

ISSUE DATE: October 2003 REVISION DATE: June 2007

MATERIAL SAFETY DATA SHEET

Frost Bite

Cryogenic Cold Spray

COMPANY DETAILS

COMPANY NAME: ADM – Australian Dental Manufacturing
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PRODUCT INFORMATION

PRODUCT NAME:	Frost Bite
UN Number	1950
Dangerous Goods Class	2.1
Hazchem Code	2WE
Packaging Group	None allocated
Poison Schedule	None Allocated
Product Use	Cryogenic Cold Spray

COMPOSITION		
Chemical Composition	CAS number	Proportion
HAZARDOUS INGREDIENTS: Dimethyl ether	115-10-6	100%

PHYSICAL AND CHEMICAL DATA	
Appearance:	Colourless Liquefied Gas
Odour	Perceptible Ethereal Chloroform like Odour
Melting Point:	-141.5°C
Boiling Point	-24.8°C
Vapour Pressure @ 20°C @ 25°C	5.16 kPa 4450 mm Hg
Relative Density (air=1)	1.6
Flash Point	-41°C
Flammable Limits	LEL: 3% UEL: 18.6%
Auto ignition Temperature	235°C
Corrosiveness	Not Corrosive
Solubility	Soluble in Water

HEALTH HAZARDS IDENTIFICATION
This Product is classified as hazardous according to criteria of NOHSC due to its flammability.

ACUTE EFFECTS	
INGESTION:	<ul style="list-style-type: none">• None likely as product is liquefied gas which vaporizes very quickly at atmospheric pressure. If liquefied gas enters mouth it may cause frost bite and freeze burns.• May cause irritation to the throat.
EYE	<ul style="list-style-type: none">• May cause irritation to eyes. Gaseous vapours are not expected to cause any irritation however if the liquefied gas contacts the eye frost bite or freeze burns may cause permanent damage to the eye.
SKIN:	<ul style="list-style-type: none">• Gaseous vapors will not cause skin irritation however the liquefied gas may cause frost bite or freeze burns. Blistering with inflammation and pain may occur.
INHALED	<ul style="list-style-type: none">• May cause irritation of respiratory tract, headaches, dizziness, loss of coordination nausea and other effects of the central nervous system.• Product is highly volatile. May cause irritation to eyes, nose or respiratory tract.• Inhalation of high concentrations may cause asphyxiation by displacement of oxygen from the breathing atmosphere. It may cause central nervous system depression such as dizziness, drowsiness, headache, mood disturbances, mental confusion and similar narcotic symptoms but no long term effects.• Signs of asphyxiation will be noticed when oxygen is reduced to below 16% and may occur in four stages. Symptoms include reduced alertness, fatigue, dizziness, headache, mental confusion, poor coordination.• Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less. As this product is packaged in small containers exposure to high concentrations is unlikely unless intentional inhalation.
CHRONIC & OVEREXPOSURE	<ul style="list-style-type: none">• Repeated long term exposure to the product may cause internal injury to the following organs; lungs, liver, kidneys, nervous system. No studies have been conducted for long term effects, cancer or reproductive hazard.

FIRST AID	
INGESTION:	<ul style="list-style-type: none"> • The risk of ingestion is negligible. If ingestion occurs seek immediate medical attention. • Open eye lids to allow liquid to evaporate. Irrigate the eye with copious amounts of water for 15 minutes. Cover eyes and protect from light. Seek immediate medical attention. • Remove contaminated clothing immediately. Clothing frozen to the skin should be thawed using lukewarm water. Seek medical attention. • If inhaled, immediately remove person to fresh air until fully recovered. If person is not breathing, open airway and administer CPR (artificial respiration). Administer oxygen if breathing is difficult. Seek urgent medical attention.
EYE:	
SKIN:	
INHALED:	

EXPOSURE CONTROLS/PERSONAL PROTECTION	
<p>In accordance with the criteria of NOHSC this Product is classified as hazardous. No exposure limits are assigned for this specific material by the NOHSC.</p>	
TWA	<p>No occupational exposure limits have been established for Dimethyl Ether. This does not mean that this substance is not harmful. Safe work practices should always be followed.</p>
Personal Protection	<ul style="list-style-type: none"> • Where possible use product under a fume hood with local exhaust ventilation at site of chemical release. • If local exhaust ventilation or enclosure (fume hood) is not used, respirators should be worn. Respirators should comply with AS 1715 and should be used in accordance with AS 1517. • Use gloves and safety glasses when handling the product. • Post hazard and warning information in the work area.
Engineering Controls	<ul style="list-style-type: none"> • Follow procedures to avoid static discharges. Use non-spark tools and flameproof equipment. • The Product contains flammable solvents, therefore when using the product in a confined area it is recommended to observe safe work practices. • Provide ventilation to control exposure level below airborne exposure limits. Avoid skin and eye contact. It is recommended to wear, safety glasses, solvent resistant gloves and a respirator when handling the product. • Always wash hands before eating and drinking. • If there is risk of inhalation wear approved respiratory

