

SAFETY DATA SHEET**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY****Product Identification:** Primus Cartridges**Supplier:** Lister Gases, Bridge Street, Holloway Bank, Wednesbury, West Midlands, WS10 0AW.

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Application: Multi-Purpose Fuel**2. COMPOSITION/INFORMATION ON INGREDIENTS****General:** Propane (UN No 1978)—15% to 35%

Butane (UN No 1011)—65% to 85%

Propane Butane Mix in Cartridges

Ethanedio added in minute concentrations as a stenching agent (<50ppm)

Hazardous ingredient: None**3. HAZARDS IDENTIFICATION**

R12. Extremely Flammable. F+

Under normal conditions of storage and use LPG will not constitute a health hazard. However, being heavier than air, if released the gas will collect in any confined space and may reach concentrations presenting an asphyxiation or safety hazard. Direct contact of the skin with liquid gas may cause frostbite or cold burns, and containers may present a similar hazard when gas is being withdrawn, due to the cooling effect.

Handling precautions should be strictly observed.

4. FIRST AID MEASURES**Eyes:** In case of cold burns caused by rapidly expanding gas or vaporising liquid, obtain immediate medical attention.**Skin:** In case of cold burns caused by rapidly expanding gas or vaporising liquid, obtain immediate medical attention.**Inhalation:** In emergency situations use proper respiratory protection to immediately remove the victim from exposure.

Administer Artificial Respiration if breathing has stopped. Keep at rest; call for prompt medical attention.

Ingestion: Not applicable.**Pressure Infection:** Always obtain immediate medical attention, even though the injury may appear minor.**5. FIRE FIGHTING MEASURES****Flammability:** Do not attempt to extinguish an LPG fire until the source of fuel is shut off.

Fire and explosion hazards: Extreme hazard; gas leaks or liquid spills readily form flammable mixtures at temperatures below ambient. Risk of fire or explosion by mechanical impact, friction, sparks, flames or other sources of ignition. Auto-refridgeration can cause drains to become blocked, valves made inoperable by the formation of ice when vapours or vaporising liquid cause temperatures to fall below zero. Vapours settle to ground and may reach, via drains etc, ignition sources remote from the point of escape. The product can accumulate static charges which may cause an incendiary electric discharge.

Special fire fighting procedures: To prevent uncontrolled explosive re-ignition, do not extinguish flame at leak point. Cut off fuel and / or allow fire to burn out under controlled conditions. Extinguish small residual fires with foam or dry powder extinguishers. Respiratory and eye protection required for fire fighting personnel exposed to fumes or smoke. Use water sprays to cool equipment or adjacent storage containers.

Hazardous Combustion Products: Smoke, Carbon Monoxide may be formed in the event of incomplete combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: See section 8

Environmental precautions:

Land spill: Eliminate sources of ignition. Shut off source taking normal safety precautions. Warn occupants in downwind areas of fire and explosion hazard. Evacuate endangered people, if necessary. Allow the spill to evaporate; ventilate closed and confined spaces.

Water spill: Eliminate ignition sources. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Notify Port and other relevant Authorities. Allow liquid to evaporate from the surface.

7. HANDLING AND STORAGE

Handling: To be handled with care and not exposed to sharp objects.

Storage: Small containers of approved design, properly sealed and in good condition, should be stored outdoors or in well ventilated storerooms, at no lower than ground level and must be quickly removable in an emergency. Eliminate all ignition sources from the storage area. Instruct personnel handling the containers about potential hazards and precautions, safe handling and emergency procedures.

Storage Temperature- Ambient to 40 degrees C

Special precautions: Take precautions against static discharge. Keep all connections for using containers securely closed when not in use. Ensure only suitable containers are used. Ensure maximum permissible filling ratio for the product is not exceeded.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PROPANE: Simple Asphyxiant No Exposure Limit.

BUTANE: 600 ppm (8 hour TWA) 750 ppm (STEL)

Engineering measures: Use only Explosion Proof electrical equipment at correct classification (UL or HASEEPA).

