



# 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.*



# Introduction

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







# Security and Workplace Violence

## Security and Workplace Violence

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.

Code Names	Events Description
Code Red	Fire
Code Blue	Medical Emergency
**Code Pink	**Infant/Pediatric Abduction
Code White	Medical Emergency Infant/Mother
**Code Orange	**Tornado
**Code Silver	**Active Shooter

\*\*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

Tornado General Information	Tornadoes usually strike with little to no warning!
Tornado Watch vs. Warning: What's the difference?	<ul style="list-style-type: none"> <li>•Tornado Watch: Weather conditions are conducive to the formation of a tornado (it is likely that one may occur)</li> <li>•Tornado Warning: A tornado is either occurring or imminent based on radar</li> </ul>
Where is the safest place to be in a hospital during a tornado?	<ul style="list-style-type: none"> <li>•An enclosed, windowless area in the center of the building, away from glass</li> <li>•Stay off elevators (you could be trapped inside them if the power is lost)</li> </ul>
What should I do if I am working in the hospital and a CODE ORANGE is announced?	<ul style="list-style-type: none"> <li>•Immediately report to your department.</li> <li>•<b>Safety of patients and visitors:</b> <ul style="list-style-type: none"> <li>• Move ambulatory and wheelchair-bound patients and visitors to interior hallways</li> <li>• 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)</li> <li>• Draw curtains and shades</li> <li>• Cover patients with blankets and pillows</li> </ul> </li> <li>•<b>Your personal safety:</b> <ul style="list-style-type: none"> <li>• Seek shelter in interior hallways</li> <li>• Crouch down and cover your head</li> <li>• Be alert for any damage to the building that may lead to an unsafe environment</li> </ul> </li> </ul>
Who should report to the Command Center after the announcement of a CODE ORANGE?	<b>Managers</b> should report immediately <b>to their departments</b> to ensure safety of their patients and staff. <b>Administrator on call / Administrative Clinical Supervisor</b> should report <b>to the Command Center</b> when a Code Orange is announced.





# General Safety: Emergency Management, Emergency Codes

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

<p><b>What should I do if I am working in the hospital and a CODE SILVER is announced?</b></p>	<p>If an active shooter alert has been made by a person within the hospital or by the police department, a <b>Code Silver</b> will be announced on the overhead paging system. This is a dangerous situation that often evolves very quickly.</p>
<p><b>How do I get help?</b></p>	<p>If you witness a shooting occurring on campus and it is safe to do so, call for help:</p> <ul style="list-style-type: none"> <li>•University campus: call 911 (this will connect you with Campus Police)</li> <li>•Memorial campus: call 911 (this will connect you with Campus Police)</li> <li>•Hahnemann campus: call 911 (this will connect you with Campus Police)</li> </ul>
<p><b>Information: What should I report?</b></p>	<p>Try to give the police as much information as possible:</p> <ul style="list-style-type: none"> <li>•Specific location of the shooter, and number of assailants</li> <li>•Gender, race, age, and language of the shooter, and name, if known</li> <li>•Physical features - e.g., height, weight, facial hair, glasses, clothing color and style</li> <li>•Number and type of weapons - e.g., handguns, rifle, shotgun, explosives</li> </ul>
<p><b>Will the Command Center open in response to a CODE SILVER?</b></p>	<p><b>The Hospital Command Center will <i>not</i> open in response to a Code Silver announcement.</b> 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.</p>



# 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/Impgeneral/armed-are-you-ready/video/73974126>



# Hazard Categories

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

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



# 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.



# Fire Safety: Response

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.



# Fire Safety: Response

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.



# Fire Safety: Response

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

## E: Evacuate

Prepare to evacuate patients to a safe area.

Extinguish if trained.



# Fire Extinguisher Types

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 UMMC are ABC extinguishers**



# Use of Extinguisher

Remember to PASS

- **P**ull the pin (stand back 8 to 10 feet).
- **A**im at base of the fire.
- **S**queeze the handle.
- **S**weep 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





# Electrical Safety: Hazards

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.**



# Electrical Safety: Hazards

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:

## Protect Patients

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



# 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.**





# Electrical Safety: Preventing Accidents

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



# Electrical Safety: Preventing Accidents

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.



