

## Louisiana State University

## Office of Facility Services

**Operating Instruction 4002**

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**SUBJECT: HANDLING OF HAZARDOUS SUBSTANCES (NOT INCLUDING ASBESTOS)**

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**I. General**

- A. There is the potential of personal injury and property damage due to the increased use and handling of hazardous substances, so there is a need to communicate proper handling of these types of materials to employees.
- B. The purpose of this operating instruction is to inform employees of the proper procedures and use of personal protection when they encounter or handle hazardous materials.

**II. Responsibilities**

- A. **Facility Services Department**-The Office of Facility Services will make available Manufacturers Safety Data Sheets (MSDS) to all staff members regarding hazardous substance handling protection information.
- B. **Supervisors**-Supervisors are responsible for ensuring that all employees under their supervision who handle hazardous substances read and understand MSDS and any other safety policies/procedures in effect which apply to the employees' scope of work.
- C. **Employees**-Employees are responsible for reading, understanding and complying with this operating instruction and any other safety policies/procedures in effect which have been presented to them by their supervisors. Employees are also responsible for asking their supervisors questions if they do not understand this operating instruction or any other safety instruction. Any employee who is aware of any safety problem is responsible for reporting the problem to a supervisor or department head.

**III. Procedures**

A. **Signs**-Area supervisors are responsible for ensuring that suitable signs are posted in areas where hazardous operations are being conducted or where toxic or highly flammable chemicals are being used.

**B. Container Marking**

1. If containers are not labeled, label them clearly as to their contents and special hazards.
2. In all cases, never use a material without knowing how to safely use it.
3. Post safe-working guides that list any dangerous processes that take place or any toxic materials that are used in the area.

**C. Receiving of Hazardous Products**

1. Ensure that container is not damaged.
2. Ensure that container is labeled as to content, handling, safe usage and safe disposal.

**D. Storage of Hazardous Products****1. Flammable Solvents**

Storage conditions:

- a. Store in shaded areas away from heat sources to prevent ignition should vapors mix with air.
- b. Locate storage area away from fire hazards.
- c. Eliminate all ignition sources.
- d. Post "NO SMOKING" signs in flammable storage area
- e. Storage areas should have on-site cleanup materials, automatic fire detection and extinguishing equipment at the site.

- f. Inspect areas regularly for deficiencies. Provide adequate ventilation to prevent vapor build-up.
- g. Isolate flammable sources from:
  - 1.1 Oxidizers
  - 1.2 Chemicals capable of spontaneous heating
  - 1.3 Explosives
  - 1.4 Materials reacting with air or moisture to cause heat
  - 1.5 Ignition sources-See SP-6-77 (Storage of Flammable Liquids at-

[http://appl003.lsu.edu/PubSafety/oes.nsf/\\$Content/Storage+of+Flammable+Liquids?OpenDocument](http://appl003.lsu.edu/PubSafety/oes.nsf/$Content/Storage+of+Flammable+Liquids?OpenDocument)

## 2. Corrosive and Toxic Chemicals

Storage conditions:

- a. Store in dry, well ventilated area away from sunlight.
- b. Store only in approved containers, under approved conditions.
- c. An automatic water spray device should be immediately available and easily accessible.
- d. Separate acids from bases.
- e. Fire fighting equipment should be on hand.
- f. Treatment agents for the neutralization of spills should be available.
- g. Structural materials should be non-corroding or metal covered with acid-fume resistant paint.
- h. Inspect areas regularly for deficiencies. Storage area should not contain a drain into which toxicants could be accidentally flushed.
- i. Isolate Corrosives and Toxic Chemicals from:
  - 1.1 Toxic materials

- 1.2 Substances that may release corrosive, toxic or flammable fumes on reaction
- 1.3 Organic materials
- 1.4 Flammable substances
- 1.5 Uncoated structural materials

j. Caustic Soda General Information

Caustic soda is used at Facility Services to improve the water quality for steam generation. It has a marked corrosive action on body tissues. Its corrosive action causes burns and frequently deep ulceration. Contact with the eyes rapidly causes severe damage. Ingestion causes very serious damage to the throat and stomach tissues with contact. Take extra precautions when working with this material.

Precaution for caustic soda:

- 1.1 Store caustic soda in a cool, dry place. Keep containers plainly labeled and tightly closed.
- 1.2 When handling dry or liquid caustic soda in any concentration, when operating caustic handling equipment that contains caustic soda or wear chemical equipment containing caustic soda, wear chemical type safety goggles and face shields, rubber gloves and rubber apron. If the exposure might involve the feet, wear rubber shoes or boots.
- 1.3 Provide an abundant supply of water during all caustic soda operations.
- 1.4 Whenever caustic solution is spilled, wash it up immediately. Never leave spillage of this material unattended.
- 1.5 Caustic soda is rapidly destructive to the eye. If the eyes are involved, get the employee to an eye-wash fountain or any source of clean water quickly, and wash the eyes for a full 15 minutes. Report to the hospital for medical attention as soon as possible.

- 1.6 If any part of the body has come into contact with caustic soda, wash it off quickly and thoroughly. If clothing has been contaminated, remove it while in the shower and wash body thoroughly.

