MTI Group Pty Ltd
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MATERIAL SAFETY DATA SHEET INFORMATION

For further information: Please refer to the Material Safety Data Sheet following

Issue: September 15

PRODUCT:	BlastBag ZERO Aerosols
Other Names:	Aerosol propellant (contents), Solstice™ 1234ze; HFO 1234ze
Uses:	Blast hole blocker, inflatable borehole plug

Pack sizes: (accurate to standard filling and material tolerances)

Product	Product Code	Hole Size suitable (mm/inch)
Emu	30-036	311 (12.25")
Wombat	30-059	250-270 (10"-10.5/8")
Platypus	30-046	230 (9")
Bilby	30-030	203 (8")
Koala	30-039	127-165 (5"-6.5")
Quokka	30-051	76-115 (3"-4.5")

UN No.:	1950
Dangerous Goods Class:	Aerosol 2.2
Subsidiary Risk:	None
Packing Group:	Not Specified
Hazchem Code:	2YE
Poisons Schedule:	Not Scheduled

Hazardous Nature:	This product is not classified as hazardous in accordance with SafeWork Australia. Product classified as a Dangerous Good Class 2
Exposure Standards:	TWA: None specified: consider 1000 ppm; STEL: None specified: consider 2000 ppm; Peak Limitation (if any): None; Skin Sensitiser (if any): None. Refer to Section 8 for further information and definitions.

Physical Characteristics (Typical) — Section 9 of the MSDS

Appearance	Device: aerosol in packaging.
Vapour Pressure (@ 21°C) (bar):	3.4
Specific Gravity of Liquid (water = 1)	1.12
Heat of Combustion:	10.2
Chemical Stability:	This product is stable at room temperature and pressure.
Reactivity:	Excessive heat, Alkali metals, puncture of container or packaging.

Product Ingredients — Section 3 of the MSDS

Ingredient	CAS Number	Proportion w/w%
Trans - 1,3,3,3 - Tetrafluoropropene	29118-24-9	100

For further ingredients information, please refer to the full MSDS

Risk Phrases — Section 2 of the MSDS

WARNING - Compressed Gas

H280 - Contains gas under pressure; may explode when heated

DEFINITIONS

Dangerous Goods	Products that are regulated for transport under the UN International guidelines are classified as Dangerous Goods. Products can be classified by their physical characteristics and may have only one Dangerous Goods designation, although may have a subsidiary risk. These products may be Dangerous Goods for transport by Air and Sea, but may not be classed as Dangerous Goods by Road and Rail in Australia. Refer to the Australian Code for Transport of Dangerous Goods by Road and Rail (ADG) for more information.

Hazardous Substances	Hazardous Substances are those products that are intrinsically hazardous by virtue of their chemical nature, rather than as a condition of their misuse. These hazards include mutagens, teratogens, carcinogens, and products that are harmful or irritant in nature. These products may or may not carry a Dangerous Goods classification.
Poisons	Poisons are products that are regulated by the dose or exposure, often having physical and chemical effects at certain concentrations particular to the nature of the product. The associated warnings, cautions and First Aid instruction are prescriptive under the regulation in Australia.

1. IDENTIFICATION

Product Name: BlastBag ZERO

Product Size Names:

Product	Identifier	Hole Diameter (mm/inch)
Emu	30-036	311 (12.25")
Wombat	30-059	250-270 (10"-10.5/8")
Platypus	30-046	230 (9")
Bilby	30-030	203 (8")
Koala	30-039	127-165 (5"-6.5")
Quokka	30-051	76-115 (3"-4.5")

Other Names: Aerosol propellant (contents), Solstice™ 1234ze; HFO 1234ze
Chemical Family: Liquid: Fluorohydrocarbon
Recommended Use: Blast hole blocker, inflatable borehole plug
Supplier: MTI Group Pty Ltd
ABN: 60 137 112 326
Address: Unit 2, 5 Opportunity Street, Wangara, WA 6065
Telephone: +61 8 9303 6100
Fax: +61 8 9302 4899
Emergency Phone: **(08) 9303 6100**
All other inquiries: 1300 MTI GROUP (1300 684 476)

2. HAZARDS IDENTIFICATION

Hazard Classification

This product is not classified as hazardous in accordance with SafeWork Australia. Product classified as a Dangerous Good Class 2

Hazard Category

Not hazardous: intentionally left blank

Risk Phrases

WARNING - Compressed Gas
H280 - Contains gas under pressure; may explode when heated

Safety Phrases

P410, P403 - Protect from sunlight. Store in well-ventilated palce

Dangerous Goods Classification

Aerosol 2.2

Poisons Schedule

Not Scheduled

3. COMPOSITION: Information on Ingredients

Chemical Ingredient	CAS Number	Proportion (% w/w)
Trans - 1,3,3,3 - Tetrafluoropropene	29118-24-9	100

4. FIRST AID MEASURES

For advice, contact Poisons Information Centre (Phone Australia: 13 1126) or a doctor.

