



Ingestion Hazard Hazard Class Standard Operating Procedure

1. Purpose

This standard operating procedure (SOP) is intended to provide guidance on how to safely work with chemicals that present an ingestion hazard in a University of Arizona (UA) laboratory. Laboratory personnel should review this SOP, as well as the appropriate Safety Data Sheet(s) (SDSs), before using chemicals that present an ingestion hazard. If you have questions concerning the requirements within this SOP, contact the Approval Holder (AH)/Approval Safety Coordinator (ASC), or the Research Laboratory & Safety Services (RLSS).

2. Scope

This hazard class SOP only addresses safety issues specific to the ingestion hazard of a chemical; several hazard class SOPs may be applicable for a specific chemical.

3. Hazard Description

This hazard class includes chemicals that may be hazardous to a laboratory worker upon ingestion of the chemical. Direct ingestion of a hazardous chemical in a laboratory setting is highly unlikely. However, touching the mouth with contaminated hands can also cause ingestion of hazardous chemicals. Chemical vapors and particles can also settle on food and drink in the laboratory, and become ingested.

While this class ranges from chemicals that are irritating, harmful, toxic and fatal to laboratory workers, the mode of entry for this class is the same: ingestion. This classification allows for the determination of hazard controls required to protect laboratory workers from ingestion hazards. This hazard class also includes chemicals that cause, or may cause, damage to organs after ingestion, as well as chemicals that act as an aspiration hazard (may be fatal if swallowed and the chemical enters the airways).

Chemicals that are fatal to laboratory workers upon ingestion are classified as particularly hazardous chemicals by OSHA. However, it is important to note that not every chemical under this hazard class is a particularly hazardous chemical.

4. General Control of Hazards

The following general control measures should be implemented whenever using or handling chemicals which pose an ingestion hazard:

- Plan experiments involving chemicals that present an ingestion hazard carefully, including consulting the SDS(s). Do not handle chemicals that present ingestion hazards until all safety precautions have been read and understood.
- Minimize the quantity and/or concentration of these chemicals used or synthesized to the smallest amount immediately needed for an experiment.
- Wash hands thoroughly after handling.



5. Engineering Controls

Chemicals that present an ingestion hazard must be used in a laboratory that is negatively pressured in relation to any public spaces. Contact the RLSS or Facilities Management to determine if your laboratory is negatively pressured.

Particularly hazardous chemicals (i.e. those that are fatal if ingested) must be used within a certified chemical fume hood or other approved ventilated enclosure.

6. Personal Protective Equipment

At a minimum, all laboratory workers must wear safety glasses, long pants, closed-toed shoes, a laboratory coat and examination gloves when working with hazardous chemicals in a laboratory.

Laboratory personnel working with chemicals that present an ingestion hazard should wear double examination gloves or use chemical-resistant gloves. Refer to the Personal Protective Equipment Selection Guide on the RLSS website for further information on appropriate chemical-resistant gloves. If the experimental protocols generate a splash hazard, use of higher levels of eye protection (e.g. splash goggles, face shield, etc.) should be considered.

7. Handling and Storage Requirements

When working with highly toxic chemicals, or poisons, prevention of accidental release becomes even more important than usual. Chemicals that are fatal if ingested should be securely stored; access to these chemicals should be restricted.

Segregate chemicals that are fatal or toxic if ingested from non-toxic materials. Ideally, this segregation would occur via separate cabinets. If space is limited, however, storing chemicals that are fatal or toxic in secondary containment (i.e. plastic trays or Tupperware) within the same cabinet as other chemicals is acceptable.

Particularly hazardous chemicals (i.e. those that are fatal upon ingestion) must be stored and used within a labelled designated area. If you are unsure if a chemical constitutes a particularly hazardous chemical, be conservative and treat them as if they were.

Carefully plan the transportation of chemicals that are fatal or toxic upon ingestion. Handling chemicals outside of the laboratory area should be minimized, but when necessary, wear full personal protective equipment and carry the chemicals in unbreakable secondary containment.

8. Waste Disposal

Waste chemicals that present an ingestion hazard should be collected in compatible waste containers (i.e. plastic 3.5 gallon buckets) and segregated from incompatible chemicals. Some particularly hazardous chemicals may require special decontamination and disposal procedures. Contact Risk Management Services for further information on the disposal of chemicals.



9. Spill and Incident Procedures

Laboratory personnel may clean a small spill of chemicals that present an ingestion hazard themselves, as long as they wear appropriate personal protective equipment and have appropriate training. If the spill is large, requires a respirator for cleanup, or occurs in a public area, do not attempt to clean the spill yourself. Evacuate the area and follow the procedures in the University Chemical Hygiene Plan section on major chemical spills. Inform the RLSS of all major chemical spills.

If a laboratory worker is injured or exposed to a chemical that is toxic or fatal by inhalation, immediately notify the AH/ASC; call 911 if the laboratory worker needs immediate medical attention. Remove contaminated clothing and immediately flush the contaminated areas with water for at least 15 minutes. Call the Arizona Poison & Drug Information Center at 1-800-222-1222 for information to determine if further medical action is required. If the laboratory worker feels ill or if there is persistent burning or extreme pain, he/she should get medical attention as soon as possible. Consult the chemical's SDS for more specific information on appropriate first aid. Inform the RLSS and Risk Management Services of the incident as soon as practicable.

10. Designated Area

Chemicals that are fatal upon ingestion are considered to be particularly hazardous chemicals. Because of this, some chemicals in this hazard class will require the designation of an area for their use and storage. All laboratory workers must know the location of these designated areas, and must use or store particularly hazardous chemicals only within them. Designated areas also require posting with the "Designated Area Label," which can be found on the RLSS website.