# Radiation Safety

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: Prevention

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

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.



# Back Safety: Proper Care of the Spine

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.



# Back Safety: Proper Care of the Spine

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.



# Back Safety: Proper Care of the Spine

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

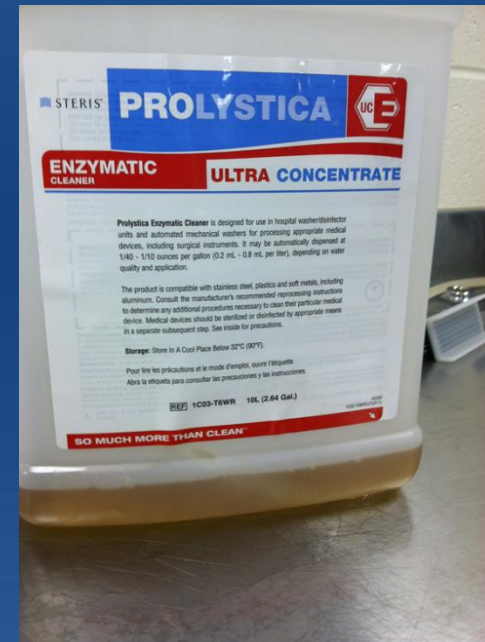
When conditions are hazardous (icy sidewalks, wet floors), avoid slipping and falling by walking like a duck:

- 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

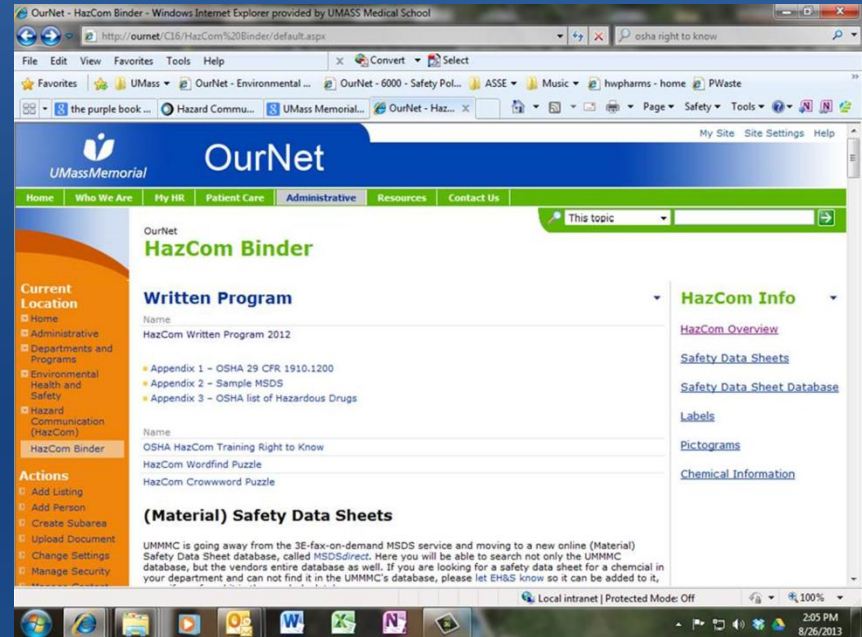
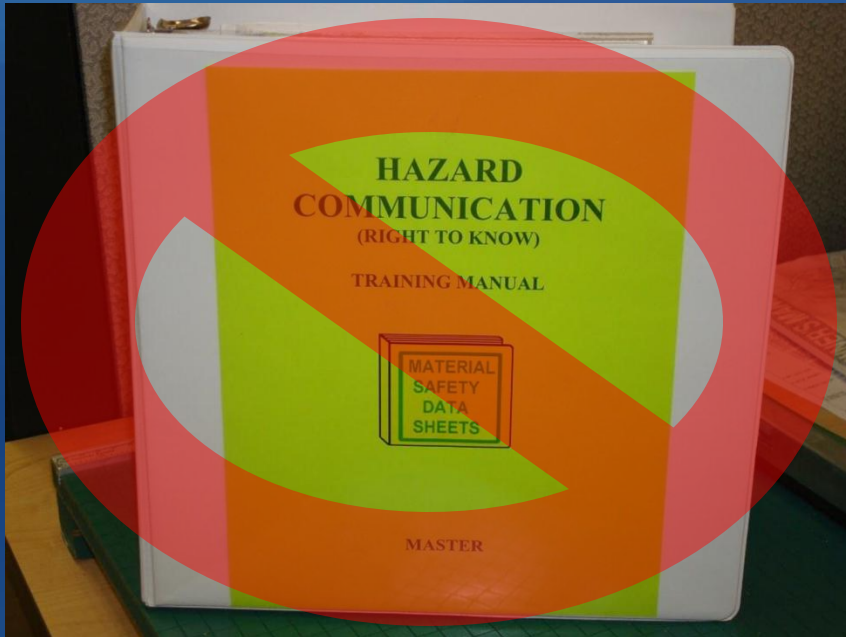
- Right-to-Know
- Hazard Communication & Globally Harmonized System
- Hazard Class
- Chemical Inventory
- Chemical Labels
- Pictograms
- Safety Data Sheets