Ingestion

If swallowed, do NOT induce vomiting.

Eye Contact

If in eyes wash out immediately with water.

Skin Contact

If skin or hair contact occurs, remove contaiminated clothing and flush skin and hair with running water

Inhalation

If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

First Aid Facilities

Ventilation and respiratory aid.

Medical Attention

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Shut off product that may 'fuel' a fire if safe to do so. Allow trained personnel to attend a fire in progress providing fire fighters with this Material Safety Data Sheet. Prevent extinguishing media from escaping to drains and waterways.

Suitable Extinguishing Media

This product contains propellant gas under pressure. In the unlikely event that the product is involved in a fire, use water fog, fine spray mist, or dry chemical or foam to extinguish.

Hazards from combustion products

This product contains a non-combustible propellant under pressure. In the unlikely event of a fire, hazardous vapours such as Hydrogen fluoride may be emitted.

Hazardous Decomposition

Will not burn, however fluorocarbons, hydrogen fluoride may be produced in extreme conditions

Precautions for fire fighters and special protective equipment

If product is subject to fire, use fully self-contained breathing aparatus, chemical resistant protective clothing, and face mask while fighting the fire.

Hazards to consider when fire-fighting

While this product will not burn, this product may overheat causing the aerosol to explode, contributing to hazards while fighting a fire. Observe standard operating procedures for managing a blaze involving aerosols and chemicals which can emit toxic vapours. There are chemical reactions that can take place through hydrolysis (reactions with water vapour) creating corrosive mixtures, and vapour hazards. Heat and flame will accelerate the oxidation process which can result in hazardous decomposition mixtures: carbon dioxide, carbon monoxide, hydrogen fluoride. Ensure the extinguishing media and any fire-fighting run-off is contained from contributing to environmental contamination, other chemical reaction hazards in adjacent areas, or expansion of the fire-affected area.

Hazchem Code

2YE

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

This product will contribute confined explosions (aerosol) when heated excessively. The aerosol contents is isolated from contact with other chemicals or likely incompatibles. In the event of a fire or explosion emergency: prevent product from escaping to drains and waterways; contain leaking packaging in a containment facility; prevent vapours or dusts from building up in confined areas; ensure that drain valves are closed at all times; and clean up and report spills immediately.

Methods and materials for containment

Major Land Spill

- Eliminate sources of ignition.
- Warn occupants of downwind areas of possible fire and explosion hazard, where present.
- Prevent product from entering sewers, watercourses, or low-lying areas.
- Keep the public away from the area.
- Shut off the source of the spill if possible and safe to do so.
- Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation.
- Take measures to minimise the effect on the ground water.
- Contain the spilled product using the resources in the spill kit.
- Recover by pumping – use explosion proof pump or hand pump – or with a suitable absorbent material.
- Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.
- See “First Aid Measures” and “Stability and Reactivity”

Major Water Spill

- Eliminate any sources of ignition.
- Warn occupants and shipping in downwind areas of possible fire and explosion hazard, where present.
- Notify the port or relevant authority and keep the public away from the area.
- Shut off the source of the spill if possible and safe to do so.
- Confine the spill if possible.
- Remove the product from the surface by skimming or with suitable absorbent material.
- Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.
- See “First Aid Measures” and “Stability and Reactivity”.

7. HANDLING AND STORAGE

Precautions for Safe Handling

This product can be safely handled in ambient conditions. Use only in accordance with manufacturers instructions. Do not handle if indications of overheating or expansion.

Conditions for Safe Storage

This product is sensitive to extreme heat conditions. Do not manually handle aerosol products that have overheated, or expanded into the packaging. Store in a cool, dry place away from direct sunlight. Check packaging indicator during warehousing for heat treatment.

Incompatible Materials

None known

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

National Exposure Standards

The time weighted average concentration (TWA) for the liquid component of this product is: Recommended: None specified: consider 1000 ppm, which means the highest allowable exposure concentration in an eight-hour day for a five-day working week. The short term exposure limit (STEL) is: Recommended: None specified: consider 2000 ppm, which is the maximum allowable exposure concentration at any time. The liquid product component of this product is isolated in an aerosol device.

Biological Limit Values (BLV)

None specified

Engineering Controls: Temperature control

The device is fitted with a patented thermostat on the packaging to identify expiration, or hazardous use of over-heated product. Avoid overheating the product through appropriate storage of the device. Store out of direct sun light and convection heating, such as vehicle interiors, etc.

