

WHS OP031 Hazardous Chemical First Aid and Emergency Procedure

Section 1 - Overview

- (1) An emergency incident is an event that directly and significantly threatens life or property.
- (2) Local emergency procedures shall be developed and take into account:
 - a. The physical properties of chemicals used and stored in the area and the potential for fire and explosion, environmental damage and the likely health effects if exposure occurs (this information will be provided on the SDS); and
 - b. The full life-cycle and intended use of the chemicals used and stored in the area, from delivery/receipt through to waste collection.

Section 2 - Scope

- (3) UNE's Emergency Management Plan (EMP) will provide guidance for the safety of occupants and visitors, in the event of an emergency incident.
- (4) In an emergency, [WHS G008 Emergency Response Plan - Chemicals and Hazardous Substances](#), will apply.
- (5) For minor and moderate spills that do not constitute an emergency, WHS OP025 Hazardous Chemical Spills Procedure, will apply.
- (6) This procedure applies to all Workers and students working or studying at the University.

Section 3 - Procedure

- (7) Spill kits, eye wash stations and deluge showers are only an initial 'first aid' measure. Fire and Rescue (the primary HAZMAT combat agency) must be called to deal with a large unintentional release of a hazardous substance.

Planning for Emergencies

- (8) Specific emergency procedure arrangements should be determined during the risk assessment phase and include:
 - a. General first aid requirements and allocation of appropriately trained first aiders;
 - b. Location and access to emergency showers and emergency eyewash stations;
 - c. Specific first aid requirements that may be required for some chemicals (eg. cyanide requires administration of oxygen);
 - d. Spill kits appropriate for the physical properties of the chemical/s in the area;
 - e. Additional equipment to mitigate or reduce environmental impact (spills should be contained wherever possible, and floor drains and sinks should be isolated);
 - f. Firefighting equipment appropriate for the physical properties of the chemical/s in the area;
 - g. Consideration of the need for self-contained breathing apparatus; and
 - h. Consideration of the need for environmental monitoring devices.
- (9) Emergency procedures, guidance material and publications are available at UNE Safety Hub [Emergency Management](#) page.
- (10) Within faculties, schools and departments, bulk chemicals are stored in secure hazardous substance stores and distributed in smaller quantities to laboratories. Transportation between

these locations should be conducted in accordance with WHS OP034 Hazardous Chemical Transport Procedure.

(11) In the event of a chemical spill, sufficient to pose risk of fatality or incapacitation, the building fire alarm should be triggered and the building must be immediately evacuated.

(12) Note: In most instances, Departments using hazardous chemicals have fully qualified technical/specialised staff who have key knowledge relating to substances under their supervision. These staff must be involved in any incident review process that is undertaken after an emergency event. This may include relevant chemicals experts, members of the Hazardous Substances Safety Group, Biosafety Group and/or the Radiation Safety Group.

General First-Aid

(13) All incidents and near misses must be reported immediately to the supervisor or laboratory manager and recorded via [Safety Hub](#) within 24 hours.

(14) First aid should be administered by trained First Aiders.

(15) Eye injuries, whether caused by chemicals, mechanical injury, or splash with biological material, are always serious.

(16) The treatment requires immediate and prolonged flushing with water (20 minutes minimum) at an eyewash station.

(17) Medical advice should be obtained for an eye injury.

(18) In the event of chemical or biological spills on the skin, the affected area must be washed with copious quantities of water.

(19) Consult the Safety Data Sheet (SDS) to determine appropriate first aid and print off the SDS to accompany the Worker or student to seek further medical treatment.

(20) If a Worker or student is feeling unwell or dizzy when participating in an experiment, stop immediately, sit down and notify the supervisor or lab manager.

Standard First Aid Procedure for Burns

(21) The following first aid procedure applies to most burns including chemical burns:

- a. Cool burnt area under continuously running cool (or tepid) tap water for twenty minutes (approximately 15°C).
- b. Do not apply ice to any burn.
- c. Do not apply any lotions or creams to burns.
- d. Cover burn with a sterile non-adherent dressing. If not available, use plastic wrap or a clean wet cloth.
- e. Once first aid has been applied, seek medical advice for any chemical burn and take the chemical SDS with you.
- f. Seek medical advice for full skin thickness burn, any electrical burn, any burn affecting airway, hands, face, eyes or genitals, or any burn greater in size than a 20 cent piece.

Cold Thermal Burns: Specific Treatment

(22) Cryogenics are substances which produce very low temperatures and are often used in laboratory settings at the University.

(23) Cryogenics such as liquid nitrogen can rapidly freeze human tissue resulting in a cold 'burn' injury on contact with exposed skin. If clothing becomes saturated with a cryogenic liquid,

frostbite can occur. Appropriate Personal Protective Equipment (PPE) is therefore very important when handling cryogenic substances as PPE can be quickly removed if a spill occurs.

(24) Treatment for a cold burn:

- a. Warm affected area in lukewarm water. Do not use hot water or radiant heat sources.
- b. Apply a sterile non-adherent dressing (if not available, use plastic wrap or a clean wet cloth).
- c. Once first aid has been applied, seek medical advice if the injury is a full skin thickness burn or for any burn affecting airway, hands, face, eyes or genitals, or any burn greater in size than a 20 cent piece.

Phenol Exposure: Specific Treatment

(25) Exposure to phenol by any route can cause systemic poisoning and be life threatening.

(26) Symptoms of acute phenol poisoning may include nausea, vomiting, diarrhoea, blood dyscrasias, profuse sweating, hypotension, heart arrhythmias, breathing difficulties and central nervous system effects such as the development of seizures and coma.

(27) Symptoms may be delayed for up to 18 hours after exposure. Rescuers should wear protective clothing and gloves while treating someone whose skin is contaminated with phenol.