# Right-to-Know: HazCom Binder



**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





# Hazard Classification: The Basics

- 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

- EXPLOSIVES
- FLAMMABLE GASES
- FLAMMABLE AEROSOLS
- OXIDIZING GASES
- GASES UNDER PRESSURE
- FLAMMABLE LIQUIDS
- FLAMMABLE SOLIDS
- SELF-REACTIVE
- SELF-HEATING
- PYROPHORIC SOLIDS
- PYROPHORIC LIQUIDS
- EMIT FLAMMABLE GAS
- OXIDIZING LIQUIDS
- OXIDIZING SOLIDS
- ORGANIC PEROXIDES
- CORROSIVE TO METAL





# 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

	Flashpoint																				
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Old definition	Flammable										Combustible										
NFPA 704 Diamond	4							3			2										
EPA / DOT	Flammable													Combustible							
NFPA 30 class	Class IA/IB							IC		II			IIIA								
GHS category	1 or 2							3					4								
Signal Word	Danger							Danger					Warning								
Hazard Statement	Extremely flammable liquid and vapor Highly flammable liquid and vapor							Flammable liquid and vapor					Combustible liquid								
Pictogram													Nothing								



# Chemical Inventory

- The chemical inventory, a list of chemical products used throughout UMMC, 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.

Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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.

Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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.

Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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.

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# 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.



Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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.

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# Labels: Precautionary Statement

Describes measures to be taken to protect yourself

Sample Label

Example

- Keep away from flame

**Sulfuric Acid**

**Danger!**

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

Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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.

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# Labels: Pictograms

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.

Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

**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.

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# Labels: OurNet

OurNet > Administrative > Environmental Health & Safety > Hazard Communication

OurNet - Labels - Windows Internet Explorer provided by UMASS Medical School

http://ournet/C9/Labels/default.aspx

File Edit View Favorites Tools Help

OurNet - Labels

OurNet - Environmental H...

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## Labels

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](#)

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# Health Hazard

Materials that affect respiratory sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity following single and/or repeated exposures







## Exclamation Mark

Materials have acute toxicity (oral, dermal, inhalation), skin or eye irritation/sensitization or specific target organ toxicity like respiratory irritation or narcotic effect





# Skull & Crossbones

Materials have acute toxicity (oral, dermal, inhalation)