Personal Protective Equipment

Respiratory Protection: There is no specific requirement – all gases and vapours are isolated.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/Body Protection: Always wear long sleeves, long trousers, or coveralls, and enclosed footwear or safety boots when handling this product. Do not handle product that has overheated – indicated by the thermostat on the outside of the packaging. Aerosols of all varieties can be hazardous when the liquid contents have been heated beyond their boiling points. Avoid physical contact with aerosols that have overheated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of measurement	Typical Value
Appearance	None	Device: aerosol in packaging.
Device: properties	None	
Aerosol Liquid contents:		
Boiling Range	°C	-19
Density (Specific Gravity Liquid @ 20°C)	-	1.12
Explosive Limits in Air	% vol/vol	None
Vapour Pressure (@ 21°C)	bar	3.4
Vapour Pressure (@ 54°C)	bar	10
Heat of Combustion	kJ/g	10.2
Flash Point	°C	None
Solubility of Product		
in Water	g/l	2040 mg/L
in other solvents	(name)	Hydrocarbons, organic solvents
Autoignition Temperature	°C	288

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Technical Data Sheet.

10. STABILITY AND REACTIVITY

Chemical stability

Stable at room temperature and pressure

Conditions to avoid

None known

Hazardous reactions

Excessive heat, Alkali metals, puncture of container or packaging.

Hazardous polymerisation

Will not occur

11. TOXICOLOGICAL INFORMATION

Acute Effects

Ingestion

This product is unlikely to be ingested. On discharge of the device, the product is a gas.

Eye Contact

This product is unlikely to be in contact with eyes or eye tissue; however, there are not expected to be any adverse effects with the contents.

Skin Contact

This product is unlikely to be in contact with skin or hair. There are no adverse effects expected with the contents.

Inhalation

This product is unlikely to be inhaled in general use; however, avoid inhalation of this product. Fluorohydrocarbons can result in adverse respiratory symptoms, and in a pressurised environment, could contribute to pulmonary oedema.

Chronic Effects

There are no expected chronic effects with this product.

Other Health Effects Information

There are no other effects with this product, except in the situations of intentional misuse. Always comply with the manufacturer's instructions when using this product.

Toxicological Information

Oral LD_{50}: Inhalation (rat): 1,500,000 mg/m3

Inhalation TC_{Lo}: No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity: Liquid Component (isolated)

Aquatic Toxicity:

Fish Toxicity LC_{50}:	No data available: not expected to be harmful.
Daphnia Magna EC_{50}:	No data available: not expected to be harmful.
Blue-green algae:	No data available: not expected to be harmful.
Green algae:	No data available: not expected to be harmful.

Mobility/Biodegradability: This product is not expected to biodegrade. The contents of this product is expected to evaporate and degrade naturally.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

This product must be disposed in accordance with chemical and aerosol handling requirements.

Special Precautions

This product is not suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers. This product should be treated and disposed through chemical waste treatment in accordance with the local authority, or considered for use in recycling.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.	1950	**UN No.**	1950	**UN No.**	1950
Proper Shipping Name	Aerosols	**Proper Shipping Name**	Aerosols	**Proper Shipping Name**	Aerosols
DG Class	Aerosol 2.2	**DG Class**	Aerosol 2.2	**DG Class**	Aerosol 2.2
Sub. Risk	None	**Sub. Risk**	None	**Sub. Risk**	None
Packing Group	Not Specified	**Packing Group**	Not Specified	**Packing Group**	Not Specified
Hazchem	2YE	**Hazchem**	2YE	**Hazchem**	2YE

Dangerous Goods Segregation

This product is Class Aerosol 2.2, packing group Not Specified, regulated for Transport via Road and Rail.

15. REGULATORY INFORMATION

Country/Region: Australia
Inventory: AICS
Status: Listed
Poisons Schedule: Not Scheduled

16. OTHER INFORMATION

Reasons for Issue: Updated information and amalgamated supplier changes in all sections.

Abbreviations:

AICS: Australian Inventory of Chemical Substances
CAS Number: Chemical Abstracts Number
IARC: International Agency for Research on Cancer
PPE: Personal Protective Equipment
N/R: Non-regulated
N/A: Not applicable

References:

- Supplier Material Safety Data Sheets
- http://hsis.ascc.gov.au/SearchHS.aspx (September 15)
- Risk and safety phases from Approved Criteria/NOHSC system and GHS (August 15)
- Animal toxicology data: http://chem.sis.nlm.nih.gov/chemidplus (September 15)
- Ecotoxicology data: http://cfpub.epa.gov/ecotox/quick_query.htm (September 15)

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety

guide for the product and its recommended uses, but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. For further information, please contact MTI Group Pty Ltd.