



MATERIAL SAFETY DATA SHEET

Product Name **BLAST HOLE BLOCKERS, GAS BAGS**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name MTI GROUP
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Web Site <http://www.mtigroup.com.au/>
Synonym(s) BLAST HOLE BLOCKERS • GAS BAGS
Use(s) BLASTING APPLICATIONS
MSDS Date 05 May 2009

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.	1950	DG Class	2.2	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	2Y	EPG	2D1

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
1,1,1,2-TETRAFLUOROETHANE (HFC 134A)	C2-H2-F4	811-97-2	>60%

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. Given product applications, no inhalation hazard is anticipated unless product is intentionally misused.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

Advice to Doctor Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability Non flammable liquid, non flammable gas according to Australian Standard AS2278.1-2008, the Australian Dangerous Goods Code, and the UN code for testing and transport of dangerous goods (4th edition).

Fire and Explosion Non flammable aerosol. For bulk quantities, evacuate area and contact emergency services. Aerosol cans may explode if heated. Toxic gases (hydrocarbons, carbon oxides) may be evolved. Remain upwind and notify those downwind of hazard. Wear full protective equipment (see spill above) including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

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Extinguishing Non flammable. Prevent contamination of drains or waterways, absorb runoff with sand or similar.

Hazchem Code 2Y

6. ACCIDENTAL RELEASE MEASURES

Spillage If cans are punctured (bulk) ventilate area.

7. STORAGE AND HANDLING

Storage Store in cool, dry, well ventilated area, removed from oxidising agents, alkalis, active metals, metal powders (eg. aluminium, barium, lithium), heat and foodstuffs. Aerosol containers may explode if exposed to excessive heat (> 50°C). Ensure containers are adequately labelled and protected from physical damage.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	1,1,1,2-Tetrafluoroethane	ASCC (AUS)	1000	4240	--	--

Biological Limits No biological limit allocated.

Engineering Controls Use in well ventilated areas. Maintain vapour levels below the recommended exposure standard.

PPE Personal Protective Equipment is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	CLEAR COLOURLESS LIQUEFIED GAS (AEROSOL DISPENSED, ENCLOSED IN BAG)	Solubility (Water)	INSOLUBLE
Odour	SLIGHT PUNGENT ODOUR	Specific Gravity	1.1 to 1.2
pH	NOT AVAILABLE	% Volatiles	NOT AVAILABLE
Vapour Pressure	530 kPa @ 25°C	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	-26.2°C to 50°C	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE		

10. STABILITY AND REACTIVITY

Chemical Stability Stable under recommended conditions of storage.

Conditions to Avoid Avoid heat, sparks, open flames and other ignition sources.

Material to Avoid Incompatible with oxidising agents (eg. hypochlorites, peroxides), acids (eg. sulphuric acid), strong alkalis (eg. hydroxides), heat and ignition sources.

Hazardous Decomposition Products May evolve carbon oxides, fluorine, carbonyl fluoride and hydrogen fluoride when heated to thermal decomposition. However, at temperatures between 700-1100°C the main degradation pathway is elimination of hydrogen fluoride. In use the product is subject to detonation temperatures of between 2000°C-3200°C. Decomposition products are toxic and irritating.

Hazardous Reactions Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Low toxicity. This product is not anticipated to cause adverse health effects with normal industrial use. No chronic effects are anticipated. May cause frost-bite or cold burns with direct contact. Asphyxiation may occur at concentrations above 75 000 ppm. However, due to the product form and nature of application, adverse health effects are greatly reduced.
Eye	Non irritant. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage.
Inhalation	Low irritant. Over exposure may result in mucous membrane irritation of the nose and throat with coughing.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation. However, direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.
Ingestion	Ingestion is considered unlikely due to product form.
Toxicity Data	1,1,1,2-TETRAFLUOROETHANE (HFC 134A) (811-97-2) LC50 (Inhalation): 1500 g/m ³ /4 hour (rat) TCLo (Inhalation): 5000 ppm/6 hour/2 years intermittently (rat)

12. ECOLOGICAL INFORMATION

Environment	1.1.1.2-Tetrafluoroethane (HFC-134a) is not an ozone-depleting substance and therefore not subject to control under the Montreal Protocol. Only compounds containing chlorine and bromine are thought to harm the ozone layer - HFC-134a contains neither. (Source: United Nations Environment Programme). When discharged into the atmosphere 1,1,1,2-Tetrafluoroethane (HFC 134a) may contribute to global warming. 1,1,1,2-Tetrafluoroethane (HFC 134a) has a global warming potential of 1300 for a time horizon of 100 years (CO ₂ = 1).
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13. DISPOSAL CONSIDERATIONS

Waste Disposal	Blast Hole Blockers should be disposed of by firstly initiating the bag and allowing it to inflate. Then, in a well ventilated area, pierce bag prior to disposal.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION



CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	AEROSOLS				
UN No.	1950	DG Class	2.2	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	2Y	EPG	2D1

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information	Instructions for Use: The Blast Hole Blockers should not be dis-assembled. Tie the string used to lower the bag into position before activating the bag. Locate the aerosol trigger and firmly depress trigger until the trigger is latched. Lower the bag into the blast hole holding it at the correct depth until it inflates. When the bag has sufficiently inflated remove by pulling sharply on the string.
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ASPHYXIANTS (1): When present in the atmospheres in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide adequate sensory warning of danger and most simple asphyxiants are odourless. Therefore it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (eg.

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tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured. Refer to AS/NZS 2865 - Safe Working in a Confined Space.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

ABBREVIATIONS:

- ADB - Air-Dry Basis.
- BEI - Biological Exposure Indice(s)
- CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
- CNS - Central Nervous System.
- EINECS - European INventory of Existing Commercial chemical Substances.
- IARC - International Agency for Research on Cancer.
- M - moles per litre, a unit of concentration.
- mg/m3 - Milligrams per cubic metre.
- NOS - Not Otherwise Specified.
- NTP - National Toxicology Program.
- OSHA - Occupational Safety and Health Administration.
- pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
- ppm - Parts Per Million.
- RTECS - Registry of Toxic Effects of Chemical Substances.
- TWA/ES - Time Weighted Average or Exposure Standard.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Report Status

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Material Safety Data Sheet ('MSDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.

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End of Report