# Flame

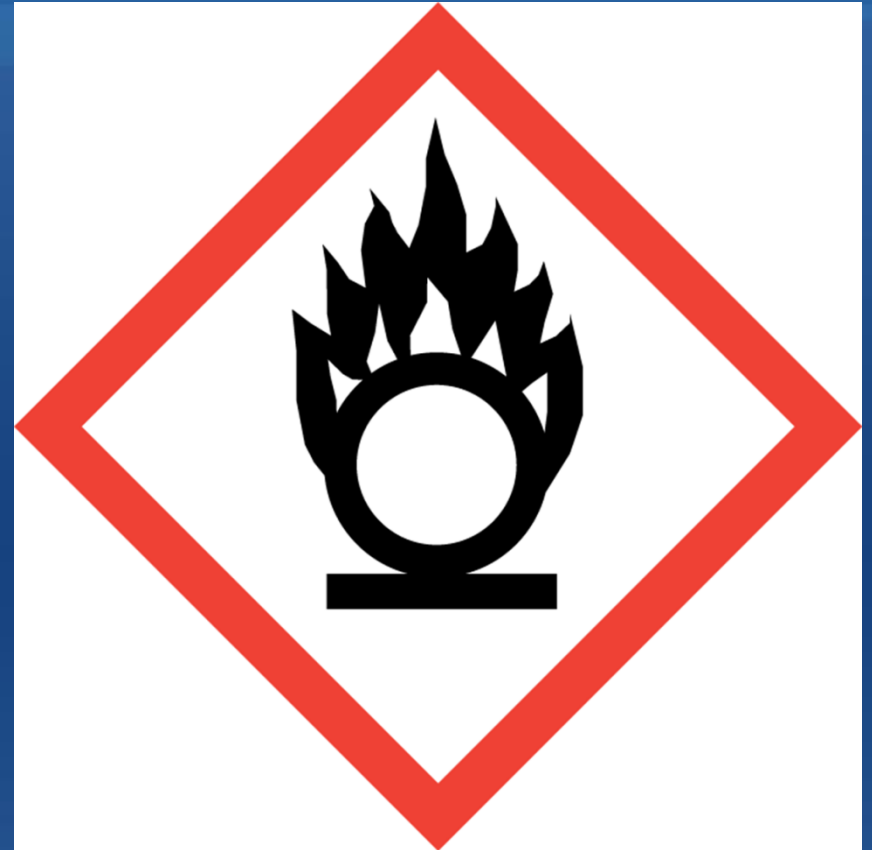
This symbol indicates the presence of flammable materials, self-reactive substances or mixtures, which in combination emit flammable gases





# Flame Over Circle

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

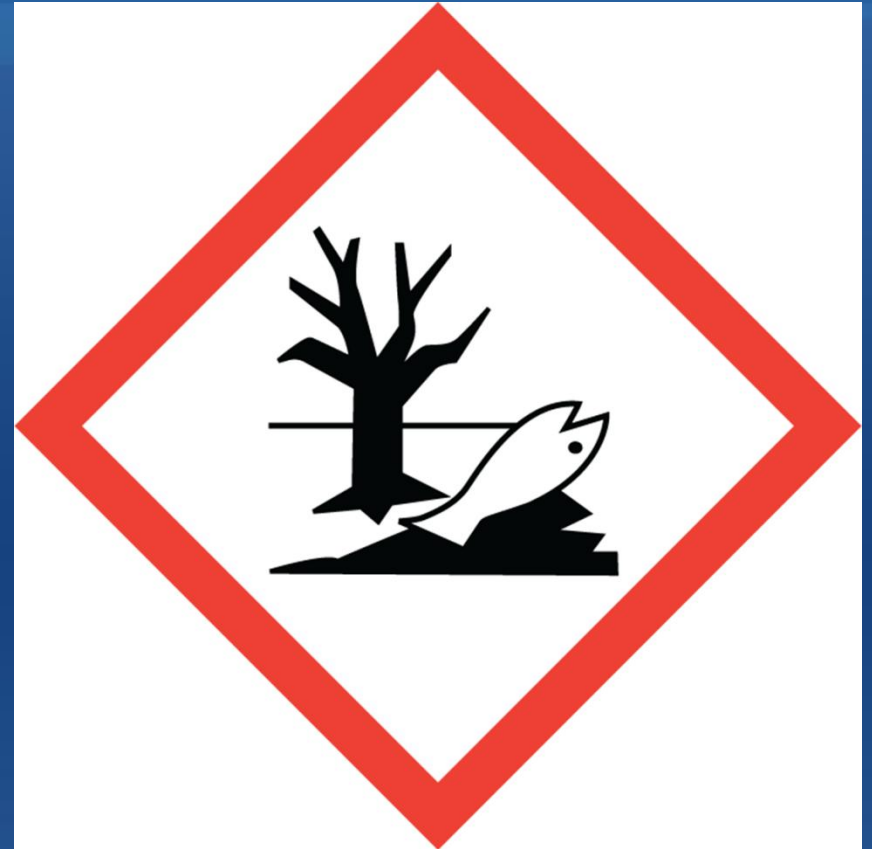
This symbol represents unstable explosives. It can also mean self-reactive substances or mixtures





# Environment

This symbol indicates aquatic toxicity and danger to the environment.





