

# SAFETY DATA SHEET

1. Identification		
Product identifier	LPS® NoFlash	
Other means of identification		
Part Number	04016	
Recommended use of the chem	ical and restrictions on use	
Recommended use		or the removal of dirt, moisture, dust, flux and oxides precision equipment such as circuit boards, and the ed in factories and other industrial settings.
<b>Restrictions on use</b>	Not available.	
Details of manufacturer or impo	rter	
Manufacturer		
Supplier Name	MRO Chem Pty Ltd.	
Address	Level 19, 644 Chapel Street	
	South Yarra, Victoria 3141, Australia	
	Tel: +03 9823 6273	
In Case of Emergency	+04 3448 1129	
Manufacturer		
Company name	ITW Pro Brands	
Address	4647 Hugh Howell Rd., Tucker, GA 30084 (U	.S.A.)
Website	http://www.lpslabs.com	
E-mail	lpssds@itwprobrands.com	
2. Hazard(s) identification		
Classification of the hazardous	chemical	
Physical hazards	Gases under pressure	Liquefied gas
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Carainaganiaity	Catagony 2

Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Specific target organ toxicity, single exposure	Category 3 narcotic effects
Specific target organ toxicity, repeated exposure	Category 2 (Liver, Central Nervous System)
Hazardous to the aquatic environment, long-term hazard	Category 3
	Reproductive toxicity Specific target organ toxicity, single exposure Specific target organ toxicity, single exposure Specific target organ toxicity, repeated exposure Hazardous to the aquatic environment,

#### Label elements, including precautionary statements



Signal word

Hazard symbol(s)

Danger

Hazard statement(s)	Contains gas under pressure; may explode if heated. Causes skin irritation. Causes serious eye irritation. Suspected of causing cancer. May damage fertility or the unborn child. May cause respiratory irritation. May cause drowsiness or dizziness. May cause damage to organs (Liver, Central Nervous System) through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe gas. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Specific treatment (see this label). Take off contaminated clothing and wash before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.
Supplemental information	33.5% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

## 3. Composition/information on ingredients

ture Identity of chemical ingredients	CAS number and other unique identifiers	Concentration o ingredients
n-Propyl Bromide	106-94-5	60 - 70
Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)	811-97-2	30 - 40
1-Propanol	71-23-8	1 - 5
1,2 Butylene Oxide	106-88-7	< 1
t-Butanol	75-65-0	< 1

## 4. First-aid measures

#### Description of necessary first aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Personal protection for first-aid responders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Call a POISON CENTER or doctor/physician if you feel unwell.
Symptoms caused by exposure	Skin irritation. Defatting of the skin. May cause redness and pain. Exposed individuals may experience eye tearing, redness, and discomfort. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Medical attention and special treatment	Provide general supportive measures and treat symptomatically.
5. Fire-fighting measures	

Extinguishing media	
Suitable extinguishing media	Powder. Alcohol resistant foam. Water spray. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure.
Special protective equipment and precautions for fire fighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.
Hazchem code	2Y E
General fire hazards	Pressurized container may explode when exposed to heat or flame.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.

#### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

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For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. Isolate area until gas has dispersed. Collect spillage. Use water spray to reduce vapors or divert vapor cloud drift. Scoop up used absorbent into drums or other appropriate container. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.
7. Handling and storage	
Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Ground and bond containers when transferring material. Do not re-use empty containers. Do not breathe gas. Avoid contact with eyes, skin, and clothing. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Use only in well-ventilated areas. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Store locked up. Contents under pressure. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of the reach of children.

