There are two types of portable cryogenic receptacles:

1. Open dewars that continuously vent into the atmosphere. An oxygen deficient atmosphere will be created, therefore ensure very good ventilation, and secure the dewar in an upright position. Do not transport or use open dewars with oxygen content.

2. Portable liquid cylinders with a pressure relief device. Ensure that the cylinder is in good condition, and that the valve(s) are in the correct position for transport.

Do not transport:

- Portable liquid cylinders in enclosed vehicles;
- Dry ice in enclosed vehicles.

Vehicle Accident

- Carry out the actions under "FOR ALL EMERGENCIES".
- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

Fire

- Carry out the actions under "FOR ALL EMERGENCIES".
- Call the emergency services.
- Stop source of flammable gas if safe to do so.
- Do not extinguish burning gas other than by cutting off the source of the gas supply. If this is not possible, leave the gas burning.
- Do not approach gas cylinders suspected of being hot.
- Remove cool gas cylinders from the path of fire.
- If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

First Aid

- Asphyxia – move person to fresh air, resuscitate if necessary.
- Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.
- Hypothermia – wrap the person in a blanket and move him/her to a warm place.
- Do not use excessive force on the valves.
- Do not attempt to operate a damaged valve.

- Notify the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Do not transport:

  - Argon
  - Carbon Dioxide
  - Helium
  - Nitrogen
  - Nitrous Oxide
  - Oxygen
  - Argon (inert and oxidising gas), such as:

  - Move people from the immediate area and keep them away.

  - If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

  - Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.

  - Hypothermia – wrap the person in a blanket and move him/her to a warm place.

  - Do not use excessive force on the valves.

  - Do not attempt to operate a damaged valve.

- Avoid breathing in the gas and contact with skin or eyes.
- Remove the gas cylinder from the vehicle to an open area, if it is safe to do so.

- Note the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Notify the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Call the emergency services.
- Stop source of flammable gas if safe to do so.
- Do not extinguish burning gas other than by cutting off the source of the gas supply. If this is not possible, leave the gas burning.
- Do not approach gas cylinders suspected of being hot.
- Remove cool gas cylinders from the path of fire.
- If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

- Asphyxia – move person to fresh air, resuscitate if necessary.
- Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.
- Hypothermia – wrap the person in a blanket and move him/her to a warm place.
- Do not use excessive force on the valves.
- Do not attempt to operate a damaged valve.

- Avoid breathing in the gas and contact with skin or eyes.
- Remove the gas cylinder from the vehicle to an open area, if it is safe to do so.

- Note the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Notify the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Call the emergency services.
- Stop source of flammable gas if safe to do so.
- Do not extinguish burning gas other than by cutting off the source of the gas supply. If this is not possible, leave the gas burning.
- Do not approach gas cylinders suspected of being hot.
- Remove cool gas cylinders from the path of fire.
- If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

- Asphyxia – move person to fresh air, resuscitate if necessary.
- Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.
- Hypothermia – wrap the person in a blanket and move him/her to a warm place.
- Do not use excessive force on the valves.
- Do not attempt to operate a damaged valve.

- Avoid breathing in the gas and contact with skin or eyes.
- Remove the gas cylinder from the vehicle to an open area, if it is safe to do so.

- Note the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Notify the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Call the emergency services.
- Stop source of flammable gas if safe to do so.
- Do not extinguish burning gas other than by cutting off the source of the gas supply. If this is not possible, leave the gas burning.
- Do not approach gas cylinders suspected of being hot.
- Remove cool gas cylinders from the path of fire.
- If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

- Asphyxia – move person to fresh air, resuscitate if necessary.
- Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.
- Hypothermia – wrap the person in a blanket and move him/her to a warm place.
- Do not use excessive force on the valves.
- Do not attempt to operate a damaged valve.

- Avoid breathing in the gas and contact with skin or eyes.
- Remove the gas cylinder from the vehicle to an open area, if it is safe to do so.

- Note the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Notify the emergency services and tell them that gas cylinders or receptacles are carried on board.

- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Do not move the vehicle if this could cause spillage or generate sparks.
- Warn other traffic.

- Carry out the actions under "FOR ALL EMERGENCIES".
- Call the emergency services.
- Stop source of flammable gas if safe to do so.
- Do not extinguish burning gas other than by cutting off the source of the gas supply. If this is not possible, leave the gas burning.
- Do not approach gas cylinders suspected of being hot.
- Remove cool gas cylinders from the path of fire.
- If the fire gets out of control and gas cylinders are heated, evacuate any people at least 100 metres and warn approaching traffic.

- Asphyxia – move person to fresh air, resuscitate if necessary.
- Cold burns – remove any clothing that restricts blood circulation, or heat it up-wind.
- Hypothermia – wrap the person in a blanket and move him/her to a warm place.
- Do not use excessive force on the valves.
- Do not attempt to operate a damaged valve.
Compressed and liquefied gases are potentially hazardous for the following reasons:

- Some gases are very flammable and a leakage can create an explosive atmosphere in an enclosed vehicle.
- Oxygen enrichment causes material to ignite easily and will increase intensity of the fire. When a liquefied gas is released, it vaporises and creates large amounts of gas.
- Heat may cause any safety device fitted to activate and release the gas contents of the cylinder.
- Inert (Non-Flammable/Non-Toxic) gases can cause oxygen deficiency and asphyxiation.
- Cryogenic liquids are very cold and can cause cold skin burns and metal brittle fracture. When a liquefied gas is released, it vaporises and creates large amounts of gas.
- Heat may cause any safety device fitted to activate and release the gas contents of the cylinder.
- Inert (Non-Flammable/Non-Toxic) gases can cause oxygen deficiency and asphyxiation.
- Cryogenic liquids are very cold and can cause cold skin burns and metal brittle fracture.

Risks

- **DG Class 2.1 Flammables** (e.g. Acetylene, Ethylene, Hydrogen, IFC) - may cause flammable or explosive atmospheres in the vehicle compartment.
- **DG Class 2.2 Inerts** (e.g. Nitrogen, Argon, Shielding Gases) - may cause an asphyxiating atmosphere leading to drowsiness, unconsciousness and death.
- **DG Class 2.3 Toxic** (e.g. Sulphur Dioxide, Insectigas) may lead to a toxic atmosphere which is hazardous to health by breathing and/or skin contact.
- **DG Class 2.2/5.1 Oxidising** (e.g. Oxygen, Nitrous Oxide) - may cause some materials to easily ignite (i.e. oil) and will increase intensity of the fire.
- **DG Class 9 - Dry Ice (Solid CO₂)** and **DG Class 2.2 refrigerated liquids** (e.g. Nitrogen, Argon, Oxygen) - evaporate to large volumes of inert gas (see above).
- **Unsecured Cylinders** are heavy and may cause injury or damage to vehicles and can lead to a violent cylinder rupture in transport. When transporting cylinders always ensure they are properly secured to avoid movement.
- **DG Class 2.2 Inerts** (e.g. Nitrogen, Argon, Shielding Gases) - may cause an asphyxiating atmosphere leading to drowsiness, unconsciousness and death.
- **DG Class 2.3 Toxic** (e.g. Sulphur Dioxide, Insectigas) may lead to a toxic atmosphere which is hazardous to health by breathing and/or skin contact.
- **DG Class 2.2/5.1 Oxidising** (e.g. Oxygen, Nitrous Oxide) - may cause some materials to easily ignite (i.e. oil) and will increase intensity of the fire.
- **DG Class 9 - Dry Ice (Solid CO₂)** and **DG Class 2.2 refrigerated liquids** (e.g. Nitrogen, Argon, Oxygen) - evaporate to large volumes of inert gas (see above).
- **Unsecured Cylinders** are heavy and may cause injury or damage to vehicles and can lead to a violent cylinder rupture in transport. When transporting cylinders always ensure they are properly secured to avoid movement.