# Pictograms: OurNet

OurNet > Administrative > Environmental Health & Safety > Hazard Communication

OurNet - Pictograms - Windows Internet Explorer provided by UMASS Medical School  
http://ournet.ummhc.org/C10/Pictograms/default.aspx

File Edit View Favorites Tools Help  
Convert Select

Favorites Suggested Sites Contact Us LinkedIn Help... UMass OurNet - Environmental ... OurNet - 6000 - Safety Pol... ASSE Music Keys Life Safety Complia... Digital Savings and Coup...

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This topic


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**Pictograms**

Pictograms will be used to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of 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).


**Flame**  
This symbol indicates the presence of flammable materials, self-reactive substances or mixtures, which in combination emit flammable gases.




**Gas Cylinder**  
This symbol represents compressed, liquefied, refrigerated liquefied, or dissolved gasses.




**Flame over Circle**  
Flame over circle represents oxidizing gases, liquids or solids.



**Corrosion**  
Materials with this symbol can cause skin corrosion or serious eye damage. And corrosive to metals.



**Person**  
Materials that affect respiratory sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity following single and/ or repeated



**HazCom Info**

- [HazCom Overview](#)
- [HazCom Binder & Inventories](#)
- [Safety Data Sheets](#)
- [Safety Data Sheet Database](#)
- [Labels](#)
- [Chemical Information](#)

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# Safety Data Sheets: The Basics

- 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





# Safety Data Sheets: Sections 1 – 8

## General Information

### GHS Section

### Translation

1: Identification

*1: Product & Company info*

2: Hazard(s) identification

*2: Hazards & Pictograms*

3: Composition/information on ingredients

*3: Chemical ingredients*

4: First-aid measures

*4: First-aid if exposed*

5: Fire-fighting measures

*5: If chemical is on fire*

6: Accidental release measures

*6: If chemical is spilled*

7: Handling and storage

*7: Handling and storage*

8: Exposure controls/ personal protection

*8: Protective equipment that should be worn*



# Safety Data Sheets: Sections 9 – 11 & 16

## Technical & Scientific Information

### GHS Section

### Translation

9: Physical/chemical properties

*9: Pure chemistry - How the product acts, looks, etc.*

10: Stability & reactivity

*10: Will it react with other chemicals?*

11: Toxicological info

*11: How it affects your body*

16: Other information

*16: Other information*



# Safety Data Sheets: Sections 12 – 15 Regulated By Other Agencies

## GHS Section

## Translation

12: Ecological info

*12: Environmental affects*

13: Disposal considerations

*13: How to dispose of the product*

14: Transport info

*14: How to transport on the road*

15: Regulatory info

*15: Lots of regulations*

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

**SIGMA-ALDRICH** sigmaaldrich.com

**Material Safety Data Sheet**  
Version 5.0  
Revision Date 12/13/2012  
Print Date 09/09/2013

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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name	: Sulfuric acid
Product Number	: 339741
Brand	: Aldrich
Supplier	: Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	: +1 800-325-5832
Fax	: +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	: (314) 776-6555
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

**2. HAZARDS IDENTIFICATION**

**Emergency Overview**

**OSHA Hazards**  
Target Organ Effect, Corrosive

**Target Organs**  
Teeth., Lungs

**GHS Classification**  
Skin corrosion (Category 1A)  
Serious eye damage (Category 1)  
Acute aquatic toxicity (Category 3)

**GHS Label elements, including precautionary statements**

Pictogram

Signal word **Danger**

Hazard statement(s)  
H314 Causes severe skin burns and eye damage.  
H402 Harmful to aquatic life.

