MSDS ENGAS Minus 50 / ENGAS M 50
MATERIAL SAFETY DATA SHEET

Date of Issue: March 2019

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER
Propane/Propylene/Ethane blends (may also contain small amounts of other hydrocarbons)
A flammable gas used as a refrigerant, normally stored under pressure in liquid form.
Most cylinders or containers are LIQUID SERVICE.
Trade Names: **Engas Minus 50, Engas M 50**
Systematic Names: **Propane / Propylene / Ethane**
Engas Australasia , PO Box 463, Joondalup, Perth, Western Australia, 6919
Phone +61 8 1300 463 642, Fax + 61 8 9301 2411, ABN = 15 615 619 737
Emergency Phone Number: +61 8 1300 463 642

2. HAZARDS IDENTIFICATION
CLASSIFIED AS HAZARDOUS CHEMICALS ACCORDING TO GHS REQUIREMENTS
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE
Flammable Gas – Category 1 – Gases Under Pressure
UN No. 1978, DG Class 2.1, Subsidiary Risk(s): None Allocated.
Hazchem Code 2YE, EPG 2A2, Package Group: None Allocated.

Hazard Statement(s)

Extremely Flammable Gas
Contains gas under pressure, may explode if heated
Risk of explosion if heated under confinement

Precautionary Statement(s) Prevention

Keep away from – Heat, Sparks, Open Flames, Hot Surfaces – No Smoking

Precautionary Statement(s) Response

Leaking Gas Fire – Do not extinguish unless leak can be stopped safely
Eliminate all ignition sources if safe to do so.

Precautionary Statement(s) Storage

Protect from sunlight. Store in a well-ventilated space

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3. COMPOSITION / INFORMATION ON INGREDIENTS

Main Components:		CAS Number
Propane	>75.0%	74 – 98 – 6
Propylene	<16.0%	115 – 07 – 1
Ethane	<8.0%	74 – 84 – 0
Minor Components: Butane (normal)	<1.0%	106 – 97 – 8

Odorant: Engas M50 is naturally odourised – a pungent odour found in one of the components of the blend

4. FIRST AID MEASURES – In all cases seek medical attention

Eye Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution.
Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
Inhalation: Remove from area of exposure immediately. Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.
Skin Cold burns: DO NOT remove clothing, gently flush affected areas with warm water (30° C) for 15 minutes. Then remove clothing and flush affected skin area with warm water (30° C) for 15 minutes, then 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.
Ingestion is considered unlikely due to the product form. Advice to treat symptomatically: Severe inhalation over exposure may sensitise the heart to Doctor catecholamine induced arrhythmias. Do not administer catecholamine's to an overexposed person.

5. FIRE FIGHTING MEASURES

Flammability: Highly flammable. Heating to decomposition produces acrid smoke and irritating fumes. Product will add fuel to a fire. Eliminate all ignition sources including cigarettes, open
flames, spark producing switches /tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.
Fire and Highly flammable: Temperatures in a fire may cause cylinders to rupture and explode.
Internal pressure relief devices to be activated. Call Fire Brigade. This product will add
fuel to a fire. Cool cylinders and vessels exposed to fire by applying water from a protected location and spray with water, directing spray primarily onto the upper surface. Do not approach any Engas HC refrigerant cylinder or container suspected of being hot.
Extinguishing: Stop flow of gas if safe to do so, such as by closing valves. If the gas source cannot be
isolated, do not extinguish the flame, since re-ignition and explosion could occur.
Await arrival of emergency services.
Drench and cool cylinders with water spray from protected area at a safe distance.
If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher.
Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders.
Evacuate the area of persons not fighting the fire.
Carbon monoxide fumes may be produced should burning occur within an enclosed space (i.e. causing a deficiency of oxygen).
Fire fighters should wear full protective clothing and be aware of the risk of possible explosion (especially in a confined space). Flashback may occur along vapour trail.
Where possible, remove cool cylinders from the path of the fire.
Do not re-use a fire-exposed vessel or cylinder – seek advice of supplier.

6. ACCIDENTAL RELEASE MEASURES

Spillage: As this product has a very low flash point any spillage or leak is a fire and/or explosion
hazard. If a leak has not ignited, stop gas flow, isolate sources of ignition and evacuate personnel.
Note: Most cylinders/containers are LIQUID service. Ensure good ventilation.
Liquid leaks generate large volumes of heavier than air flammable vapour which may travel to remote sources of ignition (e.g. along drainage systems).
Where appropriate, use water spray to disperse the gas or vapour and to protect personnel attempting to stop leakage.
Vapour may collect in any confined space.
Gas Cylinders: If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of
personnel. Inform manufacturer/supplier of leak.
Wear appropriate PPE and carefully move to a well-ventilated remote area, then allow to discharge.
Do not attempt to repair leaking valve or cylinder fusible plugs.