Personal protection: Frostbite hazard, protect eyes, hands and skin from exposure. Wear safety glasses with side shields to protect eyes. Wear protective and insulating gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless gas (Liquefied under pressure).	
Odour:	Strong, Sulphurous pungent odour due to addition of stenching agent.	
Specific Gravity at 15.6 C	0.5 to 0.59	
n_D:	Not applicable.	
Vapour pressure at 20 C	4 bar	
Vapour density (air =1)	1.8	
Boiling point:	Minus 15 degrees C	
Auto ignition temp:	>410 C	
Flammability limit in air, % by volume:	LEL 2.0	UEL 10.2
Solubility:	Sparingly soluble	

Please note that these properties do not constitute a specification.

10. STABILITY AND REACTIVITY

Stability:	The product is stable and not subject to polymerisation.
Conditions to avoid:	Avoid exposure to extreme heat.
Materials to avoid:	Avoid contact with strong oxidising agents such as liquid chlorine.
Hazardous decomposition products:	Product does not decompose at ambient temperatures.

11. TOXICOLOGICAL INFORMATION

The following toxicological assessment is based on knowledge of the toxicity of the product components

Health effects:

On eyes:	Exposure to rapidly expanding gas or liquid may cause frostbite (cold burn) and damage the eyes.
On skin:	Exposure of skin to liquid or rapidly expanding gas may cause frostbite (cold burn).
By inhalation:	Negligible hazard at ambient / normal temperatures. Breathing saturated vapours for a few minutes may be fatal. Saturated vapours can be encountered in confined spaces and / or under conditions of poor ventilation. May cause irritation, breathing failure, coma and death without any warning odour being sensed. Avoid breathing vapours, mists or fumes.

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By ingestion: No hazard in normal use.
Chronic: No chronic data available at this time.

Acute: At very high levels, LPG has narcotic and asphyxiating properties, and cases of "sudden death" have been documented in which LPG's were identified in blood, urine and cerebrospinal fluid. Animal inhalation studies indicate a gas concentration of 89% to be below the anaesthetic level, but to depress the blood pressure of cats. 1%LPG causes hemodynamic changes in dogs; 3.3%decreased inotropism of the heart, decreases the mean aortic pressure, stroke volume and cardiac output, and increases pulmonary vascular resistance. In the primate, 10% LPG induces some myocardial effects, and 20% aggravation of these parameters and respiratory depression. 10% LPG in the mouse and 15% in the dog appear to produce no arrhythmia but weak cardiac sensitisation.

12. ECOLOGICAL INFORMATION

Biodegradability: In the absence of specific environmental data for this product, this assessment is based on information for hydrocarbon components found in LPG. LPG released into the environment will be dispersed into the atmosphere as a gas. Based on chemical / physical data from the literature, no harmful effects to terrestrial or aquatic habitats would be expected from components in LPG. LPG components have been reported to have short atmospheric half-lives and therefore, would not be expected to persist.

13. DISPOSAL CONSIDERATIONS

To be disposed of at a re-cycling plant or thrown away in a safe place and manner.

14. TRANSPORT INFORMATION

Shipping names:	Propane / Butane mix in cartridges
UN No:	1950
UN Class:	Class 2
ADR / RID:	Class 2 - 3 (Item No 3(b))
IMO / IMDG:	Class 2.1
Marine pollutant:	No
IATA (air):	Category 2.1
Packing Category:	Category 203

15. REGULATORY INFORMATION

Hazard label data:	Extremely Flammable. P+
R & S Phrases:	R13. Extremely Flammable Liquefied Gas S2. Keep out of reach of children S9. Keep container in well-ventilated area S16. Keep away from ignition sources -- NO SMOKING
E.C. Directives:	E.C. Directive 91 /101 /EEC Waste oil Directive 87 / 101 / EEC

16. OTHER INFORMATION

The data and advice given apply when the product is sold for the stated application or applications. The product is not sold as suitable for any other application. Use of the product for applications other than as stated in this sheet may give rise to risks not mentioned in this sheet. You should not use the product other than the stated application or applications.

If you have purchased this item for supply to a third party for use at work, it is your duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. If you are an employer, it is your duty to tell your employees and others who may be affected by any hazards in this sheet and of any precautions, which should be taken