Precautionary statement(s)  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/ physician.

**HMIS Classification**  
Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 2

**NFPA Rating**

Aldrich - 339741 Page 1 of 7



# Section 2: Hazard Identification

## SIGMA-ALDRICH

[sigma-aldrich.com](http://sigma-aldrich.com)

### Material Safety Data Sheet

Version 5.0  
Revision Date 12/13/2012  
Print Date 08/09/2013

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Sulfuric acid
Product Number	: 339741
Brand	: Aldrich
Supplier	: Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	: +1 800-325-5832
Fax	: +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	: (314) 776-6555
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

#### 2. HAZARDS IDENTIFICATION

##### Emergency Overview

##### OSHA Hazards

Target Organ Effect, Corrosive

##### Target Organs

Teeth., Lungs

##### GHS Classification

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 3)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H314

Causes severe skin burns and eye damage.

H402

Harmful to aquatic life.

Precautionary statement(s)

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

##### HMIS Classification

Health hazard: 3

Chronic Health Hazard: +

Flammability: 0

Physical hazards: 2

##### NFPA Rating

- 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

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 2  
Special hazard: W

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin** May be harmful if absorbed through skin. Causes skin burns.

**Eyes** Causes eye burns. Causes severe eye burns.

**Ingestion** May be harmful if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula :  $H_2O_4S$   
Molecular Weight : 98.08 g/mol

Component	Concentration
<b>Sulfuric acid</b>	
CAS-No. 7664-93-9	-
EC-No. 231-639-5	
Index-No. 016-020-00-8	
Registration number 01-2119458838-20-XXXX	

**4. FIRST AID MEASURES**

**General advice**  
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**  
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**  
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**  
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**  
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIREFIGHTING MEASURES**

**Conditions of flammability**  
Not flammable or combustible.

**Suitable extinguishing media**  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**  
Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**  
Hazardous decomposition products formed under fire conditions. - Sulphur oxides

**6. ACCIDENTAL RELEASE MEASURES**

Aldrich - 339741 Page 2 of 7



# Section 4: First Aid Measures

Health hazard: 3  
 Fire: 0  
 Reactivity Hazard: 2  
 Special hazard: W

Health hazard: 3  
 Fire: 0  
 Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns. Causes severe eye burns.  
**Ingestion** May be harmful if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : H<sub>2</sub>O<sub>4</sub>S  
 Molecular Weight : 98.08 g/mol

Component	Concentration
<b>Sulfuric acid</b>	
CAS-No.	7664-93-9
EC-No.	231-639-5
Index-No.	016-020-00-8
Registration number	01-2119458838-20-XXXX

**4. FIRST AID MEASURES**

**General advice**  
 Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**  
 If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**  
 Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**  
 Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**  
 Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIREFIGHTING MEASURES**

**Conditions of flammability**  
 Not flammable or combustible.

**Suitable extinguishing media**  
 Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**  
 Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**  
 Hazardous decomposition products formed under fire conditions. - Sulphur oxides

**6. ACCIDENTAL RELEASE 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

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 2  
Special hazard: W

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 0

#### Potential Health Effects

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns. Causes severe eye burns.  
**Ingestion** May be harmful if swallowed.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula :  $H_2O_4S$   
Molecular Weight : 98.08 g/mol

Component	Concentration
<b>Sulfuric acid</b>	
CAS-No. 7664-93-9	-
EC-No. 231-639-5	
Index-No. 016-020-00-8	
Registration number 01-2119458838-20-XXXX	

#### 4. FIRST AID MEASURES

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

##### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 5. FIREFIGHTING MEASURES

##### Conditions of flammability

Not flammable or combustible.

##### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

##### Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides

#### 6. ACCIDENTAL RELEASE MEASURES





# Section 6: Accidental Release Measures

## 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 as hazardous waste. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Sulfuric acid	7664-93-9	TWA	0.2 mg/m <sup>3</sup>	USA: ACGIH Threshold Limit Values (TLV)
			1 mg/m <sup>3</sup>	USA: OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
			1 mg/m <sup>3</sup>	USA: Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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 CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's 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 contact

Material: Fluorinated rubber  
 Minimum layer thickness: 0.7 mm  
 Break through time: 480 min  
 Material tested: Vitogel® (KCL 890 / Aldrich Z677698, Size M)

#### Splash protection

Material: Nitrile rubber  
 Minimum layer thickness: 0.2 mm  
 Break through time: 30 min  
 Material tested: Dermatrill® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374  
 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. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

- 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 as hazardous waste. Keep in suitable, closed containers for disposal.

