.

The precautionary statement describes recommended measures to protect against hazard exposures or improper storage or handling of a chemical. Examples of a precautionary statement would be “wear protective eye wear and gloves”, “authorized personnel only”, or “keep away from open flame”.

HazCom Info
- HazCom Overview
- HazCom Binder & Inventories
- Safety Data Sheets
- Safety Data Sheet Database
- Pictograms
- Chemical Information
Health Hazard

Materials that affect respiratory sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity following single and/or repeated exposures
Materials have acute toxicity (oral, dermal, inhalation), skin or eye irritation/sensitization or specific target organ toxicity like respiratory irritation or narcotic effect.
Materials have acute toxicity (oral, dermal, inhalation)
Flame

This symbol indicates the presence of flammable materials, self-reactive substances or mixtures, which in combination emit flammable gases.
Flame over circle represents oxidizing gases, liquids or solids.
Gas Cylinder

This symbol represents compressed, liquefied, refrigerated liquefied, or dissolved gasses
Corrosion

Materials with this symbol can cause skin corrosion or serious eye damage, and are corrosive to metals.
Exploding Bomb

This symbol represents unstable explosives. It can also mean self-reactive substances or mixtures.
This symbol indicates aquatic toxicity and danger to the environment.
Pictograms: Ournet

Ournet > Administrative > Environmental Health & Safety > Hazard Communication

- **HazCom Info**
  - HazCom Overview
  - HazCom Binder & Inventories
  - Safety Data Sheets
  - Safety Data Sheet Database
  - Labels
  - Chemical Information

- **Actions**:
  - Add Listing
  - Add Person
  - Create Subarea
  - Upload Document
  - Change Settings
  - Manage Security

- **Pictograms**
  - Flame
  - Gas Cylinder
  - Corrosion
  - Person

Pictograms will be used to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed with a red border and represents a distinct hazard(s). Pictograms on the label are determined by the chemical hazard classification. These pictograms will also be seen on the Safety Data Sheet (SDS).
A SDS (formerly material safety data sheet or MSDS) is a document that includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.

Employers are required to provide access to SDSs for each chemical product used or stored on the premises.

The SDS is your primary tool for obtaining detailed chemical information.

As of June 1, 2015, the HazCom Standard will require new SDSs to be in a uniform format. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent user-friendly, 16-section format.
<table>
<thead>
<tr>
<th>GHS Section</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Identification</td>
<td>1: Product &amp; Company info</td>
</tr>
<tr>
<td>2: Hazard(s) identification</td>
<td>2: Hazards &amp; Pictograms</td>
</tr>
<tr>
<td>3: Composition/information on ingredients</td>
<td>3: Chemical ingredients</td>
</tr>
<tr>
<td>4: First-aid measures</td>
<td>4: First-aid if exposed</td>
</tr>
<tr>
<td>5: Fire-fighting measures</td>
<td>5: If chemical is on fire</td>
</tr>
<tr>
<td>6: Accidental release measures</td>
<td>6: If chemical is spilled</td>
</tr>
<tr>
<td>7: Handling and storage</td>
<td>7: Handling and storage</td>
</tr>
<tr>
<td>8: Exposure controls/ personal protection</td>
<td>8: Protective equipment that should be worn</td>
</tr>
<tr>
<td>GHS Section</td>
<td>Translation</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>9: Physical/chemical properties</td>
<td>9: Pure chemistry - How the product acts, looks, etc.</td>
</tr>
<tr>
<td>10: Stability &amp; reactivity</td>
<td>10: Will it react with other chemicals?</td>
</tr>
<tr>
<td>11: Toxicological info</td>
<td>11: How it affects your body</td>
</tr>
<tr>
<td>16: Other information</td>
<td>16: Other information</td>
</tr>
</tbody>
</table>
# Safety Data Sheets: Sections 12 – 15 Regulated By Other Agencies

<table>
<thead>
<tr>
<th>GHS Section</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>12: Ecological info</td>
<td>12: <em>Environmental affects</em></td>
</tr>
<tr>
<td>13: Disposal considerations</td>
<td>13: <em>How to dispose of the product</em></td>
</tr>
<tr>
<td>14: Transport info</td>
<td>14: <em>How to transport on the road</em></td>
</tr>
<tr>
<td>15: Regulatory info</td>
<td>15: <em>Lots of regulations</em></td>
</tr>
</tbody>
</table>

These sections must be included on the SDS to be consistent with GHS, but OSHA will not enforce the content of these sections because these matters are handled by other agencies.
Section 1: Identification

- Identifies the chemical
- Supplier contact information
- Product identifier
- Common names or synonyms
- Name, address, phone number of the manufacturer
Section 2: Hazard Identification

- Find information on the hazards of the chemical and the appropriate warning information associated with those hazards.

