



SAFETY DATA SHEET

1. Identification

Product identifier	LPS® Dry Film Silicone Lubricant
Other means of identification	
Part Number	01616
Recommended use of the chemical and restrictions on use	
Recommended use	A dry film industrial lubricant for rubber, plastic and metal parts.
Restrictions on use	Not available.
Details of manufacturer or importer	
Manufacturer	
Supplier Name	MRO Chem Pty Ltd.
Address	Level 19, 644 Chapel Street South Yarra, Victoria 3141, Australia Tel: +03 9823 6273 +04 3448 1129
In Case of Emergency	
Manufacturer	
Company name	LPS Laboratories, a division of Illinois Tool Works, Inc.
Address	4647 Hugh Howell Rd., Tucker, GA 30084 (U.S.A.)
Website	http://www.lpslabs.com
E-mail	sds@lpslabs.com

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards	Flammable aerosols Gases under pressure	Category 2 Liquefied gas
Health hazards	Reproductive toxicity	Category 2
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 3

Label elements, including precautionary statements

Hazard symbol(s)



Flame

Health
hazard

Gas cylinder

Signal word	Danger
Hazard statement(s)	Flammable aerosol. Contains gas under pressure; may explode if heated. Suspected of damaging fertility or the unborn child. Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Avoid release to the environment. Use personal protective equipment as required.
Response	IF exposed or concerned: Get medical advice/attention.
Storage	Store in a well-ventilated place. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
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

89.1% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients**Mixture**

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
DIMETHYL ETHER	115-10-6	50 - 60
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) REFRIGERANT GAS R-134A	811-97-2	30 - 40
2,3-Dimethylbutane	79-29-8	1 - 5
2-Methylpentane	107-83-5	1 - 5
3-Methylpentane	96-14-0	1 - 5
POLY (DIMETHYLSILOXANE)	63148-62-9	1 - 5
N-hexane	110-54-3	< 1

4. First-aid measures**Description of necessary first aid measures**

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off immediately with soap and plenty of water. Take off contaminated clothing and wash before reuse. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. 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 IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Symptoms caused by exposure Direct contact with eyes may cause temporary irritation.

Medical attention and special treatment Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures**Extinguishing media**

Suitable extinguishing media	Water. Dry powder. Carbon dioxide (CO ₂).
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. Pressurized container may explode when exposed to heat or flame.

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. Do not move cargo or vehicle if cargo has been exposed to heat. 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 Flammable aerosol.

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

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. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. 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. Do not contaminate water. 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. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Collect spillage. 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. All equipment used when handling the product must be grounded. Do not re-use empty containers. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only in well-ventilated areas. 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 Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. 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

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

Components	Type	Value
DIMETHYL ETHER (CAS 115-10-6)	STEL	950 mg/m ³
	TWA	500 ppm
		760 mg/m ³
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) (CAS 811-97-2)	TWA	400 ppm
		4240 mg/m ³
N-hexane (CAS 110-54-3)	TWA	1000 ppm
		72 mg/m ³
		20 ppm

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

Components	Type	Value
DIMETHYL ETHER (CAS 115-10-6)	STEL	950 mg/m ³
	TWA	500 ppm
		760 mg/m ³

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

Components	Type	Value
ETHANE, 1,1,1,2-TETRAFLUORO-(H FC-134a) (CAS 811-97-2)	TWA	400 ppm
		4240 mg/m ³
N-hexane (CAS 110-54-3)	TWA	1000 ppm
		72 mg/m ³
		20 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
2,3-Dimethylbutane (CAS 79-29-8)	STEL	1000 ppm
	TWA	500 ppm
2-Methylpentane (CAS 107-83-5)	STEL	1000 ppm
	TWA	500 ppm
3-Methylpentane (CAS 96-14-0)	STEL	1000 ppm
	TWA	500 ppm
N-hexane (CAS 110-54-3)	TWA	50 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
DIMETHYL ETHER (CAS 115-10-6)	STEL	958 mg/m ³
	TWA	500 ppm
		766 mg/m ³
ETHANE, 1,1,1,2-TETRAFLUORO-(H FC-134a) (CAS 811-97-2)	TWA	400 ppm
		4240 mg/m ³
N-hexane (CAS 110-54-3)	TWA	1000 ppm
		72 mg/m ³
		20 ppm

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

Components	Type	Value
DIMETHYL ETHER (CAS 115-10-6)	TWA	1900 mg/m ³
		1000 ppm
ETHANE, 1,1,1,2-TETRAFLUORO-(H FC-134a) (CAS 811-97-2)	TWA	4200 mg/m ³
		1000 ppm
N-hexane (CAS 110-54-3)	TWA	180 mg/m ³
		50 ppm

Biological limit values

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling Time
N-hexane (CAS 110-54-3)	5 mg/l	2,5-Hexandion plus 4,5-Dihydroxy- 2-hexanon	Urine	*

* - For sampling details, please see the source document.

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
N-hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedione, without hydrolysis	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines**US ACGIH Threshold Limit Values: Skin designation**

N-hexane (CAS 110-54-3)

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).

Skin protection**Hand protection**

Chemical resistant gloves are recommended.

Other

Avoid contact with the skin. Wear suitable protective clothing.

Respiratory protection

If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

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**Appearance**

Liquid.

Physical state

Gas.

Form

Aerosol.

Color

Clear. Colorless.

Odor

Ether-like.