ACCIDENTAL RELEASE MEASURES

- Evacuate building and move people up wind from the spill.
- Shut off supply of gas if it is safe to do so.
- Eliminate sources of ignition (eg power supply).
- Ventilate the area. Remove leaking cylinder to open air.

- Avoid breathing the vapour and contact with the liquid or vapour.

- Disperse with water spray. Note that vapour is heavier than air and will settle at the lowest point (eg drains, ditches, water courses). Prevent runoff to drains leading to waterways. Wash contaminated area liberally with water.
- Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact. Wipe up small spills with paper toweling and dispose to bin. Disposal of waste must be in accordance with the Local Waste Disposal Authority.

- For large spills or leaks in confined areas explosive conditions may occur, restrict persons not wearing protective equipment from the area of spill or leak until cleanup is complete.
- Ventilate the area of spill or leak.
- Water spray may be used to disperse vapours.
- Absorb liquids in vermiculite, dry sand, earth or inert material and deposit in an appropriate waste disposal container.
- For large spills or leaks it may be necessary to dispose of the product as a Hazardous waste. Contact your local EPA or authority for specific recommendations.

HANDLING & STORAGE

- Product to be handled only by qualified staff in dental offices/laboratories.
- See product instructions for safe use
- Store in a cool well ventilated place out of direct sunlight. High temperatures may cause pressure build up in container.
- Store away from strong oxidizing agents and acids.
- Store below 25°C keep away from sources of heat; do not drop, keep valves closed when not in use.
- Keep away from sources of static electricity.
- Protect containers from physical damage, keep containers closed when not in use, and check regularly for leaks.
- Avoid contact with skins and eyes.
- Avoid breathing vapours
- Do not store together with food.
- Comply with the current issue of the Australian Code for the Transportation of Dangerous Goods by Road and Rail and with the relevant Dangerous Goods Legislation in each State or Territory.

Risk Phrases

- R10: Flammable
- R21: Harmful in contact with skin
- R26: Harmful by inhalation
- R36: Irritating to eyes
- R38: Irritating to skin

Safety Phrases

- S2: Keep out of reach of children
- S16: Keep away from sources of ignition – no smoking
- S23/24/25: Avoid contact with skin and eyes and breathing vapours
- S33 Take precautionary measures against static discharges
- S38 In case of insufficient ventilation, wear suitable respiratory equipment.

STABILITY & REACTIVITY

REACTIVITY

CONDITIONS TO AVOID:

INCOMPATIBLES:

- Stable at normal temperatures and pressure.
- Avoid sources of heat and ignition.
- Avoid contact with incompatible materials.
- Dimethyl Ether is not compatible with Ozone, oxidizing agents (such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine and fluorine), strong acids (such as Hydrochloric, Sulphuric, and Nitric) and halogens.

TOXICOLOGICAL INFORMATION

SYMPTOMS: No adverse health effects are expected if this product is handled in accordance with this Material Safety Data Sheet and the Product label/instructions and safe work practices are followed.

If the product is spilled or mishandled, symptoms noted in section “Acute Effect” may occur:

Long Term Effects:

No specific data is available for this product

ECOLOGICAL INFORMATION

- Spillages from the small packaging of this product are unlikely to penetrate soils. The product is volatile/gaseous and will partition to the atmosphere.
- Unlikely to cause long term adverse effects in the environment. This material is not expected to bioaccumulate.
- As it is likely to vaporize quickly it is unlikely to reach waterways to cause long term effect to the aquatic environment.
- No long-term persistent effects are expected. Due to the small package size spillages are unlikely to be a nuisance to the environment.

DISPOSAL CONSIDERATIONS

Dispose containers thoughtfully to landfill.
Empty containers represent a fire hazard as they may contain flammable product residues and vapour.
Never weld or solder empty containers.

TRANSPORT INFORMATION

Classified as a highly flammable liquid gas for transport (ADG, UN, IATA)

UN NUMBER:	1950
CLASS:	2.1
SUBSIDIARY RISK:	Nil
HAZCHEM CODE:	2WE
Packaging Group	None Allocated

REGULATORY INFORMATION

From information available, this Product is not classified using the criteria of NOHSC.