- Information on hazard classification of the chemical, a signal word, hazard statements, pictograms, precautionary statements.

- Description of any hazards not otherwise classified will be found in this section of the SDS.
Section 3: Composition on Ingredients

- Identifies ingredient(s) contained in the product including impurities and stabilizing additives.

- Includes information on substances, mixtures, and all chemicals where a trade secret is claimed.
Section 4: First Aid Measures

- Describes initial care that should be given by untrained responders
- Includes first-aid instructions by relevant routes of exposure
- Includes a description of the most important symptoms or effects and any symptoms that are acute or delayed
- Includes recommendations for immediate medical care and special treatment needed
Section 5: Fire Fighting Measures

- Recommendations for fighting a fire
- Recommendations of suitable extinguishing equipment
- Advice on specific hazards that develop from the chemical during the fire,
- Recommendations on special protective equipment or precautions for firefighters
Section 6: Accidental Release Measures

- Recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment.

- Recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard.

- Includes use of personal precautions and protective equipment, emergency procedures, methods and materials used for containment, and cleanup procedure.
Section 7: Handling and Storage

- Provides guidance on the safe handling practices and conditions for safe storage of chemicals

### Personal precautions
- Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

### Environmental precautions
- Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up
- Soak up with inert absorbent material and dispose of all hazardous waste. Keep in suitable, closed containers for disposal.

#### Precautions for safe handling
- Avoid inhalation of vapour or mist.

#### Conditions for safe storage
- Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

#### Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-0</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1991-1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Personal protective equipment

**Respiratory protection**
- Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (LR) or type ABEK (EN 14375) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CE (EU).

**Hand protection**
- Handle with gloves. Gloves must be inspected prior to use. Use appropriate glove removal technique (without touching gloves' outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Full-contest**
- Material: Fluorinated rubber
- Minimum layer thickness: 0.7 mm
- Break through time: > 450 min
- Material tested: Nitrile rubber (KCL 745 / Aldrich 2677668, size M)

**Splash protection**
- Material: Nitrile rubber
- Minimum layer thickness: 0.2 mm
- Break through time: > 30 min
- Material tested: Dermamat®P (KCL 745 / Aldrich 2677668, size M)

Data source: KCL GmbH D-38124 Escherzgel, phone +49 (0) 5559 5730, e-mail sales@kcl.de; test method: DIN 374. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. The recommendation is advisory only and must be evaluated by the user in consultation with the supplier. The recommendation can be extended by industries or individuals familiar with the specific situation of anticipated use by our customers.
Section 8: Exposure Control / Personal Protection

- Information includes permissible exposure limits, threshold limit values, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet.

- Information on appropriate engineering controls, and recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment, and any special requirements for PPE, protective clothing or respirators.
Section 9: Physical & Chemical Properties

- Information includes, appearance, flammability or explosive limits, odor, vapor pressure, odor threshold, vapor density, pH, relative density, melting and freezing points, solubility, initial boiling point and boiling range, flash point, evaporation rate, flammability, upper and lower flammability or explosive limits, vapor pressure, auto-ignition temperature, decomposition temperature, and viscosity.
Section 10: Stability and Reactivity

• Broken into three parts: reactivity, chemical stability, and other.

• Reactivity information describes the specific test data for the chemical.

• Chemical stability gives an indication of whether the chemical is stable or unstable under normal ambient temperature and conditions.

• Other lists the possibility of hazardous reactions, list of all conditions that should be avoided, list of all classes of incompatible materials, and lists any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating.
Section 11: Toxicological Information

- Information consists of
  - Likely routes of exposure
  - Delayed, immediate, or chronic effects from short- and long-term exposure
  - Toxicity
  - Description of the symptoms associated with exposure
  - Indication of whether the chemical is listed as a carcinogen or a potential carcinogen
Section 12: Ecological Information

- Provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment.
Section 13: Disposal Considerations

• Provides guidance on proper disposal practices, recycling or reclamation of the chemical or its container, and safe handling practices.
Section 14: Transport Information

- Provides guidance on classification information for shipping and transporting of hazardous chemicals by road, air, rail, or sea
Section 15: Regulatory Information

- Identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS.
Section 16: Other Information

- Includes:

1. Date of preparation or last revision
2. May also state where the changes have been made to the previous version
3. Other useful information also may be included here
Safety Data Sheets: How to Obtain

- UMMMC utilizes an online, electronic database
  - No more phone/fax system

- SDS can be read on your computer, saved and/or printed

- To access the online SDS database
  - Ournet > Administrative > Environmental Health & Safety > HazCom Binder
  - Ournet > Everyday Information
  - Ournet > Resources
  - Ournet > Patient Care
Safety Data Sheets: OurNet

OurNet > Administrative > Environmental Health & Safety > Hazard Communication

OurNet - Safety Data Sheet (SDS) - Windows Internet Explorer provided by UMASS Medical School

Safety Data Sheet (SDS)

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. A SDS is a document that includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.