#### 7. HANDLING AND STORAGE

##### 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.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

##### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Sulfuric acid	7664-93-9	TWA	0.2 mg/m <sup>3</sup>	USA: ACGIH Threshold Limit Values (TLV)
			1 mg/m <sup>3</sup>	USA: OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
			1 mg/m <sup>3</sup>	USA: Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

##### Personal protective equipment

###### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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 CEN (EU).

###### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's 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 contact

Material: Fluorinated rubber  
 Minimum layer thickness: 0.7 mm  
 Break through time: 480 min  
 Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

###### Splash protection

Material: Nitrile rubber  
 Minimum layer thickness: 0.2 mm  
 Break through time: 30 min  
 Material tested: Dermatrill® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374  
 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. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.





# Section 8: Exposure Control / Personal Protection

## 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 as hazardous waste. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Sulfuric acid	7664-93-9	TWA	0.2 mg/m <sup>3</sup>	USA: ACGIH Threshold Limit Values (TLV)
			1 mg/m <sup>3</sup>	USA: OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
			1 mg/m <sup>3</sup>	USA: Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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 CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's 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 contact

Material: Fluorinated rubber  
 Minimum layer thickness: 0.7 mm  
 Break through time: 480 min  
 Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

#### Splash protection

Material: Nitrile rubber  
 Minimum layer thickness: 0.2 mm  
 Break through time: 30 min  
 Material tested: Dermatrix® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374  
 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. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

- 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

## Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

## Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	no data available

### Safety data

pH	1.2 at 5 g/l
Melting point/freezing point	3 °C (37 °F)
Boiling point	290 °C (554 °F) - lit.
Flash point	not applicable
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	1.33 hPa (1.00 mmHg) at 145.8 °C (294.4 °F)
Density	1.84 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	no data available
Relative vapor density	3.39 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates, Nitromethane, phosphorous, Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalthium disilicide, phosphorous(III) oxide, Powdered metals

- 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

#### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

##### Appearance

Form	liquid
Colour	no data available

##### Safety data

pH	1.2 at 5 g/l
Melting point/freezing point	3 °C (37 °F)
Boiling point	290 °C (554 °F) - lit.
Flash point	not applicable
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	1.33 hPa (1.00 mmHg) at 145.8 °C (294.4 °F)
Density	1.64 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	no data available
Relative vapor density	3.39 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

#### 10. STABILITY AND REACTIVITY

##### Chemical stability

Stable under recommended storage conditions.

##### Possibility of hazardous reactions

no data available

##### Conditions to avoid

no data available

##### Materials to avoid

Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates, Nitromethane, phosphorous, Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide, Powdered metals





# 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

**Hazardous decomposition products**  
Hazardous decomposition products formed under fire conditions. - Sulphur oxides  
Other decomposition products - no data available

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Oral LD50**  
LD50 Oral - rat - 2,140 mg/kg

**Inhalation LC50**  
LC50 Inhalation - rat - 2 h - 510 mg/m<sup>3</sup>

**Dermal LD50**  
no data available

**Other information on acute toxicity**  
no data available

**Skin corrosion/irritation**  
Skin - rabbit - Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation**  
Eyes - rabbit - Severe eye irritation

**Respiratory or skin sensitization**  
no data available

**Germ cell mutagenicity**  
no data available

**Carcinogenicity**  
The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).  
IARC: 1 - Group 1: Carcinogenic to humans (Sulfuric acid)  
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.  
NTP: Known to be human carcinogen (Sulfuric acid)  
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**  
no data available

**Teratogenicity**

**Specific target organ toxicity - single exposure (Globally Harmonized System)**  
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**  
no data available

