4.4 Describe the emergency procedures related to a hazardous product.

The safety data sheet (SDS) is an important resource for the worker for emergency information regarding the supplier contact information, first aid, firefighting and accidental release measures.

Prior to using the hazardous product, the worker should review the SDS, in its entirety, for important emergency information. Workers should also receive training on specific worksite emergency procedures and equipment.

The following are some examples of where to find some of the information needed for emergency procedures of a hazardous product (e.g. liquid nitrogen).

Section 1 – *Identification* (Figure 10) is where the emergency phone number of the supplier is found. If there are any restrictions on the use of the phone number, it must be written here. In the case of emergency and more information is needed about the hazardous product, the supplier should be contacted.



Section 1. Identification

GHS product identifier	:	Nitrogen, Refrigerated Liquid
Chemical name	:	nitrogen
Other means of identification	:	LIN, Cryogenic Liquid Nitrogen, Liquid Nitrogen, Liquid Nitrogen NF, Liquid Nitrogen FG
Product use	:	Synthetic/Analytical chemistry.
Synonym	:	LIN, Cryogenic Liquid Nitrogen, Liquid Nitrogen, Liquid Nitrogen NF, Liquid Nitrogen FG
SDS #	:	001188
Supplier's details	:	Acme Chemical 123 ABC Street Somewhere, AB, Canada 1A1 2B2
24-hour telephone	:	1-800-555-1234

Figure 10: Safety Data Sheet (SDS) - Section 1 – Identification

Section 4 – *First Aid Measures* has a description of first aid measures for all the possible ways of exposure: eye contact, inhalation, skin contact, ingestion etc. Figure 11 states that if there is skin contact with liquid nitrogen the first aid treatment is to warm the frozen tissues slowly with lukewarm water, get medical attention and do not rub the affected area. Also in this section is a list of the most important symptoms and effects from exposure.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Extremely cold material. Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Extremely cold material. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Figure 11: Safety Data Sheet (SDS) – Section 4 – First Aid Measures

Section 5 – *Fire-Fighting Meaures* provides information on what materials to use to extinguish fires and what not to use. It also provides information for fire-fighters on specific hazards, special protective actions and personal equipment. As per Figure 12, there is a hazard of explosion if a fire or heated. The area should be promptly isolated and on action should be taken involving personal risk without suitable training.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	None known.
Specific hazards arising from the chemical	:	Contains gas under pressure. Contains refrigerated gas. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: nitrogen oxides
Special protective actions for fire-fighters	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Figure 12: Safety Data Sheet (SDS) – Section 5 – Fire-Fighting Measures

Section 6 – *Accidental Release Measures* contains information for the methods and materials needed for containment and cleanup of an accidental release of the hazardous product. For an accidental release of liquid nitrogen, as per Figure 13: do not touch or walk through spill; avoid breathing gas (use respirator if needed); and immediately contact emergency personnel.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:	Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	:	Immediately contact emergency personnel. Stop leak if without risk.
Large spill	:	Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Figure 13: Safety Data Sheet (SDS) – Section 6 – Accidental Release Measures