#### 8. Exposure controls and personal protection

**Control parameters** Follow standard monitoring procedures.

#### **Occupational exposure limits**

Components	Type	dards for Airborne Contaminants, Appendix A) Value
	Type	Valac
1-Propanol (CAS 71-23-8)	STEL	614 mg/m3
		250 ppm
	TWA	492 mg/m3

#### Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A) Components Value

components	туре	value	
		200 ppm	_
Ethane, 1,1,1,2-tetrafluoro-(hfc-134a ) (CAS 811-97-2)	TWA	4240 mg/m3	
		1000 ppm	
t-Butanol (CAS 75-65-0)	STEL	455 mg/m3	
		150 ppm	
	TWA	303 mg/m3	
		100 ppm	

# Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

1-Propanol (CAS 71-23-8)       STEL       614 mg/m3         1-Propanol (CAS 71-23-8)       TWA       250 ppm         TWA       492 mg/m3       200 ppm         1,1,1,2-tetrafuluoro-(hfc-134a)       1000 ppm       1000 ppm         1(CAS 811-97-2)       1000 ppm       150 ppm         t-Butanol (CAS 75-65-0)       STEL       455 mg/m3         WA       303 mg/m3       100 ppm         US. ACGIH Threshold Limit Values       TWA       303 mg/m3         Components       Type       Value         1-Propanol (CAS 71-23-8)       TWA       0.1 ppm         106-94-5)       TWA       100 ppm         LButanol (CAS 75-65-0)       TWA       100 ppm         UK. EH40 Workplace Exposure Limits (WELs)       Components       Type         Components       Type       Value         1-Propanol (CAS 71-23-8)       STEL       625 mg/m3         VA       250 ppm       250 ppm         TWA       500 mg/m3       200 ppm         1,1,2-tetrafiluoro-(hfc-134a)       TWA       4240 mg/m3         1,1,1,2-tetrafiluoro-(hfc-134a)       1000 ppm       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       462 mg/m3         1(CAS 811-97-2)       1000	Components	Туре	Value	
TWA         492 mg/m3 200 ppm           Ethane, 1,1,2:tetrafluoro-(hfc-134a))         TWA         4240 mg/m3           ) (CAS 811-97-2)         1000 ppm           t-Butanol (CAS 75-65-0)         STEL         455 mg/m3 150 ppm           TWA         303 mg/m3 100 ppm           US. ACGIH Threshold Limit Values         TWA         303 mg/m3 100 ppm           Components         Type         Value           1-Propanol (CAS 75-65-0)         TWA         100 ppm           LButanol (CAS 75-65-0)         TWA         0.1 ppm           VE. ACGIH Threshold Limit Values         TWA         0.1 ppm           Components         Type         Value           1-Propanol (CAS 71-23-8)         TWA         100 ppm           Propanol (CAS 75-65-0)         TWA         100 ppm           UK. EH40 Workplace Exposure Limits (WELs)         Ethane,         200 ppm           Components         Type         Value           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3 200 ppm           12.00 ppm         TWA         200 ppm           14.1,2-tetrafluoro-(hfc-134a)         100 ppm         1000 ppm           1,1,2-tetrafluoro-(hfc-134a)         1000 ppm         1000 ppm           1.1,1,2-tetrafluoro-(hfc-134a)	1-Propanol (CAS 71-23-8)	STEL	614 mg/m3	
Ethane, 1,1,1,2:tetrafiluoro-(hfc-134a) ) (GAS 811-97-2)         TWA         4240 mg/m3           t-Butanol (CAS 75-65-0)         STEL         455 mg/m3           TWA         303 mg/m3 150 ppm         150 ppm           TWA         303 mg/m3 100 ppm         1000 ppm           US. ACGIH Threshold Limit Values         TWA         303 mg/m3 100 ppm           Components         Type         Value           1-Propanol (CAS 71-23-8)         TWA         100 ppm           n-Propyl Bromide (CAS         TWA         01 ppm           V6-94-5)         TWA         100 ppm           t-Butanol (CAS 71-23-8)         TWA         100 ppm           VK. EH40 Workplace Exposure Limits (WELs)         Components         Type           VAlue         250 ppm         250 ppm           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3           200 ppm         TWA         200 ppm           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3           200 ppm         TWA         200 ppm           1,1,1,2-tetrafiluoro-(hfc-134a)         1000 ppm           1,CAS 811-97-2)         1000 ppm           t-Butanol (CAS 75-65-0)         STEL         462 mg/m3           1,000 ppm         150 ppm			250 ppm	
Ethane, 1,1,2-tetrafluoro-(hfc-134a)         TWA         4240 mg/m3           ) (CAS 811-97-2)         1000 ppm           t-Butanol (CAS 75-65-0)         STEL         455 mg/m3           150 ppm         150 ppm           TWA         303 mg/m3           1000 ppm         150 ppm           TWA         303 mg/m3           100 ppm         100 ppm           US. ACGIH Threshold Limit Values           Components         Type           VA         100 ppm           1-Propanol (CAS 71-23-8)         TWA           106-94-5)         100 ppm           t-Butanol (CAS 75-65-0)         TWA         100 ppm           UK. EH40 Workplace Exposure Limits (WELs)         Components         Type           Components         Type         Value           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3           250 ppm         TWA         200 ppm         200 ppm           1,1,2-tetrafluoro-(hfc-134a)         1000 ppm         1,1,1,2-tetrafluoro-(hfc-134a)           1,CAS 811-97-2)         1000 ppm         1000 ppm           t-Butanol (CAS 75-65-0)         STEL         150 ppm           1,1,2-tetrafluoro-(hfc-134a)         1000 ppm         1000 ppm <td></td> <td>TWA</td> <td>492 mg/m3</td> <td></td>		TWA	492 mg/m3	
