# General Use Standard Operating Procedure (SOP)

# Irritants

****

*Globally Harmonized System Hazard Class: Skin corrosion/irritation, Serious eye damage/eye irritation*

*Examples: sodium dodecyl sulfate, dichloromethane, Tricane, and iodine*

**Note**: This SOP is intended to provide general guidance on how to safely work with irritant chemicals and only addresses safety issues specific to irritant chemicals. Other hazard classes may also apply. Review Safety Data Sheets (SDS) and refer to other general use SOPs relevant to the chemical you are working with. Contact the Principal Investigator/ Laboratory Supervisor or the WSU Chemical Hygiene Officer for questions concerning the applicability of any item listed in this SOP (OEHS: 313-577-1200).

**If the chemical of interest is a particularly hazardous substance or a high risk chemical a lab specific SOP is required.**

## Hazard Description-

Chemical irritants are non-corrosive materials that cause reversible effects (e.g. inflammation, swelling or irritation) to a body surface (including skin, eyes, respiratory tract, or mucous membranes) by chemical action at the site of contact. The difference between an irritant and a corrosive is the ability of the body to repair the tissue damage. With irritants the inflammatory reaction can be reversed, whereas with corrosive damage it is permanent and irreparable. Primary irritants exert no systemic toxic action.

The degree of irritation depends on the chemical concentration, duration of contact, and personal factors. A wide variety of organic and inorganic compounds are irritants; thus, skin and eye contact with all laboratory chemicals should be avoided.

* May cause burning of eyes and flow of tears.
* May cause coughing, difficulty breathing and nausea.
* Brief exposure effects last only a few minutes.

## Control of Hazards – General

* Do not use irritant chemicals if less-hazardous alternatives are possible.
* Purchase, dispense, and use the smallest quantity of irritant chemicals possible.
* Purchase the lowest concentration of irritant chemicals that will meet your research needs.
* Handling processes should be designed to minimize the potential for splash, splatter, or other likely scenarios for accidental contact.
* Use disposable work surface covers (“bench protectors”) in areas where irritant chemicals are handled to prevent contamination of work surface. Change bench protectors daily when irritant chemicals are used, and properly dispose of contaminated covers.
* Plan your work to minimize the risk of contact with irritant chemicals.
* Immediately close all containers of irritant chemicals after use.
* Conduct a hazard assessment to identify proper use and handling techniques, fire safety, storage, and waste disposal issues specific to the chemical being used.

# Engineering/Ventilation Controls

* Work with irritant chemicals associated with other high chemical hazards (e.g. high acute toxicity) must be conducted inside of a properly functioning chemical fume hood, biosafety cabinet, or filtering workstation.

## Personal Protective Equipment

In addition to proper street clothing (long pants or equivalent that cover legs and ankles, close-toed non-perforated shoes that completely cover the feet), wear the following Personal Protective Equipment (PPE) when performing lab operations/tasks:

* Safety glasses (If splash potential exists, use goggles + face shield instead)
* Lab coat.
	+ Hazard assessment of procedures may indicate the need for a flame resistant lab coat, such as Nomex.
* Appropriate chemical‐resistant gloves.
	+ Refer to Section 8 “Exposure controls/personal protection” of SDS or a glove selection guide (e.g. [Ansell Chemical Protection Guide](https://www.ansellguardianpartner.com/chemical/home#hp)) to identify appropriate glove type.

## Special Handling Procedures and Storage Requirements

Proper storage and transport of irritant chemicals must be determined by assessing all of the hazards and physical properties of the chemical.

## Decontamination Procedures

Decontaminate all surfaces that have come in contact with irritant chemicals and clean-up small spills promptly. Refer to the chemical Safety Data Sheet to determine an appropriate decontamination method.

## Waste Disposal

Depending on the other hazard classification(s) that may apply to a substance, some irritants may require collection as hazardous chemical waste and must be disposed of through OEHS. This includes waste that has any of the following properties: ignitability, corrosivity, reactivity or toxicity.

Do not dispose of waste by dumping down a drain or discarding in regular trash containers, unless authorized by OEHS. Submit requests to OEHS for waste containers, labels, and waste collection. Also, refer to the OEHS Hazardous Waste Management web page and WSU Chemical Hygiene Plan for more information.

# Spill procedures

1. **Spills**

For hazardous material spills or releases which have impacted the environment (via the storm drain, soil, or air outside the building) or which cannot be cleaned up by local personnel due to size of spill, hazard level, or hazards are unknown:

* 1. Call WSU Police (313) 577-2222. Available 24 hours a day, 7 days a week.
	2. Evacuate the spill area
	3. Post someone or mark-off the hazardous area with tape and warning signs to keep other people from entering.
	4. Remain in the vicinity until emergency personnel arrive and provide them with information on the chemicals involved.

For additional information regarding spill response procedures, refer to the [OEHS chemical spill response guidelines](http://research.wayne.edu/oehs/chemical/spills), [WSU Chemical Hygiene Plan](http://research.wayne.edu/oehs/pdf/chemical-hygiene-plan.pdf) and [American Chemical Society (ACS) guide for chemical spill response](https://www.acs.org/content/acs/en/about/governance/committees/chemicalsafety/publications/guide-for-chemical-spill-response.html).