3. **Oxidizing Substances**

Storage conditions:

- a. Store in dry, well ventilated area out of direct sunlight
- b. Building should be fireproof and provided with an automatic sprinkler system (except where materials are water sensitive)
- c. Store away from heat source.
- d. Containers should be tightly sealed and proper ventilation provided.

4. **Inspect Areas Regularly for Deficiencies**

Isolate Oxidizing Chemicals from:

- a. Organic materials
- b. Flammable solvents
- c. Corrosives
- d. Toxicants
- e. Heat source
- f. Sunlight

Note: Many normal firefighting procedures are not particularly effective with oxidizers, as they provide their own oxygen for combustion.

**5. Water and Air Sensitive Materials**

Storage conditions:

- a. Store in cool, dry area
- b. Building should be waterproofed.
- c. No sprinkler system should be in building.
- d. The building should be located on high ground and remote from other storage areas.
- e. Automatic detectors for flammable gases and smoke should be provided.
- f. Ventilate well to protect from flammable gas build-up.
- g. Eliminate all ignition sources.

**6. Compressed Gasses and Aerosols**

Storage conditions:

- a. Store in area out of sunlight.
- b. Store upright, chained in place.
- c. Building should be fireproof.
- d. Care must be taken to avoid damaging valves.
- e. Store away from heat source.
- f. Inspect areas regularly for deficiencies.

**III. Handling**

- 1. Where possible, drum racks should not be used.
- 2. Use proper drum pumps instead.

3. Identify unknown substances before handling or moving.
4. Reseal containers before moving.
5. When opening the bung of a container holding flammable liquids, use the proper drum plug wrench (non-sparking).

#### IV. Personal Protection

1. **Eye Protection**-Goggles or safety glasses with face shield are required when working with or in the immediate area where hazardous substances are being handled.
2. **Body Protection**-Proper clothing includes long-sleeved shirts, long pants, protective smocks, boots or enclosed shoes, and gloves must be worn for protection from chemical splashes. When clothing is contaminated by acids, bases, hydrocarbons, petroleum distillates, pesticides or insecticides, the contaminated clothing must be disposed of or washed before reuse.

When working with acids, bases, hydrocarbons, petroleum distillates, pesticides or insecticides, rubber gloves, rubber apron and rubber foot protection are required.

4. **Respiratory Protection**-Employees subject to non-toxic dust must wear approved dust masks. If hazardous dust, mist, vapor or gas is present, specialized air purifying respirators are required. The respirator filter must be appropriate for the particular contaminant present in the area. Respirators are not to be used by employees who have not received instructions from the Office of Environmental Health and Safety (OEHS) Safety and Environmental Training Officer.

#### V. Fire Protection

1. Every work area that stores or uses flammable or combustible materials must have a fire extinguisher suited to that type of material:

Class A-Wood, paper or textile fires

Class B-Flammable liquid fires

Class C-Electrical fires

Class D-Combustible metal fires

2. Do not smoke or permit smoking in any area containing flammable liquids. Flammable vapors can travel considerable distances. Post "NO SMOKING" signs.
3. Used solvents, towels, rags, and other flammable debris must be placed in approved waste containers and disposed of daily.

#### **VI. Spills/Disposal**

1. Hazardous liquid must not be poured into sinks or drains, nor dumped or buried in the ground. These materials must be disposed of according to the University Waste Management Plan:

[http://appl003.lsu.edu/PubSafety/oes.nsf/\\$Content/VII.+Environmental+Programs?OpenDocument#VIIB](http://appl003.lsu.edu/PubSafety/oes.nsf/$Content/VII.+Environmental+Programs?OpenDocument#VIIB)

2. All hazardous substance spills are to be reported immediately to the Office of Environmental Health & Safety (578-5640 or Public Safety Building-Room 126).
3. Large quantities of used solvents, such as turpentine or other paint thinners are not to exceed 50 gallons and must be transferred to DOT approved 55 gallon metal drums and appropriately marked.
4. Flammable solvents must be covered and kept in safety containers for storage. See System Safety Policy SSP-6-77 above.
5. Clean up spills of flammable liquids immediately.  
PRACTICE GOOD HOUSEKEEPING.

#### **VII. First Aid for Chemical Burns to the Eyes and Body**

1. Immediate washing of the skin and eye with a generous amount of water is the effective first aid treatment for chemical burns. For chemical splashes, very complete irrigation is needed (a 15 minute flush is recommended). Immediately flush the eye with a large amount of water under gentle pressure, check for and remove contact lenses at once. An eyewash fountain should be used if available. Forcefully hold the eye open to wash thoroughly behind the eyelids.



In the absence of an eyewash fountain, the injured should be placed on his back and water gently poured into the eye.

2. The injured eye must be held open. The injured must be given prompt medical attention, regardless of the severity of the injury. Keep the eye immobilized with clean, wet, soft, cold pads while transporting the injured to a medical facility. Neutralizing agents should not be used for chemical burns to the eye.

### **VIII. Emergency Notification**

1. Emergency notification of an accident is necessary. Any accident involving personal injury by a hazardous substance or a chemical spill must be reported to:
  - a. The proper department head
  - b. The Office of Environmental Health and Safety (OEHS) Safety and Environmental Training Officer.