1,1,1,2-tetrafluoro-(hfc-134a)) (CAS 811-97-2)       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       455 mg/m3         150 ppm       TWA       303 mg/m3         100 ppm       150 ppm         TWA       303 mg/m3         100 ppm       100 ppm         US. ACGIH Threshold Limit Values       Value         Components       Type       Value         1-Propanol (CAS 71-23-8)       TWA       100 ppm         n-Propyl Bromide (CAS       TWA       0.1 ppm         106-94-5)       TWA       100 ppm         L'Eutanol (CAS 75-65-0)       TWA       100 ppm         UK. EH40 Workplace Exposure Limits (WELs)       Components       Ype         Components       Type       Value         1-Propanol (CAS 71-23-8)       STEL       625 mg/m3         250 ppm       TWA       200 ppm         TWA       200 ppm       200 ppm         1,1,1,2-tetrafluoro-(hfc-134a)       YUA       4240 mg/m3         1,1,1,2-tetrafluoro-(hfc-134a)       YUA       4240 mg/m3         1,1,2-tetrafluoro-(hfc-134a)       TWA       4240 mg/m3         1,1,2-tetrafluoro-(hfc-134a)       TWA       308 mg/m3			200 ppm	
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Image: Construction         Image: Construction           1-Propanol (CAS 71-23-8)         TWA         100 ppm           n-Propyl Bromide (CAS         TWA         0.1 ppm           106-94-5)         100 ppm         100 ppm           UK. EH40 Workplace Exposure Limits (WELs)         100 ppm           Components         Type         Value           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3           250 ppm         TWA         500 mg/m3           200 ppm         TWA         200 ppm           Ethane,         TWA         4240 mg/m3           1,1,1,2-tetrafluoro-(hfc-134a         )         1000 ppm           ) (CAS 811-97-2)         1000 ppm           TWA         308 mg/m3			Value	
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106-94-5)       TWA       100 ppm         UK. EH40 Workplace Exposure Limits (WELs)         Components       Type       Value         1-Propanol (CAS 71-23-8)       STEL       625 mg/m3         250 ppm       250 ppm         TWA       500 mg/m3         200 ppm       200 ppm         Ethane,       TWA       4240 mg/m3         1,1,1,2-tetrafiluoro-(hfc-134a)       TWA       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       462 mg/m3         TWA       150 ppm       150 ppm         TWA       308 mg/m3       150 ppm		TWA	100 ppm	
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Components         Type         Value           1-Propanol (CAS 71-23-8)         STEL         625 mg/m3 250 ppm           TWA         500 mg/m3 200 ppm           Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)         TWA           ) (CAS 811-97-2)         TWA           t-Butanol (CAS 75-65-0)         STEL           TWA         308 mg/m3	UK. EH40 Workplace Exposure Li	mits (WELs)		
TWA       250 ppm         500 mg/m3       200 ppm         Ethane,       TWA       4240 mg/m3         1,1,1,2-tetrafluoro-(hfc-134a)       1000 ppm         (CAS 811-97-2)       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       462 mg/m3         150 ppm       150 ppm         TWA       308 mg/m3			Value	
TWA       500 mg/m3 200 ppm         Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)       TWA       4240 mg/m3         ) (CAS 811-97-2)       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       1000 ppm         TWA       462 mg/m3         150 ppm       150 ppm         TWA       308 mg/m3	1-Propanol (CAS 71-23-8)	STEL	625 mg/m3	
TWA       500 mg/m3 200 ppm         Ethane, 1,1,1,2-tetrafluoro-(hfc-134a)       TWA       4240 mg/m3         ) (CAS 811-97-2)       1000 ppm         t-Butanol (CAS 75-65-0)       STEL       1000 ppm         TWA       462 mg/m3         150 ppm       150 ppm         TWA       308 mg/m3			250 ppm	
Ethane, 1,1,1,2-tetrafluoro-(hfc-134a) ) (CAS 811-97-2)         TWA         4240 mg/m3           t-Butanol (CAS 75-65-0)         STEL         1000 ppm           t50 ppm         150 ppm           TWA         308 mg/m3		TWA		
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t-Butanol (CAS 75-65-0) STEL 1000 ppm 462 mg/m3 150 ppm TWA 308 mg/m3			-	
150 ppm TWA 308 mg/m3	•		1000 ppm	
TWA 308 mg/m3	t-Butanol (CAS 75-65-0)	STEL	462 mg/m3	
•			150 ppm	
100 ppm		TWA	308 mg/m3	
			100 ppm	

# Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Туре	Value	
Ethane, 1,1,1,2-tetrafluoro-(hfc-134a ) (CAS 811-97-2)	TWA	4200 mg/m3	
t-Butanol (CAS 75-65-0)	TWA	1000 ppm 62 mg/m3 20 ppm	

#### **Biological limit values**

No biological exposure limits noted for the ingredient(s).

#### **Exposure guidelines**

Australia OELs: Skin designa	ation		
1-Propanol (CAS 71-23-8)	Can be absorbed through the skin.		
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.		
Individual protection measures, for example personal protective equipment (PPE)			
Eye/face protection	Wear safety glasses with side shields (or goggles). Eye wash fountain and emergency showers are recommended.		
Skin protection			
Hand protection	Viton or nitrile rubber gloves are recommended.		
Other	Wear appropriate chemical resistant clothing.		
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Chemical respirator with organic vapor cartridge.		
Thermal hazards	Not applicable.		
Hygiene measures	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.		

# 9. Physical and chemical properties

of i hybroal and offernious p	noper lies	
Appearance	Liquid.	
Physical state	Gas.	
Form	Aerosol.	
Color	Clear	
Odor	Strong.	
Odor threshold	Not established	
рН	Not applicable	
Melting point/freezing point	Not established	
Initial boiling point and boiling range	158 °F (70 °C)	
Flash point	< 73.4 °F (< 23.0 °C) Tag Closed Cup	
Evaporation rate	6 BuAc	
Flammability (solid, gas)	Not applicable.	
Upper/lower flammability or explosive limits		
Flammability limit - lower (%)	4 %	
Flammability limit - upper (%)	8 %	
Explosive limit - lower (%)	Not available.	
Explosive limit - upper (%)	Not available.	
Vapor pressure	> 100 mm Hg @20°C	
Vapor density	~4.3 (air = 1)	
Relative density	Not available.	
Solubility(ies)		
Solubility (water)	3 - 5 %	
Partition coefficient (n-octanol/water)	> 1	
Auto-ignition temperature	> 914 °F (> 490 °C)	
Decomposition temperature	Not established	
Viscosity	Not available.	
Other physical and chemical parameters		
Heat of combustion	12 kJ/g	

Percent volatile	100 %
Specific gravity	1.29 - 1.32 @20°C
VOC	70.1 % per US State and Federal Consumer Product Regulations

# 10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials.
Incompatible materials	Aluminum. Alkali earth metals. Alkaline metals.
Hazardous decomposition products	Carbon oxides. Hydrogen bromide. Hydrogen fluoride.

# 11. Toxicological information

#### Information on possible routes of exposure

Inhalation	Irritating to respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms related to exposure	Irritating to eyes, respiratory system and skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause redness and pain. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Behavioral changes. Narcosis. Decrease in motor functions.
Acute toxicity	Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
1,2 Butylene Oxide (CAS	106-88-7)	
<u>Acute</u>		
Dermal		
LD50	Rabbit	1500 - 2950 mg/kg, 24 Hours
		1.77 ml/kg, 24 Hours
Inhalation		
LC100	Rat	8000 ppm, 4 Hours
Vapor		
LC50	Rat	> 6.3 mg/l
Oral		
LD50	Rat	1 - 1.58 mg/kg
		1100 μl/kg
		1.3 ml/kg
-Propanol (CAS 71-23-8)	)	
<u>Acute</u>		
Dermal		
LD50	Rabbit	4032 mg/kg, 24 Hours
Inhalation		
Vapor		
LC50	Rat	> 13548 ppm, 4 Hours
		> 26.76 mg/l, 7 Hours
		> 9.8 mg/ml, 4 Hours
Oral		
LD50	Mouse	6800 mg/kg

Components	Species	Test Results	
	Rabbit	2.8 g/kg	
	Rat	1870 mg/kg	
		1.87 g/kg	
Propyl Bromide (CAS 106-94-5)			
Acute			
Dermal			
LD50	Rabbit	>= 10 ml/kg, 24 Hours	
	Rat	> 2000 mg/kg, 24 Hours	
Inhalation			
Vapor			
LC50	Rat	35000 mg/m3, 4 Hours	
LC50	Rat	14374 ppm, 4 Hours	
		7000 mg/l, 4 Hours	
		253 mg/l, 30 Minutes	
Vapor			
LC50	Rat	25 - 35 mg/l, 6 Hours	
Oral			
LD50	Rabbit	540 mg/kg	
	Rat	> 2000 mg/kg	
Butanol (CAS 75-65-0)			
Acute			
Oral			
LD50	Rabbit	3.6 g/kg	
	Rat	3.5 g/kg	
kin corrosion/irritation	Causes skin irritation.		
erious eye damage/irritation	Causes serious eye irritation.		
espiratory or skin sensitization	n		
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.		
Skin sensitization	This product is not expected to		
erm cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.		
Carcinogenicity	Suspected of causing cancer.		
ACGIH Carcinogens			
1-Propanol (CAS 71-23- n-Propyl Bromide (CAS 1		A4 Not classifiable as a human carcinogen. A3 Confirmed animal carcinogen with unknown relevance to humans.	
t-Butanol (CAS 75-65-0)		A4 Not classifiable as a human carcinogen.	
•••	Evaluation of Carcinogenicity		
1,2 Butylene Oxide (CAS		2B Possibly carcinogenic to humans.	
eproductive toxicity	May damage fertility or the un		
Specific target organ toxicity - single exposure		May cause respiratory irritation. May cause drowsiness or dizziness.	
Specific target organ toxicity - repeated exposure	May cause damage to organs exposure.	(Liver, Central Nervous System) through prolonged or repeated	
Aspiration hazard	Not an aspiration hazard.		
Chronic effects	May cause damage to organs	through prolonged or repeated exposure.	
Other information	Symptoms may be delayed.		
	-		
2. Ecological information	1		

