MATERIAL SAFETY DATA SHEET
LPS® ChainMate

Revision Date: March 3, 2011 **Supersedes: March 14, 2008**

Section 1 • Product and Company Identification

Product Name:	LPS® ChainMate
Part Number:	02416,C02416
Chemical Name:	Aliphatic and Oxygenated Hydrocarbon Mixture
Product Use:	A spray lubricant designed to penetrate chains and wire ropes, displace moisture and provide long lasting lubrication under high loads and humid conditions.
Manufacturer Information:	LPS Laboratories, 4647 Hugh Howell Rd., Tucker, GA, USA 30084
	TEL: USA & Canada: 1 800 241-8334 Outside USA and Canada: +1 770-243-8800
	FAX: USA & Canada: 1 800 543-1563 Outside USA and Canada: +1 770-243-8899
Emergency Telephone Number:	Chemtrec: USA&Canada 1-800-424-9300 Outside USA and Canada: +1 (703) 527-3887
Website:	http://www.lpslabs.com

PLAIN LANGUAGE HAZARD SUMMARY

Material Safety Data Sheets can be confusing. Federal and State laws require us to include a great deal of technical information that probably will not help the non-professional. LPS includes this "PLAIN LANGUAGE HAZARD SUMMARY" to address the questions and concerns of the average worker. If you have additional health, safety or product questions, do not hesitate to call us at 770-243-8800.

Worker Toxicity

LPS® ChainMate is a moly-fortified lubricant designed to penetrate chains and wire ropes, displace moisture and provide long lasting lubrication under high loads and humid conditions. It contains isohexane and isopropyl alcohol which can be irritating to skin at a minimum and if handled improperly can be dangerous. We suggest you wear gloves and avoid extended exposure to unprotected skin. Don't get it in your eyes (it stings) or breath large amounts of the vapor (it will dry out your nasal passages and if you breathe large amounts in poorly ventilated areas it can make you dizzy and even sick). Don't spray LPS® ChainMate for extended periods without adequate ventilation. If you're going to perform work involving a lot of product in a poorly ventilated area, use of a respirator or even a self-contained breathing apparatus may be necessary. For more exposure and first aid information, refer to MSDS Sections 2, 8 and 11.

Flammability

LPS® ChainMate is extremely flammable, having a flash point below 12°F (-11°C). Do not spray onto live electrical equipment or in or around ignition sources. Store product away from heat sources. Also, don't spray the product onto red-hot metal surfaces.

Disposal

LPS® ChainMate normally cannot be spilled, but if the aerosol can is dropped from several feet or crushed it may discharge its contents. A single aerosol can of LPS® ChainMate contains less than one pint of material and much of this will evaporate quickly. If a spill occurs, the two greatest concerns are flammability of the fast drying vapors and slipperiness of walking surfaces in the affected area. Notify the proper environmental and safety personnel at your company right away. Absorb spilled material with a suitable solid like sand or "kitty litter" and place into an appropriate waste container. If an aerosol can of LPS® ChainMate does not spray and has more than an inch of material inside, it will be considered a flammable hazardous waste under U.S. EPA guidelines. See section 13 for more details.

Section 2 • Hazards Identification

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Emergency Overview:

Aerosol: DANGER: Extremely flammable. Contents under pressure. Harmful or fatal if swallowed.

Bulk: Not applicable

Primary route(s) of entry: Skin and eye contact. Inhalation.

Potential Acute Health Effects:

Eyes: Irritating to eyes

Skin: Repeated exposure may cause skin dryness or cracking.

Inhalation: Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache.

Ingestion: Product has a low order of acute oral toxicity, but ingestion of large quantities may cause nausea, vomiting, and gastrointestinal irritation. May cause injury if aspirated into lungs.

Potential Chronic Health Effects:

Carcinogenic Effects: NTP: No **IARC:** No **OSHA:** No **ACGIH:** No

Mutagenic Effects: None

Teratogenic Effects: This material (or component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Target Organs:
Prolonged and repeated exposure to n-hexane may cause peripheral neuropathy by damaging peripheral nerve tissue (that of the arms and legs) and result in muscular weakness and loss of sensation. Prolonged and repeated inhalation of high levels of mixed isomers of hexane resulted in kidney damage in male rats. The effects observed are the same as those seen in male rats exposed to other hydrocarbons. The mechanism by which these chemicals cause the characteristic kidney toxicity is unique to the male rat and the kidney effects are not expected to occur in man. Breathing isopropanol vapors has caused damage to the lining of the middle ear in experimental animals. The relevance of this finding to humans is uncertain. Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: liver abnormalities, kidney damage.

Medical conditions aggravated by exposure: Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

Signs and Symptoms
Stinging in eyes. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects.

Section 3 • Composition / Information on Ingredients

Component	CASRN	Weight Percent
Residual Oils (Petroleum), Solvent-Refined	64742-01-4	40 - 50%
Propane/Isobutane Blend	68476-85-7	15 - 20%
2-methylpentane	107-83-5	10 - 20%
3-methylpentane	96-14-0	5 - 10%
2,3-dimethylbutane	79-29-8	5 - 10%
2,2-dimethylbutane	75-83-2	1 - 5%
Isopropanol	67-63-0	1 - 5%
n-hexane	110-54-3	1 - 2%
Distillates (Petroleum), Solvent-Refined Heavy Paraffinic	64741-88-4	1 - 2%

Section 4 • First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Do not use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Rinse affected area thoroughly with water. Do not use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, seek medical attention immediately.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Do not leave victim unattended. Seek medical attention immediately.

Section 5 • Fire Fighting Measures

Products of Combustion: Carbon monoxide and carbon dioxide.

General Fire Hazards: Do not use on energized equipment. High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers.

Firefighting media: SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use CO2, water spray, fog or foam. Cool containing vessels with water to prevent pressure build-up, auto ignition or explosions.

Sensitivity to Impact: None **Sensitivity to Static Discharge:** Yes

Protection Clothing (Fire): Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.

Special Remarks on Explosion Hazards: Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Section 6 • Accidental Release Measures

Containment Procedures

Small Spill and Leak: Eliminate ignition sources. Absorb with an inert material and dispose of properly.

Large Spill and Leak: Eliminate ignition sources. Secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

Clean-Up Procedures Recover free product and place in suitable container for disposal.

Evacuation Procedures Ventilate area of leak or spill. Keep unnecessary and unprotected people away.

Special Procedures Remove all sources of ignition. Ventilate area. Wear appropriate protective equipment during cleanup.

Section 7 • Handling and Storage

Handling: DO NOT spray into or around ignition sources. Do not allow material to come into contact with eyes or skin. Wear appropriate protective equipment during handling. Keep container closed. Avoid breathing vapors or mists. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Keep container in a cool, well-ventilated area. Avoid all sources of ignition (spark or flame). Store between 40°F and 120°F (4.4°C and 49°C).

Precautions to be taken in handling and storage: *Store aerosols as Level 3 Aerosol (NFPA 30B).* Keep container in a cool, well-ventilated area. Avoid breathing vapors.

Section 8 • Exposure Controls / Personal Protection

Exposure Guidelines:

Component	CASRN	OSHA TWA-PEL	OSHA STEL	ACGIH-TLV	ACGIH-STEL	NIOSH
Residual Oil (Petroleum), Solvent-Refined	64742-01-4	Not Established	Not Established	Not Established	Not Established	Not Established
Propane/Isobutane Blend	68476-85-7	1000 ppm	Not Established	1000 ppm	Not Established	1000 ppm
2-Methylpentane	107-83-5	500 ppm*	1000 ppm*	500 ppm*	1000 ppm*	100 ppm*
3-Methylpentane	96-14-0	500 ppm*	1000 ppm*	500 ppm*	1000 ppm*	100 ppm*
2,3-Dimethylbutane	79-29-8	500 ppm*	1000 ppm*	500 ppm*	1000 ppm*	100 ppm*
2,2-Dimethylbutane	75-83-2	500 ppm*	1000 ppm*	500 ppm*	1000 ppm*	100 ppm*
Isopropanol	67-63-0	400 ppm*	Not Established	200 ppm*	400 ppm*	400 ppm*
n-Hexane	110-54-3	500 ppm*	Not Established	50 ppm*	Not Established	50 ppm*
Distillates (Petroleum), Solvent-Refined Heavy Paraffinic	64741-88-4	Not Established	Not Established	Not Established	Not Established	Not Established

*Supplier Recommendation

Engineering Controls: Provide general and/or local exhaust ventilation to keep exposures below the exposure guidelines listed above.

Personal Protection:

Eye protection	Safety glasses with side shields conforming to appropriate regulations. Eye wash fountain and emergency shower facilities are recommended.
Hand protection	Normally no hand protection is required; however, if product will be sprayed for an extended period, "overspray" onto skin may occur. If so, use chemical resistant gloves conforming to appropriate regulations. Please observe the instructions regarding permeability and breakthrough time that are provided by the supplier of the gloves.
Respiratory protection	Typical use of this product under normal conditions does not require the use of respiratory protection. If airborne concentrations are above the applicable exposure limits (listed above), use NIOSH approved respiratory protection (i.e., organic vapor cartridge).
General Hygiene Considerations	Wash throughly after handling. Have eye-wash facilities immediately available.

Section 9 • Physical and Chemical Properties

Appearance:	Liquid	**Color:**	Dark gray, black
Odor:	Petroleum	**Evaporation Rate:**	< 1 (Ethyl ether=1)
Solubility Description:	< 5% in water	**Flash Point:**	<-17°C(+1.4°F) - dispensed liquid
Boiling Point:	60.5°C(141°F) – dispensed liquid	**Flash Point Method:**	TCC
Specific Gravity (H2O=1):	0.74 – 0.76 @ 20ºC	**Decomposition Temperature:**	Not Established
Vapor Density (air = 1):	~3	**Auto Ignition Temperature:**	306°C (583°F)
Vapor Pressure:	Not Established	**Flammable limits (estimated):**	LOWER: 0.6% UPPER: 7.0 %
Rule 1171 PPc:	Not Applicable	**Partition Coefficient (octanol/water):**	<1
V.O.C. Content:	Aerosol: 52.7%, 393 g/L, 3.3 lb/gal per CARB/OTC/EPA Regulations Bulk: Not Applicable	**Odor Threshold:**	Not Established
		Viscosity:	Not Established
Melting Point:	Not Established	**Volatiles:**	96-98%
pH:	Not Applicable		
Heat of combustion:	Aerosol: > 30 kJ/g Bulk: Not Applicable		

Section 10 • Stability and Reactivity

Chemical Stability: Product is stable under recommended storage conditions.

Conditions to Avoid: Keep away from heat and ignition sources.

Incompatibility: Reactive or incompatible with oxidizing agents and strong acids.

Hazardous Decomposition: Combustion will generate smoke, possibly thick and choking, resulting in zero visibility and combustion products include carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 • Toxicological Information

Acute and Chronic Toxicity

A: General Product Information
An acute toxicity study of this product has not been conducted. Information given in this section relates only to individual constituents contained in this preparation.

B: Component Analysis

Ingredients	CASRN	LC-50	LD-50
Residual Oil (Petroleum), Solvent-Refined	64742-01-4	>5000 mg/m^3/rat*	>2000 mg/kg/oral/rat* >2000 mg/kg/dermal/rabbit*
Propane/Isobutane Blend	68476-85-7	658 mg/L/rat/4hr*	Not Appropriate
2-methylpentane	107-83-5	>3125 ppm/rat/4hr*	Not Established
3-Methylpentane	96-14-0	Not Established	Not Established
2,3-Dimethylbutane	79-29-8	Not Established	Not Established
2,2-Dimethylbutane	75-83-2	Not Established	Not Established
Isopropanol	67-63-0	16000 ppm/rat/4hr*	5045 mg/kg/oral/rat* 5030 – 7900 mg/kg/dermal/rabbit*
n-Hexane	110-54-3	48000 ppm/rat/4hr*	25 g/kg/oral/rat* >1.3 g/kg/dermal/rabbit*
Distillates (Petroleum), Solvent-Refined Heavy Paraffinic	64741-88-4	Not Established	Not Established

* Supplier Data

Section 12 • Ecological Information

Mobility: Semi-volatile. Readily absorbed into soil.

Persistence and degradability: Only slightly biodegradable

Bioaccumulative potential: Not Established

Other adverse effects: None known.

Ecological studies have not been conducted for this product. The following information is available for component(s) of this product.

Ecotoxicity:

Effect on Organisms	Component	CASRN	Test	Species	Results
Acute Toxicity on Fishes	n-hexane	110-54-3	48-hr LC_{100}	Leuciscus idus melanotus	260,000 µg/L
	Isopropanol	67-63-0	24-hr LC_{50}	Carassius auratus	5,000,000 µg/L
Acute Toxicity on Daphnia	n-hexane	110-54-3	24-hr LC_{50}	Daphnia magna	50,000 µg/L
	2-Methylpentane	107-83-5	48-hour EC_{50}	Daphnia magna	2.1 mg/L
	Isopropanol	67-63-0	24-hr LC_{50}	Daphnia magna	10,000,000 µg/L
Bacterial inhibition	No Data Available				
Growth inhibition of algae	n-hexane	110-54-3	EC_{50}	Anabaena inaequalis	1.7%
	Isopropanol	67-63-0	48-hr EC_{50}	Scenedesmus quadricauda	1,800,000 µg/L
Bioaccumulation in fish	No Data Available				

* Supplier Data

Section 13 • Disposal Considerations

Waste Status: Aerosol cans, if depressurized and emptied to less than 1 inch (2.54 cm) of fluid contents, are classified as non-hazardous waste under 40 CFR 261.7 (U.S.). However, if disposed of in its received form, the aerosol carries waste code D001 and D003. (U.S.)

Disposal: Waste must be disposed of in accordance with national, regional, provincial and local environmental control regulations.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

Section 14 • Transport Information

D.O.T. Ground	**Shipping Name:**	Consumer Commodity	**UN no:**	NA
	Hazard Class:	ORM-D	**Technical Name:**	NA
	Subclass:	NA	**Hazard Label:**	ORM-D Already on box
	Packing group:	NA		
Road/Rail - ADR/RID	**UN no:**	1950	**ADR Class:**	2.1
	Packing group:	NA	**Classification code:**	5F
	Name and Description:	Aerosols, Flammable	**Hazard ID no:**	NA
	Labeling:	2.1	**Technical Name:**	NA
IMDG-IMO	**UN no:**	1950	**Class:**	2.1
	Shipping Name:	Aerosols	**Subsidiary Risk:**	NA
	Labeling:	2	**Packing group:**	NA
	Packing Instruction:	P003, LP02	**EmS:**	F-D, S-U
	Marine pollutant:	No	**Technical Name:**	NA
IATA-ICAO	**UN no:**	1950	**Class:**	2.1
	Shipping Name:	Aerosols, Flammable	**Subclass**	NA
	Packing instructions:	203, Y203 (Ltd. Qty)	**Packing group:**	NA
	Labeling:	Flammable Gas	**Technical Name:**	NA

The preceding information is subject to change and must be verified prior to shipment. It is the responsibility of anyone offering hazardous materials for shipment to ensure compliance with all applicable regulations.

Section 15 • Regulatory information

U.S. Federal Regulations

RCRA Hazardous Waste No.: D001, D003

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA): n-hexane 110-54-3 5000 lbs

Toxic Substances Control Act (TSCA):
All components of this product are TSCA inventory listed and/or are exempt.

Superfund Amendments and Reauthorization Act (SARA) Title III
SARA Section 311/312 (40 CFR 370) Hazard Categories: Sudden Release of Pressure, Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372): n-hexane 110-54-3 2% max.

Section 112 Hazardous Air Pollutants (HAPs): n-hexane

State Regulations

California: This product contains chemical(s) known to the State of California to cause cancer, birth defects or reproductive harm.

California and OTC States: This product is not regulated by consumer regulations.

New Jersey RTK:
Aerosol: Residual Oil (Petroleum), Solvent-Refined 64742-01-4 ● 2-Methylpentane 107-83-5 ● Propane/Isobutane Blend 68476-85-7 ● 3-Methylpentane 96-14-0 ● 2, 3-Dimethylbutane 79-29-8 ● n-hexane 110-54-3
Bulk: Not Applicable

International Regulations

Canadian Environmental Protection Act: All of the components of this product are included on the Canadian Domestic Substances list (DSL).

Canadian Workplace Hazardous Materials Information System (WHMIS):
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification: Aerosol
Class A, Class B5, Class D2A, Class D2B

Other Regulations

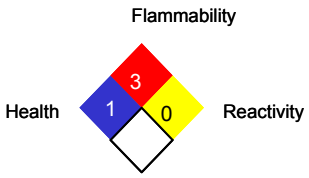
Montreal Protocol listed ingredients:	None
Stockholm Convention listed ingredients:	None
Rotterdam Convention listed ingredients:	None
RoHS Compliant:	Yes

Section 16 • Other Information

MSDS# 12416
MSDS Preparation Responsible Name:
Clea George
Regulatory Affairs Coordinator
Telephone: +1 770 243-8800

HMIS 1996		HMIS III	
Health:	1	Health:	[*]1
Flammability:	3	Flammability: aerosol	4
		Flammability: bulk	NA
Reactivity	0	Physical Hazard: aerosol	2
		Physical Hazard: bulk	NA

NFPA



Notice to Reader:
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Clea L. George, Regulatory Affairs Coordinator
LPS Laboratories, A division of Illinois Tool Works