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7. HANDLING AND STORAGE

Precautions for Safe Handling.
Avoid inhalation of vapour. Avoid contact with liquid and cold storage containers.
When handling cylinders wear protective footwear and suitable gloves. Always ensure that cylinders are within test date, are fit for use and are leak checked prior to use. Do not fill excessively dented, gouged or rusty containers (refer AS2337.1). Only fill cylinders by mass on verified weighing equipment..
Avoid contact with eyes. Class 2.1 Flammable Gas products may only be loaded in the same vehicle or packed in the same freight container with the classes of products as permitted in the ADG Code (see references).
Cylinders shall only be transported in an upright, secure position in accordance with the National Road Transport Commission Load Restraint Guide and shall not be dropped. Conditions for Storage: use only in equipment/containers designed for use with this product. Safe Storage: store and dispense only in well ventilated areas away from heat and sources of ignition. Do not enter storage tanks. If entry to tanks is necessary, contact the supplier. Containers must be properly labelled. Do not remove warning labels from containers. Cylinders shall be stored in accordance with the requirements of the ADG Code, AS 4332 and AS/NZS1596.
Do not store in pits and basements where vapour may collect. Store cylinders securely in an upright position. Store away from incompatible materials particularly oxidising agents. Check that vessels and cylinders are clearly labelled. Do not contaminate cylinders with other products.
Other Product spilt on clothing may give rise to delayed evaporation and subsequent fire formation hazard. Check for leaks by sound and smell and by locating with soapy water or with approved detection devices.
Use only with hoses and gauges designed and approved for refrigerants. Ensure that cylinders cannot be struck by forklift vehicles or by dropped or rolled objects, etc. Refer to Australian state and territory dangerous goods regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Maintain adequate ventilation. Confined areas (e.g. tanks) should be adequately ventilated and gas tested.
Exposure

PROPANE	ES-TWA :	1000 ppm (NOSHC AUS)
PROPYLENE	ES-TWA :	1000 ppm (NOSHC AUS)
ETHANE	ES-TWA :	1000 ppm (NOHSC AUS)

PPE
Wear insulated or leather gloves and safety glasses. Where an inhalation risk exists, wear an Air-line respirator or Self-Contained Breathing Apparatus (SCBA).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	**Evaporation**	Rapid, temperature Dependent
Solubility (water)	0.001cm3 / cm3		
Odour	Characteristic Odour *	**Melting Point**	NOT AVAILABLE
		Upper Explosion Limit	10.01 %
pH	NOT AVAILABLE	**Lower Explosion Limit**	1.9 %
Liquid Density@ 15°C	>0.50 <0.64 g/cm3	**Vapour Pressure@25°C**	360 - 1006 kPa(g)
Volatility	Highly Volatile	**Flash Point**	-104 to 0 °C
Vapour Density	NOT AVAILABLE	**Boiling Point**	-50 to -10°C
Flammability	HIGHLY FLAMMABLE	**Auto-ignition Temperature**	~480°C to ~550°C

*__Engas M50 is naturally odourised – a pungent odour found in one of the components of the blend.__

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10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	Avoid heat, sparks, open flames and other ignition sources.
Decomposition	Heating to decomposition produces acrid smoke and irritating fumes.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary - Asphyxiant gas.
Symptoms of exposure are directly related to displacement of oxygen from air.
Eye: Non-irritating. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage.
Inhalation: Non-irritating – Asphyxiant. Effects are proportional to oxygen displacement.
Low vapour concentrations may cause nausea, dizziness, headaches and drowsiness. May have a narcotic effect if high concentrations of vapour are inhaled. High vapour concentrations may produce symptoms of oxygen deficiency which, coupled with central nervous system depression, may lead to rapid loss of consciousness.
Abuse: Under normal conditions of use the product is non-hazardous, however abuse involving deliberate inhalation of very high concentrations of vapour can produce unconsciousness and/or result in a sudden fatality or brain damage.
Skin: Non-irritating. Contact with evaporating liquid or super cold vessels or pipes may result in frost-bite with severe tissue damage.
Ingestion: Due to product form, ingestion is considered highly unlikely.

Toxicity Data	Propane	(74 – 98 – 6)	LC50 (inhalation)	50,000 ppm
	Propylene	(115 – 07 – 1)	LD50	50,000 ppm
	Ethane	(74 – 84 – 0)	LD50 rat:	>500-5000 ppm

12. ECOLOGICAL INFORMATION

Environment	No known ecological damage is caused by this product.
Persistence / Degradability	Expected to be inherently biodegradable.
Mobility	No bio concentration is expected.
Eco toxicity	Low toxicity to aquatic organisms

13. DISPOSAL CONSIDERATIONS

Waste Disposal Cylinders should be returned to the manufacturer or supplier for disposal of contents.
Legislation: Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Transport of propane / ethane / propylene is controlled in accordance with the requirements of the ADG Code and the Load Restraint Guide.

UN Number	1978	Shipping Name	PROPANE / ETHANE / PROPYLENE
DG Class	2.1	Subsidiary Risk(s)	None Allocated
Hazchem Code	2YE	Packing Group	None Allocated

15. REGULATORY INFORMATION

AICS: All chemicals listed on the Australian Inventory of Chemical Substances (AICS).
Poison: 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).

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16. OTHER INFORMATION

The Australian Code for the Transport of Dangerous Goods by Road and Rail (commonly known as the ADG Code).
Australian Standards as detailed within this document.
AS/NZS 1677 Refrigerating Systems Part 1: Refrigeration classification
AS/NZS 1677 Refrigerating Systems Part 2: Safety requirements for fixed applications
Petroleum and Gas Legislation / Queensland: 2004
The Load Restraint Guide as prepared by the National Transport Commission.
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.

Reviewed: March 2019

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