Chemical manufacturers and importers shall obtain or develop a safety data sheet for each hazardous chemical they produce or import. Employers shall have a safety data sheet in the workplace for each hazardous chemical which they use. UMMMC maintains copies of the required safety data sheets for each hazardous chemical, making them readily accessible during each work shift to employees when they are in their work area(s).

As of June 1, 2015, the HCS will require new SDSs to be in a uniform format. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent user-friendly, 16-section format (click on a section title below to be taken to a description of the information found in that section).

- Section 1, Identification
- Section 2, Hazard(s) Identification
- Section 3, Composition/information on ingredients
- Section 4, First-aid measures
- Section 5, Fire-fighting measures
- Section 6, Accidental release measures
- Section 7, Handling and storage
Hazard Communication: What Hasn’t Changed

- Applicable chemicals
- Exclusions and exemptions
- Elements of the HazCom program
- Training requirements
- Secondary container labeling
- Temporary container exclusion
- Special labeling systems
  - NFPA 704
  - HMIS
If it has been determined that respiratory protection is necessary to safely complete your work, the following clearance and testing applies to you:

- **Medical clearance** to wear a respirator – this must occur prior to your initial fit test. It is not required annually but may be repeated if your health changes in a way that may affect your ability to wear a respirator.
- Respirator **Fit Testing** and/or PAPR **Training** – this is required by OSHA prior to the first use of a respirator and **annually** thereafter.
- For details, see [Policy #6026](#) and related Procedures on Ournet.

**Respiratory Protection Commonly used at UMMC**

- Gerson
- 3M 1860
- KC Tecnol
- 3M PAPR
This lesson has focused on guidelines and best practices for ensuring staff and patient safety. However, mistakes and problems can occur. A breach in safety is referred to as an *incident*. Common examples of incidents have been mentioned in this lesson:

- Equipment malfunction
- Exposure to radiation
- MRI injury
- Latex allergic reaction
- Back injury
- Slip, trip, or fall
- Exposure to hazardous chemicals
- Workplace violence

All incidents should be reported immediately. Check with your supervisor if you are not familiar with facility procedures for reporting incidents.
General Safety: Electrical and Emergency Power

The Facility will have emergency electrical power to the building in the event of a power failure or outage.

The **RED** outlets located throughout the Facility have emergency power. Always plug life support equipment into **RED** outlets. If municipal power is lost, power will be provided to emergency outlets and emergency lighting.

Communications

- In the event of a phone failure, use designated phones located throughout the facility.
- Cell Phones are not permitted to be used within 3 feet (1 meter - arm's length) of any operating medical device.
Medical Gas/Vacuum Safety

• In the event of an emergency requiring the shut off of an oxygen zone valve, the ONLY personnel that has authority to do this is the Nursing Supervisor with Operations Engineering/Facilities.

• In the event of a medical gas alarm, contact Operations Engineering. Do not shut off medical gas zone valves, unless instructed to do so by the Nursing Supervisor with Operations Engineer/Facilities.

Physical Plant

• When you have facility-related issues, report them to your Supervisor or the Engineering Department at your facility (off-sites contact the Realty Management Group).
Each piece of medical equipment is labeled with an inspection tag or sticker. Make sure that you conduct and log all visual and operating inspections every time that you use a piece of equipment. If the inspection date on the sticker is overdue, do not use the equipment.

All equipment is enrolled in a preventative maintenance plan to ensure that it is in good working order and should be labeled accordingly.
Medical Equipment Safety: Inspection, Testing & Maintenance

In the event a piece of equipment is defective, do the following:

- Remove from service any equipment that is defective or not operating correctly.
- Secure and tag equipment so that it is unable to be used by mistake.
- Defective equipment CANNOT be used even if there is no other equipment available or while waiting for a loaner.
- Report all defective equipment to Clinical Engineering.
- When a piece of equipment becomes defective while being used on a patient, report this incident on an Occurrence/Incident Report and send to Risk Management. Discontinue use of the equipment and follow the steps outlined above.
Per The Joint Commission, “An emergency is an unexpected or sudden event that significantly disrupts the organization’s ability to provide care, or the environment of care itself, or that results in a sudden, significantly changed or increased demand for the organization’s services.”