**Aspiration hazard**  
no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns. Causes severe eye burns.

**Signs and Symptoms of Exposure**



# Section 12: Ecological Information

- Provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: WS5600000

## 12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 42 mg/l - 96 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1000 lbs  
Marine Pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: SULPHURIC ACID  
Marine Pollutant: No

**IATA**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulphuric acid

## 15. REGULATORY INFORMATION

**OSHA Hazards**

Target Organ Effect, Corrosive





# Section 13: Disposal Considerations

- Provides guidance on proper disposal practices, recycling or reclamation of the chemical or its container, and safe handling practices

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: WS5600000

## 12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1000 lbs  
Marine Pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: SULPHURIC ACID  
Marine Pollutant: No

**IATA**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulphuric acid

## 15. REGULATORY INFORMATION

**OSHA Hazards**

Target Organ Effect, Corrosive



# Section 14: Transport Information

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

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: WS5600000

## 12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product

## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1000 lbs  
Marine Pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: SULPHURIC ACID  
Marine Pollutant: No

**IATA**

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulphuric acid

## 15. REGULATORY INFORMATION

**OSHA Hazards**

Target Organ Effect, Corrosive



# Section 15: Regulatory Information

- Identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**  
no data available

**Additional information**  
RTECS: WS5600000

## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 42 mg/l - 96 h

### Persistence and degradability

no data available

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### PBT and vPvB assessment

no data available

### Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1000 lbs  
Marine Pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: SULPHURIC ACID  
Marine Pollutant: No

### IATA

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulphuric acid

## 15. REGULATORY INFORMATION

### OSHA Hazards

Target Organ Effect, Corrosive



# Section 16: Other Information

- Includes:
  - Date of preparation or last revision
  - May also state where the changes have been made to the previous version
  - Other useful information also may be included here

#### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Sulfuric acid	7664-93-9	2007-07-01

#### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Sulfuric acid	7664-93-9	2007-07-01

#### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Sulfuric acid	7664-93-9	2007-07-01

#### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Sulfuric acid	7664-93-9	2007-07-01

#### New Jersey Right To Know Components

	CAS-No.	Revision Date
Sulfuric acid	7664-93-9	2007-07-01

#### California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Sulfuric acid	7664-93-9	2007-09-28

#### 16. OTHER INFORMATION

##### Further information

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# Safety Data Sheets: How to Obtain

- UMMC 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

http://ournet.ummc.org/C14/C16/Material%20Safety%20Data%20Sheet%20(MS/default.aspx)

File Edit View Favorites Tools Help

OurNet - Safety Data S... OurNet - Environmental H...

OurNet

UMassMemorial

Home Who We Are My HR Patient Care Administrative Resources Contact Us

This topic

OurNet

## 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](#)

MSDS direct

Safety Data Sheets are available on OurNet

Click here to be taken to the M/SDS online database

### HazCom Info

- [HazCom Overview](#)
- [HazCom Binder & Inventories](#)
- [Safety Data Sheet Database](#)

Labels

(1 item remaining) Downloading picture http://ournet.ummc.org/C14/C16/Material%20Safety%20Data%20Sheet%20(MS/Image%20Library/\_w/Untitled\_j

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# 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



# Respiratory Protection

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



# General Safety: Reporting Incidents

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.





# General Safety: Medical Gas and Physical Plant

## 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).



# General Safety: Medical Equipment Inspection

## Medical Equipment Safety: Inspection, Testing & Maintenance

- 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.



# General Safety: Defective Medical Equipment

## 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.



# General Safety: What is an Emergency?

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



# General Safety: Emergency Management

## 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)





# General Safety: Hazard Vulnerability Analysis

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 UMMC include:

- Severe Winter Weather, Blizzard, Ice Storm, Etc.
- Mass Casualty Incident
- Pandemic



# General Safety: Emergency Operations Plan

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**



# General Safety: Emergency Operations Plan, Phase II

## 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**



# General Safety: Emergency Operations Plan, Phase III

## 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.



# General Safety: Emergency Operations Plan, Command Centers

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



# General Safety: Emergency Management, Additional Information

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.





# General Safety: Emergency Management, Key Points

## 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.