Odor threshold

Not available.

pH

Not applicable

Melting point/freezing point

Not available.

Initial boiling point and boiling range

140.9 °F (60.5 °C)

Flash point

< -0.4 °F (< -18.0 °C) Cleveland Open Cup

Evaporation rate

< 1 (Ethyl Ether = 1)

Flammability (solid, gas)

Flammable gas.

Upper/lower flammability or explosive limits**Flammability limit - lower (%)**

0.6 %

Flammability limit - upper (%)

7 %

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)

Not available.

Vapor pressure

352 mm Hg @ 38°C

Vapor density

~3

Relative density

Not available.

Solubility(ies)**Solubility (water)**

Not soluble in water

Partition coefficient (n-octanol/water)

> 1

Auto-ignition temperature 582.8 °F (306 °C)

Decomposition temperature Not available.

Viscosity < 14 cSt @ 25°C

Other physical and chemical parameters

Heat of combustion 15 - 20 kJ/g

Percent volatile 95 %

Specific gravity 0.74 - 0.76 @ 20°C

VOC (Weight %) 57.2 % per U.S. 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 temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products Hydrogen fluoride. Carbon oxides. Formaldehyde. Silicone dioxide.

11. Toxicological information

Information on possible routes of exposure

Ingestion May cause discomfort if swallowed.

Inhalation Prolonged inhalation may be harmful. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Skin contact Causes mild skin irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Eye contact Direct contact with eyes may cause temporary irritation.

Symptoms related to exposure Mild skin irritation. Exposure may cause temporary irritation, redness, or discomfort. Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Acute toxicity Based on available data, the classification criteria are not met.

Components	Species	Test Results
DIMETHYL ETHER (CAS 115-10-6)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	494.36 mg/l, 15 Minutes 385.94 ppm 385.94 mg/l, 30 Minutes
	Rat	> 20000 ppm 308.5 mg/l, 4 Hours
N-hexane (CAS 110-54-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg > 5 ml/kg
<i>Inhalation</i>		
LC50	Mouse	48000 mg/l, 4 Hours
	Rat	> 5000 ppm > 31.86 mg/l
<i>Oral</i>		
LD50	Rat	24 ml/kg

Components	Species	Test Results
		24 mg/kg
	Wistar rat	49 mg/kg
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Serious eye damage/irritation	Direct contact with eyes may cause temporary irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Based on available data, the classification criteria are not met.	
Skin sensitization	Based on available data, the classification criteria are not met.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
Reproductive toxicity	Suspected of damaging fertility or the unborn child.	
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.	
Aspiration hazard	Based on available data, the classification criteria are not met.	
Chronic effects	Prolonged exposure may cause chronic effects.	

12. Ecological information

Ecotoxicity	Harmful to aquatic life with long lasting effects.		
Components	Species	Test Results	
N-hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>)	2.101 - 2.981 mg/l, 96 hours
POLY (DIMETHYLSILOXANE) (CAS 63148-62-9)			
Aquatic			
Fish	LC50	Channel catfish (<i>Ictalurus punctatus</i>)	2.36 - 4.15 mg/l, 96 hours
Persistence and degradability	Not inherently biodegradable.		
Bioaccumulative potential			
Partition coefficient n-octanol / water (log Kow)			
LPS® Dry Film Silicone Lubricant			> 1
2,3-Dimethylbutane			3.42
2-Methylpentane			3.74
3-Methylpentane			3.6
DIMETHYL ETHER			0.1
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a)			1.06
N-hexane			3.9
Mobility in soil	The product is immiscible with water and will spread on the water surface.		
Other adverse effects	None known.		

13. Disposal considerations

Disposal methods	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.
Residual waste	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: Disposal instructions).
Contaminated packaging	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	1950
UN proper shipping name	AEROSOLS, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	No
Hazchem code	2YE
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

RID

UN number	1950
UN proper shipping name	AEROSOLS, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number	1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	No
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	1950
UN proper shipping name	AEROSOLS, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
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. Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

ADG



IATA; IMDG; RID



15. Regulatory information

Safety, health and environmental regulations

National regulations

This Material Safety Data Sheet was prepared in accordance with the Australia National Code of Practice for the Preparation of Material Safety Data Sheets (NOHSC: 2011.)

Australia Medicines & Poisons Appendix A

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix B

DIMETHYL ETHER (CAS 115-10-6)

Industrial use only. Industrial

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

N-hexane (CAS 110-54-3)

For advice, contact a Poisons information Centre (Phone eg Australia 131 - 126; New Zealand 03 - 4747 - 000) or a doctor (at once)., If swallowed, do NOT induce vomiting.

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

N-hexane (CAS 110-54-3)

Exception may apply, see the regulation for relevance.

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.

Australia National Pollutant Inventory (NPI): Threshold quantity

N-hexane (CAS 110-54-3) 10 tonnes/yr Threshold Category: 1

High Volume Industrial Chemicals (HVIC)ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) (CAS 1000 - 9999 tonnes See the regulation for additional information.
811-97-2)

N-hexane (CAS 110-54-3) 100000 - 999999 tonnes See the regulation for additional information.

Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) (CAS 9
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.

Restricted 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)	No
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

Country(s) or region	Inventory name	On inventory (yes/no)*
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 05-13-2014

Revision date 06-18-2014

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 Regulatory Information: Risk Phrases - Labeling
GHS: Classification