Examples of emergencies and disasters include:

- Natural disasters (e.g., tornado, hurricane, flooding)
- Technological disasters (e.g., electrical failure, loss of water)
- Terrorism
- Major transportation accidents
Emergency Preparedness

How do we plan for an emergency or disaster?

- An emergency in a health care organization can suddenly and significantly affect demand for its services or its ability to provide those services. Therefore, the hospital needs to engage in planning activities that prepare it to respond effectively and efficiently.
- The Emergency Operations Plan describes how the hospital plans for, responds to, recovers from, and mitigates against emergencies.
- Our UMMC Emergency Operations Plan is located on OurNet (Emergency Preparedness Page in the Administrative link)
Every year, we review the hazards that may impact our medical system to determine what our highest risks are. This helps us to prioritize our planning efforts.

Top Hazards for UMMMC include:

- Severe Winter Weather, Blizzard, Ice Storm, Etc.
- Mass Casualty Incident
- Pandemic
When an Emergency or Disaster Happens:

We activate our Emergency Operations Plan to organize and plan our response efforts.

Only the following individuals have the authority to activate the Emergency Operations Plan:

- Senior Administrator on duty or designee
- Attending Physician in Emergency Dept.
- Nursing Supervisor on evenings, nights or weekends
- Director of Public Safety or designee

There are three phases to the Emergency Operations Plan and they are described on the upcoming pages...
General Safety:
Emergency Operations Plan, Phase I

Emergency Operations Plan Activation: Phase I

• Hospital is on alert status
• All personnel will remain on scheduled duty and assure patient and employee safety
• Clinical floors should begin preparation in patient triaging in the event a patient evacuation or early discharge is needed
• Staff should remain in their areas
• Command Center opens

Department leadership or department representative reports to Command Center for briefing and assignment
Emergency Operations Plan Activation: Phase II

- Needs in affected areas may exceed that area’s resources; however sufficient resources are available within the hospital
- Staff may be reassigned to augment in other areas
- On duty staff remains until relieved
- Floors should report all patients eligible for discharge at this time

Department leadership or department representative reports to Command Center for briefing and assignment
Emergency Operations Plan Activation: Phase III

- Situation requires additional resources in addition to those presently available within the hospital
- Additional staff and resources are called in
- Floors should begin phoning in extra staff and report availability to command center
- Patient discharge triage may begin at this phase with instruction from Command Center
- All personnel arriving at hospital must check in at labor pool and must have hospital ID. The location of the labor pool will be indicated on signage posted at the major entrances to the hospital.

Department leadership or department representative reports to Command Center for briefing and assignment
General Safety:
Emergency Operations Plan, Activation

Emergency Operations Plan Activation

- Leadership (or designees) should report to the Command Center when the Plan is activated at Phase I, II, or III
- A briefing will occur in the Command Center with information-sharing about the incident and what the hospital’s response will be - leadership should then take this information back to their staff to keep them updated
- It is a challenge to keep everyone informed with up-to-date information during a disaster. Hospital employees are encouraged to check their emails for updates and to contact their managers with any questions or concerns. Typically, an information line will be established during a major incident so that employees can call the command center info line and receive information about the incident. The number for this is 508-334-9568.
Command Centers are established whenever the Emergency Operations Plan is activated. The Command Center will serve as the hub for coordination and communication.

- University Campus – H1-776 Endo-Surg conf room (Administrative Hallway)
- Memorial Campus – Admin Board Room (South Wing 1st floor)
- Hahnemann Campus – 2nd floor conference room
Where can I get more information?

Emergency Guide Books
• Located on every unit
• Contain information for responding to specific type of disasters
• Have listing of helpful phone numbers and other resources you might need during a disaster
• Do you know where your guidebook is located in your unit? Finding it and reviewing it may help you respond better for our next disaster.
Emergency Preparedness Key Points

- For a hospital to effectively respond to a disaster, it takes more than just having a written emergency operations plan.
- All employees:
  - Need to be educated on the procedures in the plan.
  - Need to be trained and drilled to respond to an emergency or disaster according to the plan.
- Make sure that YOU are ready to respond to an emergency or disaster:
  - Know the emergency or disaster incidents that pose the greatest risk for your facility.
  - Participate in all emergency response training and drills.
  - Know your specific role in an emergency / disaster incident.
Thank you!

You have completed this learning activity.