(28) Phenol is mildly acidic but causes chemical burns through its ability to denature protein. Although phenol is moderately soluble in water, it is readily absorbed into the skin and binds to skin lipids making removal with water a protracted process.

(29) Phenol should be first wiped off the skin using inert compounds containing fat soluble components prior to washing with soap and water.

(30) For phenol spills on skin:

- a. Remove contaminated clothing and begin decontamination as soon as possible.
- b. Mop affected skin polyethylene glycol (PEG) 300 or 400 (which can be diluted to 50% for easier application) to remove dermal contamination.
- c. If PEG 300 or 400 is not readily available, PEG/methylated spirit mixture, glycerol, methylated spirit, olive oil or vegetable oil can also be used.
- d. Do not use mineral oil such as liquid paraffin. Mineral oils are unsuitable as they do not have both lipid and water-soluble groups present in their structure and will not be effective in removing phenol from the skin. The presence of both fat and water soluble groups in glycols, glycerol and vegetable oil allow them to extract phenol residue from the skin surface.
- e. After decontamination, skin should be gently washed with soap and water for 20 minutes.
- f. If no suitable decontamination substance is available, skin should be irrigated using a high density shower and the skin washed with soap and water until a suitable decontamination agent is sourced or until medical assistance arrives.
- g. Seek urgent medical assistance. A copy of the SDS for phenol should accompany the casualty.

Phenol Eye Exposure: Specific Treatment

(31) If the casualty has contact lenses, assist the casualty in removing contact lenses (ensure all hands assisting removal are not contaminated with phenol).

(32) Note - Wearing contact lenses is not recommended when working with some hazardous chemicals.

(33) Immediately hold eyelids apart and flush eyes continuously with copious amounts of cool flowing water for at least 20 minutes.

(34) Ensure complete irrigation of the eye by keeping eyelids apart and moving the eyelids by occasionally lifting the upper and lower lids.

(35) Seek urgent medical assistance. A copy of the SDS for phenol should accompany casualty.

Hydrofluoric Acid Burns: Specific Treatment

(36) Hydrofluoric acid is extremely corrosive. Burns can be penetrating and very painful. Absorption of the chemical can lead to life threatening systemic toxicity. Contact with very small amounts of high concentration acid can cause life threatening arrhythmias. Treatment is designed to neutralise the fluoride ions and prevent metabolic poisoning.

(37) For hydrofluoric acid spills on skin:

- a. Remove contaminated clothing as soon as possible. Any clothing that has to be pulled over the head should be cut off.
- b. Irrigate contaminated areas with copious volumes of water for at least one minute.
- c. Immediately apply calcium gluconate gel (2.5%) on and around the burn. Continue applying to the burned skin for a minimum of 30 minutes and for as long as the pain persists.
- d. For burns to the hand place the gel in a latex glove and put this on the affected hand. Or cover the area with a gel soaked dressing and lightly bandage.
- e. Seek urgent medical assistance, send calcium gluconate gel with patient, repeat application during transit to medical assistance as necessary.
- f. A copy of the SDS for hydrofluoric acid should accompany the casualty.

Hydrofluoric Acid Eye Exposure: Specific Treatment

(38) If the casualty has contact lenses, assist the casualty in removing contact lenses (ensure all hands assisting removal are not contaminated with hydrofluoric acid).

(39) Note - Wearing contact lenses is not recommended when working with some hazardous chemicals.

(40) Immediately flush the affected eye thoroughly for at least 30 minutes with water whilst eyelids held apart.

(41) Do not apply calcium gluconate gel to eyes.

(42) Seek urgent medical assistance, continue flushing eye during transport to hospital if possible.

(43) A copy of the SDS for hydrofluoric acid should accompany the casualty.

Authority and Compliance

(44) The Procedure Administrator, pursuant to the University's Work Health and Safety Rule, makes these procedures.

(45) University Representatives and Students must observe these Procedures in relation to University matters.

(46) These Procedures operate as and from the Effective Date.

(47) Previous Procedures relating to WHS OP013 (Interim) Hazardous Chemicals Procedure are replaced and have no further operation from the Effective Date of this new Procedure.

Section 4 - Definitions

(48) Effective Date means takes effect on the day on which it is published or on such later day as may be specified in the procedure.

(49) First aid is the immediate treatment or care given to a person suffering from an injury or illness until more advanced care is provided or the person recovers.

(50) First aider is a person who has successfully completed a nationally accredited training course or an equivalent level of training that has given them the competencies required to administer first aid.

(51) Hazardous Chemical means any substance, mixture or article that satisfies the criteria for a hazard class in the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

(52) University Representative means a University employee (casual, fixed term and permanent) contractor, agent, appointee, UNE Council member, adjunct, visiting academic and any other person engaged by the University to undertake some activity for or on behalf of the University. It includes corporations and other bodies falling into one or more of these categories

(53) Student means an Admitted Student or an Enrolled Student, at the relevant time.

- a. Admitted student means a student who has been admitted to a UNE course of study and who is entitled to enrol in a unit of study or who has completed all of the units in the UNE course of study.
- b. Enrolled student means a student who is enrolled in a unit of study at UNE.

(54) UNE Act means the University of New England Act 1993 No 68 (NSW).

(55) A Worker, as defined by the WHS Act, is a person that carries out work in any capacity for a person conducting a business or undertaking, including work as:

- a. An employee;
- b. A contractor or subcontractor;
- c. An employee of a contractor or subcontractor;
- d. An employee of a labour hire company who has been assigned to work in the person's business or undertaking;
- e. An outworker;
- f. An apprentice or trainee;
- g. A student gaining work experience;
- h. A volunteer; or
- i. Person of a prescribed class.