## Ecotoxicity

Components		Species	Test Results
1-Propanol (CAS 71-23-8)			
Aquatic			
Crustacea E	EC50	Water flea (Daphnia magna)	3339 - 3977 mg/l, 48 hours
Fish L	_C50	Bleak (Alburnus alburnus)	3000 - 4000 mg/l, 96 hours
n-Propyl Bromide (CAS 106-94-5)			
Aquatic			
Fish L	_C50	Fathead minnow (Pimephales promelas)	67.3 mg/l, 96 hours
t-Butanol (CAS 75-65-0)			
Aquatic			
Crustacea E	EC50	Water flea (Daphnia magna)	4607 - 6577 mg/l, 48 hours
Fish L	_C50	Fathead minnow (Pimephales promelas)	6130 - 6700 mg/l, 96 hours
Persistence and degradability	Not inherently	biodegradable.	
Bioaccumulative potential	····,		
Partition coefficient n-octanol / water (log Kow) LPS® NoFlash 1-Propanol Ethane, 1,1,1,2-tetrafluoro-(hfc n-Propyl Bromide	:-134a)	> 1 0.25 1.06 2.1	
t-Butanol		0.35	
Mobility in soil	Readily absorb	bed into soil.	
Other adverse effects	None known.		
13. Disposal consideration	S		
Disposal methods Residual waste	Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see:		
Contaminated packaging	Disposal instructions). Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.		
14. Transport information	·		
ADG			
UN number UN proper shipping name Transport hazard class(es) Class Subsidiary risk Packing group Environmental hazards Hazchem code Special precautions for user	1950 AEROSOLS 2.2 - Not applicable Not available. 2YE Read safety in	structions, SDS and emergency procedure	es before handling.
RID UN number UN proper shipping name Transport hazard class(es) Class Subsidiary risk Label(s) Packing group Environmental hazards	1950 AEROSOLS, a 2.2 - 2.2 Not applicable No.		

#### ΙΑΤΑ

UN number	1950
UN proper shipping name	Aerosols, non-flammable
Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	No.
ERG Code	2L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo	Allowed with restrictions.
aircraft	
Cargo aircraft only	Allowed with restrictions.
IMDG	
UN number	1950
UN proper shipping name	AEROSOLS, non-flammable
Transport hazard class(es)	
Class	2.2
Subsidiary risk	-
Label(s)	2.2
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to	Not applicable.
Annex II of MARPOL 73/78 and	
the IBC Code	
ADG	



IATA; IMDG; RID



## 15. Regulatory information

Safety, health and environmental regulations National regulations

#### Australia Medicines & Poisons Appendix A Poisons schedule number not allocated. Australia Medicines & Poisons Appendix B

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix C Poisons schedule number not allocated. Australia Medicines & Poisons Appendix D Poisons schedule number not allocated. Australia Medicines & Poisons Appendix E Poisons schedule number not allocated. Australia Medicines & Poisons Appendix F Poisons schedule number not allocated. Australia Medicines & Poisons Appendix G Poisons schedule number not allocated. Australia Medicines & Poisons Appendix H Poisons schedule number not allocated. Australia Medicines & Poisons Appendix I Poisons schedule number not allocated. Australia Medicines & Poisons Appendix J Poisons schedule number not allocated. Australia Medicines & Poisons Appendix K Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 2 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 3 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 4 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 5 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 6 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 7 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 8 Poisons schedule number not allocated. Australia Medicines & Poisons Schedule 9 Poisons schedule number not allocated. High Volume Industrial Chemicals (HVIC) 1-Propanol (CAS 71-23-8) 1000 - 9999 TONNES See the regulation for additional information. Ethane, 1,1,1,2-tetrafluoro-(hfc-134a) (CAS 811-97-2) 1000 - 9999 TONNES See the regulation for additional information. Importation of Ozone Deleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10) Ethane, 1,1,1,2-tetrafluoro-(hfc-134a) (CAS 811-97-2) National Pollutant Inventory (NPI) substance reporting list Not listed. **Prohibited Carcinogenic Substances** Not regulated. Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended) Not listed. Resricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9) Not listed. **Restricted Carcinogenic Substances** Not regulated. International regulations **Stockholm Convention** Not applicable. **Rotterdam Convention** Not applicable.

#### Kyoto protocol Not applicable. Montreal Protocol Not applicable. Basel Convention Not applicable.

#### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s) A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

#### 16. Other information

Issue date	05-26-2016
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.