1. **Small Spills**

In the event of a minor spill or release that can be safely cleaned up by local personnel using readily available equipment (e.g. absorbent materials) and appropriate PPE:

* 1. Alert personnel in the immediate area of spill and restrict access.
	2. Eliminate all sources of ignition.
	3. Increase ventilation in area of spill (turn on fume hood and open sash, open windows). Vent vapors to outside of building only.
	4. Review the SDS for the spilled material, or use your knowledge, to assess the hazards and to determine the appropriate level of protection.
		1. **DO NOT** clean up spills requiring respiratory protection. Contact OEHS for help (313-577-1200).
	5. Choose appropriate personal protective equipment (e.g. goggles, face shield, chemical resistant gloves, lab coat or apron).
	6. Protect floor drains, sinks or other potential avenues of environmental release as much as possible. Make a dike around the outside edges of the spill using absorbent materials.
	7. For solid spills: Use a scoop and brush or other suitable non-combustible items to collect spilled material. Minimize dust generation.
	8. For liquid spills: Cover the liquid with appropriate non-combustible absorbent material (NO paper towel), working from the spill's outer edges toward the center.
	9. Collect spill cleanup materials using a scoop or other suitable items and place in a tightly closed hazardous waste container.
	10. After spilled material is removed, decontaminate surfaces with water or other appropriate solvent.
	11. Place all contaminated materials, including contaminated items such as gloves, in the hazardous waste container.
	12. Label waste container with completed hazardous waste tag (available from OEHS).
	13. Submit online [waste pickup request](https://research.wayne.edu/oehs/hazardous/chemical-waste.php) to OEHS.

# Emergency Procedures

**\*\*If medical attention required, call WSU police (313-577-2222) immediately\*\***

* **Fire Extinguishers** – Refer to section 5 of the SDS for chemical specific firefighting measures. Both ABC dry powder and carbon dioxide extinguishers are appropriate for most fires.
* **Eyewash/Safety Showers** – Depending on the chemical hazard type, an ANSI approved eyewash station and safety shower may be required, easily accessed, and available within 10 seconds travel time for emergency use. Instruct personnel on the locations of eyewashes and safety showers, and how to activate them, prior to an emergency. Refer to [MIOSHA Fact Sheet: Eyewashes and Safety Showers](https://www.michigan.gov/documents/lara/lara_miosha_cet0199_628109_7.doc) to determine if an eyewash/safety shower is required for your specific chemical.

Please note: Additional hazards present in the laboratory may require that an eyewash or safety shower be present. This emergency equipment is required for treating exposures to workplace hazards such as chemical splashes, biological agents, welding sparks, metal shavings, or fine particulates like dust, dirt and sand.

1. **Health Threatening Emergencies**
	1. **Fire, explosion, health threatening hazardous material spill or release, compressed gas leak, or valve failure.**
		1. Call WSU Police (313) 577-2222.
		2. Alert people in the vicinity and activate the local alarm systems.
		3. Evacuate the area and go to your Emergency Assembly Point.
		4. Remain nearby to advise emergency responders.
		5. Once personal safety is established, call OEHS at (313) 577-1200.

Note: For compressed gas leaks, shut off gas supply only if this can be done safely, without risk to personnel.

* 1. **Injuries and Exposures:**
		1. Remove the injured/exposed individual from the area, unless it is unsafe to do so because of the medical condition of the victim or the potential hazard to rescuers.
		2. Call WSU Police (313) 577-2222.
		3. Administer first aid as appropriate.
			1. Eye contact: Promptly flush eyes with copious amounts of water for a prolonged period (at least 15 minutes). Seek medical attention.
			2. Ingestion: Seek medical attention IMMEDIATELY. See first aid section of chemical Safety Data Sheet.
			3. Skin contact: Remove any contaminated clothing. IMMEDIATELY flush contamination from skin using the nearest emergency shower for a minimum of 15 minutes. Seek medical attention.
			4. Inhalation: Get to a source of fresh air. Seek medical attention.
		4. Call OEHS (313) 577-1200, to report the exposure and complete [Report of Injury](https://risk.wayne.edu/files/rofi.pdf) form.
		5. Bring to the hospital copies of the Safety Data Sheets for all chemicals to which the victim was exposed.
1. **Non-Health Threatening Emergencies**
	1. **Injuries and Exposures**

For injuries and exposures that are not considered serious or a medical emergency, visit:

Henry Ford Occupational Health – Harbortown

3300 East Jefferson, Suite 100

Detroit MI 48207

(313) 656-1618

Monday – Friday 8:00 AM to 6:30 PM

If Henry Ford Occupational Health Center is closed or for serious injuries, visit:

Henry Ford Hospital – Emergency Room

2799 W. Grand Blvd.

Detroit MI 48202

(313) 916-8742

OR

Detroit Receiving Hospital - Emergency Room

4201 St. Antoine St, Detroit, MI 48201

Phone: (313) 745-3000

# Minimum Training Requirements

1. **General Training:**
* Online through the [Collaborative Institutional Training Initiative (CITI)](https://about.citiprogram.org/en/homepage/).
	+ Laboratory Safety Training (general lab & chemical safety issues) and Hazard Communication
* [Fire Safety](https://risk.wayne.edu/fire-safety).
1. **Laboratory Specific Safety Training:**
* [Laboratory-Specific Safety Training](https://research.wayne.edu/oehs/docs/lab-safety-training-checklist.doc) checklist
* Review of SDS for chemicals involved in process/experiment.
* Review of this SOP.
* Review [WSU Hazardous Waste Management](https://research.wayne.edu/oehs/hazardous/chemical-waste) guidelines.
* Other: \_\_\_\_\_\_\_\_\_

# Laboratory Personnel Review

Prior to initiating work, lab personnel using these types of chemicals must complete the table below confirming that they have read and understood the above SOP and the associated hazards.

| **Name** | **Signature** | **Date** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |