WOLF GP LITHIUM EP SERIES

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name : WOLF GP LITHIUM EP SERIES
Citra Business Park Blok G17
Jakarta Barat 11840 - Indonesia
24 - Hour Health and Safety Emergency (call collect): 021-29020410

Product and Technical Information:
Lubricants and Specialties : 021-29020410
MSDS Fax on Demand : 021-29020411
MSDS Website : wolf.co.id

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: SEVERE TREAT MIN. OILS & ADDITIVES
GLOBALLY REPORTABLE MSDS INGREDIENTS:

Substance Name	Cas No	Approx. Wt%
Amines,C12-14-ALKYL PHOSPHATES	68187-67-7	approx. wt 80～ 95
S1(Secret)	-	-
S2(Secret)	-	-
S3(Secret)	-	-

*All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

3. HAZARDS IDENTIFICATION

The material is not considered to be hazardous according to regulatory guidelines (See section 15).

POTENTIAL HEALTH EFFECTS : Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

Note : This material should not be used for any other purpose than intended use in section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person

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4. FIRST AID MEASURES

EYE CONTACT	: Flush thoroughly with water.
SHORT TERM EXPOSURE	: Irritation
LONG TERM EXPOSURE	: No information is available
SKIN CONTACT	: Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though intial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
INHALATION	: Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
INGESTION	
SHORT TERM EXPOSURE	: Irritation
LONG TERM EXPOSURE	: No information on significant adverse effects

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA	: Carbon dioxide, foam, dry chemical and water fog.
SPECIAL FIRE FIGHTING PROCEDURES	: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
SPECIAL PROTECTIVE EQUIPMENT	: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS	: None.
COMBUSTION PRODUCTS	: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.
Flash Point C	: > 260 (ESTIMATED FOR OIL, ASTM D-92 (COC)).
Flammable Limits (approx.% vol.in air) - LEL	: NE, UEL: NE
NFPA HAZARD ID	: Health: 0, Flammability: 1, Reactivity: 0

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6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES :
Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: LAND SPILL :
Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL :
Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS :
See Section 8

7. HANDLING AND STORAGE

HANDLING :
High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention. No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE :
Keep containers closed when not in use. Do not store in open or unlabelled containers, store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

SPECIAL PRECAUTIONS :
Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING :
Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE,
SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioned. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any components which have recognized exposure limits.

VENTILATION :
Use adequate ventilation.

RESPIRATORY PROTECTION :
No special requirements under ordinary conditions of use and with adequate ventilation.

EYE PROTECTION :
Generally eye contact is unlikely with this type material. If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.

SKIN PROTECTION :
If prolonged or repeated skin contact is likely, oil impervious gloves should be worn. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE	: TRANSPARANT, RED
ODOR	: Mild
ODOR THRESHOLD-ppm	: NE
pH	: NA
BOILING POINT C	: > 330
DROP POINT C(F)	: NA
FLASH POINT C	: > 200 (ESTIMATED FOR OIL, ASTM D-92 (COC))
FLAMMABILITY (solids)	: NE
AUTO FLAMMABILITY C(F)	: NA
EXPLOSIVE PROPERTIES	: NA
OXIDIZING PROPERTIES	: NA
VAPOR PRESSURE-mmHg 20 C	: < 0.1
VAPOR DENSITY	: NE
EVAPORATION RATE	: NE
RELATIVE DENSITY, 15/4 C	: 0.9
SOLUBILITY IN WATER	: Negligible
PARTITION COEFFICIENT	: > 3.5
POUR POINT C(F)	: NA
FREEZING POINT C(F)	: NE
VOLATILE ORGANIC COMPOUND	: NE
NOTE	: MOST PHYSICAL PROPERTIES FOR OIL COMPONENT.
DMSO EXTRACT, IP-346 (WT.%)	: <3, for mineral oil only

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES
FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

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10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.)	: Stable.
CONDITIONS TO AVOID	: Extreme heat and high energy sources of ignition.
INCOMPATIBILITY (MATERIALS TO AVOID)	: Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS	: Product does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION	: Will not occur.

11. TOXICOLOGICAL DATA

ACUTE TOXICOLOGY

ORAL TOXICITY (RATS) :
Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS) :
Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS) :
Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS) :
Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS) :
Practically non-irritating. (Primary
Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA :
Although an acute inhalation study was not performed with this product, a variety of mineral oils and synthetic base oils, such as those in this product have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil.
The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydro treated.
Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results.
These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

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12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS :
This environmental assessment was conducted using information on the individual components as no test data was available for this specific formulation.

ECOTOXICITY :
The major components in the formulation show no aquatic toxicity at 1000 mg/L loading, therefore long-term adverse effects in the aquatic environment are not expected.

MOBILITY :
Not established.

PERSISTENCE AND DEGRADABILITY : This product is expected to be inherently biodegradable, as the principal components have been shown to degrade at slow to moderate rates.

BIOACCUMULATIVE POTENTIAL :
Not established.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL :
Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION :
The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosives, or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION

USA DOT	: NOT REGULATED BY USA DOT.
RID/ADR	: NOT REGULATED BY RID/ADR.
IMO	: NOT REGULATED BY IMO.
IATA	: NOT REGULATED BY IATA.

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15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD :
When used for its intended purposes, this product is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

EU Labeling :
Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.
Governmental Inventory Status : All components comply with TSCA, EINECS/ELINCS and AICS.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III :
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES:
None.

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	0.2-1.5w%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS *
LITHIUM HYDROXIDE	1310-65-2	22
ZINC (ELEMENTAL ANALYSIS)	7440-66-6	22
LITHIUM SOAP THICKENER	7620-77-1	22
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	18, 20, 21, 22, 24,25
FATTY ACIDS, C16-22	68783-36-8	22

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC 21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO 22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK 23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK 24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK 25=PA RTK

EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

Code key :CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

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16. OTHER INFORMATION

USE: AUTOMOTIVE GREASE

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INDUSTRIAL LABEL

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First
Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

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For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: A, TRN: 641258-01,
CMCS97: 973416, REQ: MRCTEC - LUBES, SAFE USE: L
Wolf Grease Approval Date: 5 September 2008
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