LPS® DRY FILM
SILICONE LUBRICANT

FEATURES

- Provides excellent lubrication
- Ideal for releasing molded parts
- Excellent for high temperature applications up to 500°F (260°C)
- Colorless, thin film
- Dry film will not attract dust or dirt
- Non-flammable
- Does not contain chlorinated solvents
- Excellent mold release

PACKAGE

Net Fill
11 oz./ 312 g/ 373 mL aerosol

Part No.
01616

APPLICATIONS

- Compression Molding
- Conveyors
- Doors
- Injection Molding
- Plastic Gears
- Rubber Components
- Slides
- Sliding Wood Surfaces
- Windows

PROPERTIES

Appearance/Physical State:
Clear/Liquid

Evaporation Rate:
<1 (Ethyl Ether=1)

Flash Point (COC):
< 0°F (-18°C)

HMIS:
1, 3, 0

Specific Gravity (water=1):
0.74 – 0.76 @ 20°C

Vapor Density:
~ 3.0

Vapor Pressure:
630 kPa (25°C)

VOC Content:
50%, 375 g/l

MATERIAL SAFETY DATA SHEETS AVAILABLE UPON REQUEST OR VISIT OUR WEB SITE : WWW.LPSLABS.COM

LPS Laboratories • *An Illinois Tool Works Company*
4647 Hugh Howell Road • Tucker, GA 30084 • TEL: (800) 241-8334 or (770) 243-8800 • FAX: (800) 543-1563 or (770) 243-8899
Internet Web Site: www.lpslabs.com

SAFETY DATA SHEET

1. Identification

Product identifier **LPS® Dry Film Silicone Lubricant**

Other means of identification

Part Number 01616

Recommended use A dry film industrial lubricant for rubber, plastic and metal parts.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer

Company name LPS Laboratories, a division of Illinois Tool Works, Inc.

Address 4647 Hugh Howell Rd.
Tucker, GA 30084

Country (U.S.A.)

Tel: +1 770-243-8800

In Case of Emergency 1-800-424-9300 (inside U.S.)
+001 703-527-3887 (outside U.S.)

Website www.lpslabs.com

E-mail sds@lpslabs.com

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 2
	Gases under pressure	Liquefied gas
Health hazards	Reproductive toxicity	Category 2
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word Danger

Hazard statement Flammable aerosol. Contains gas under pressure; may explode if heated. Suspected of damaging fertility or the unborn child.

Precautionary statement

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. Wear protective gloves/protective clothing/eye protection/face protection.

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.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
DIMETHYL ETHER		115-10-6	50 - 60

Chemical name	Common name and synonyms	CAS number	%
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134 a)	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

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.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information 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.

5. Fire-fighting measures

Suitable extinguishing media Water. Dry powder. 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. Pressurized container may explode when exposed to heat or flame.

Special protective equipment and precautions for firefighters 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.

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.

General fire hazards Flammable aerosol.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures 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. Use personal protection recommended in Section 8 of the SDS.

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. 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.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

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.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

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/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
N-hexane (CAS 110-54-3)	PEL	1800 mg/m3 500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
2,2-Dimethylbutane (CAS 75-83-2)	STEL	1000 ppm
2,3-Dimethylbutane (CAS 79-29-8)	TWA STEL	500 ppm 1000 ppm
2-Methylpentane (CAS 107-83-5)	TWA STEL	500 ppm 1000 ppm
3-Methylpentane (CAS 96-14-0)	TWA STEL	500 ppm 1000 ppm
N-hexane (CAS 110-54-3)	TWA TWA	500 ppm 50 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
N-hexane (CAS 110-54-3)	TWA	180 mg/m3 50 ppm

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
DIMETHYL ETHER (CAS 115-10-6)	TWA	1880 mg/m3	
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) (CAS 811-97-2)	TWA	1000 ppm 1000 ppm	8 hour

Biological limit values

ACGIH Biological Exposure Indices

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

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

Exposure guidelines

US - California OELs: Skin designation

N-hexane (CAS 110-54-3) Can be absorbed through the skin.

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, such as personal protective equipment

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.

General hygiene considerations 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 @ 38ºC
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 @ 25ºC
Other information	
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	Hazardous polymerization does not occur.
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 likely 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 the physical, chemical and toxicological characteristics	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.

Information on toxicological effects

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

Components	Species	Test Results
DIMETHYL ETHER (CAS 115-10-6)		
Acute		
Inhalation		
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		
Dermal		
LD50	Rabbit	> 2000 mg/kg
		> 5 ml/kg
Inhalation		
LC50	Mouse	48000 mg/l, 4 Hours

Components	Species	Test Results
	Rat	> 5000 ppm
		> 31.86 mg/l
Oral		
LD50	Rat	24 ml/kg
		24 mg/kg
	Wistar rat	49 mg/kg

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye 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.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

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 (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours
POLY (DIMETHYLSILOXANE) (CAS 63148-62-9)			
Aquatic			
Fish	LC50	Channel catfish (Ictalurus punctatus)	2.36 - 4.15 mg/l, 96 hours

Persistence and degradability Not inherently biodegradable.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

LPS® Dry Film Silicone Lubricant	> 1
2,2-Dimethylbutane	3.82
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 No data available.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D003: Waste Reactive material
Waste from residues / unused products	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

DOT

UN number	UN1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Special provisions	N82
Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN1950
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	UN1950
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.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

N-hexane (CAS 110-54-3) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

N-hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

DIMETHYL ETHER (CAS 115-10-6)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

2,2-Dimethylbutane (CAS 75-83-2)
2,3-Dimethylbutane (CAS 79-29-8)
2-Methylpentane (CAS 107-83-5)
3-Methylpentane (CAS 96-14-0)

DIMETHYL ETHER (CAS 115-10-6)
N-hexane (CAS 110-54-3)

US. New Jersey Worker and Community Right-to-Know Act

2,2-Dimethylbutane (CAS 75-83-2)
2,3-Dimethylbutane (CAS 79-29-8)
2-Methylpentane (CAS 107-83-5)
DIMETHYL ETHER (CAS 115-10-6)
N-hexane (CAS 110-54-3)

US. Pennsylvania Worker and Community Right-to-Know Law

2,2-Dimethylbutane (CAS 75-83-2)
2,3-Dimethylbutane (CAS 79-29-8)
2-Methylpentane (CAS 107-83-5)
3-Methylpentane (CAS 96-14-0)
DIMETHYL ETHER (CAS 115-10-6)
N-hexane (CAS 110-54-3)

US. Rhode Island RTK

DIMETHYL ETHER (CAS 115-10-6)
N-hexane (CAS 110-54-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

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
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, including date of preparation or last revision

Issue date	05-14-2014
Revision date	06-18-2014
Version #	02
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