

Pulsarlube PL1 (Multipurpose Grease)

1. MANUFACTURER INFORMATION

- 1) Product Name : Pulsarlube PL1 (Multipurpose Grease)
- 2) Recommended use of the chemical and restrictions on use
 - A. Product description : An electrochemical automatic single point lubricator
 - B. Restrictions on use : Not available except the intended use of the product

3) Supplier's details

KLT Co., Ltd. 6-19, Hansan-ro, Tanhyeon-myeon, Paju-si, Gyeonggi-do, Republic of Korea	Telephone Number for Information: Tel.: +82 (02) 2083-8488 Fax : +82 (02) 2083-8485 sales.asia@pulsarlube.com
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Emergency telephone number +82 (02) 2083-8488

2. HAZARDS IDENTIFICATION

- 1) Hazard / Risk Classification
 - Acute toxicity (oral) : Category5
 - Skin corrosion/irritation : Category2
 - Specific target organ toxicity(Repeated exposure) : Category2
 - Acute aquatic toxicity : Category3

2) Label elements including precautionary statements

○ Pictogram



- Signal word : Warning
- Hazard/Risk Statement :
 - H303 May harmful if swallowed.
 - H315 Causes skin irritation
 - H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
 - H402 Harmful to aquatic organisms

○ Precautionary Statement

<Prevention>

- P260 Do not breathe dust/fume/gas/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash... thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

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<Response>

P302+P352 IF ON SKIN : Immerse in cool water [or wrap in wet bandages].

P305+P351+P338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/attention if you feel unwell.

P321 Specific treatment (see ... on this label).

P332+P313 If skin irritation occurs : Get medical advice/attention.

P337+P313 If eye irritation persists : Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse..

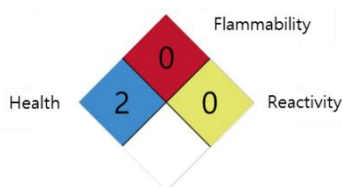
<Storage>

Not Applicable

<Disposal>

P501 Dispose of contents/containers to ... in accordance with local/regional/national/international regulations (to be specified).

3) Other Hazard Risk which do not included in the classification criteria



3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Other name	CAS No	Content (%)
1. Distillates (petroleum), Hydrotreated heavy paraffinic	Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	30.0 ~ 40.0
2 Residual oils (petroleum), Hydrotreated	Residual oils (petroleum), Hydrotreated	64742-57-0	30.0 ~ 40.0
3. (Phosphorodithioic acid 0,0-bis(2-ethylhexyl) ester, zinc salt)	PHOSPHORODITHIOIC (Phosphorodithioic acid 0,0-bis(2-ethylhexyl) ester, zinc salt)	4259-15-8	0.1 ~ 1.0
4. (N-phenyl benzeneamine reaction products with 2,4,4-trimethylpentene)	Mixture of octylated diphenylamines	68411-46-1	0.1 ~ 1.0
5. Secret (S1)	Secret (S1)	Secret (S1)	Secret (S1)

Ingredients 1,2 DMSO Extract (mineral oil only), IP-346: < 3 %wt

4. FIRST AID MEASURES

General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

In case of skin contact

Wash skin with soap and copious amounts of water. Consult a physician.

Wash contaminated clothing thoroughly with water before removing it, or wear gloves

Remove contaminated clothing and shoe

Get medical attention if adverse health effects persist or are severe

If inhaled

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration

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as needed.

In case of eye contact

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. If irritation persists, consult a physician.

If swallowed

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

5. FIRE FIGHTING MEASURES**Extinguishing media****Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Use alcohol-resistant foam, dry chemical or carbon dioxide.
Avoid use of water jet for extinguishing

Special hazards arising from the substance or mixture

no data available

Advice for firefighters

Wear self-contained breathing apparatus for fire-fighting if necessary.

Cool containers with water until well after fire is out.

Keep unauthorized personnel out.

Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

Keep containers cool with water spray

Further information

None

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

No action shall be taken involving any personal risk or without suitable training

Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Inform the relevant authorities if the product has caused environmental pollution.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container.

Dispose of via a licensed waste disposal contractor.

Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist and avoid formation of dust and aerosols.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Remove contaminated clothing and protective equipment before entering eating areas

Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

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Hygroscopic. air, light, and moisture sensitive. Store under inert gas.
Store in accordance with local regulations

Specific end uses

no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

ACGIH

- [Distillates (petroleum), hydrotreated heavy paraffinic]: TWA 5 mg/m³, Inhalable particulate matter (Mineral oil, Pure, highly and severely refined)
- [Residual oils (petroleum), hydrotreated] : TWA 5 mg/m³, Inhalable particulate matter (Mineral oil, Pure, highly and severely refined)

OSHA

- [Secret]: 5 mg/m³ (Soluble compounds), 15 mg/m³ (Insoluble compounds - Total dust)

Appropriate engineering controls

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary

Eye protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Hands protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance	Paste, Light Brown
b) Odour	Characteristic
c) Odour threshold	no data available
d) pH	no data available
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	no data available
g) Flash point	> 230 °C (COC, Base oil)
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapor pressure	no data available
l) Solubility	Insoluble
m) Vapor density	no data available
n) Relative density	0.90 ~ 0.95 @ 20 °C

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|---|-------------------|
| o) Partition coefficient: n-octanol/water | no data available |
| p) Auto-ignition temperature | no data available |
| q) Decomposition temperature | no data available |
| r) Viscosity | no data available |
| s) Formula mass | no data available |

10. STABILITY AND REACTIVITY

Chemical stability

This material is stable under recommended storage and handling conditions.

Possibility of hazardous reactions

Hazardous Polymerization will not occur.

Conditions to avoid

Avoid contact with incompatible materials and condition.

Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surface.

Incompatible materials

no data available

Hazardous decomposition products

May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure

- Respiratory tracts : no data available
- Oral : no data available
- Eye-Skin : no data available

- Acute toxic
 - * Oral - 2000mg/kg < ATEmix <= 5000mg/kg
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : LD50 > 5000 mg/kg Rat (ECHA)
 - [Residual oils (petroleum), hydrotreated] : LD50 >5000 mg/kg Rat (ECHA)
 - [Secret] : LD50 > 5000 mg/kg Rat (SIDS)
 - [Secret] : LD50 = 2500 mg/kg Rat
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt] : LD50 3100 mg/kg Rat
 - [Secret] : LD50=29100 mg/kg Rat (NLM: ChemIDPlus)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : LD50 > 5000 mg/kg Rat
 - * Dermal - ATE MIX : >5000mg/kg
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : LD50 >5000 mg/kg Rabbit (ECHA)
 - [Residual oils (petroleum), hydrotreated] : LD50 >5000 mg/kg Rabbit (ECHA)
 - [Secret] : LD50 = 5520 mg/kg Rat
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt] : LD50 > 5000 mg/kg Rabbit
 - [Secret] : LD50>20,000 mg/kg Rabbit (NLM: ChemIDPlus)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : LD50 > 2000 mg/kg
 - * Inhalation - ATE MIX : no data available
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : LC50 >5.53 mg/l 4 hr Rat (ECHA)
 - [Residual oils (petroleum), hydrotreated] : LC50 >5.53 mg/L/4hr (ECHA)
 - [Secret] : LC50 > 12.6 mg/l 4 hr Rat (GLP, IUCLID)
 - [Secret] : Steam LC50 > 5 mg/L Rat (NLM: ChemIDPlus)
- Skin corrosion/irritation
 - Causes skin irritation
- Serious eye damage/irritation
 - no data available
- Respiratory sensitization

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- no data available
- Skin sensitization
 - no data available
- Carcinogenicity
 - * IARC
 - no data available
 - * OSHA
 - no data available
 - * ACGIH
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : A4
 - [Residual oils (petroleum), hydrotreated] : A4
 - * NTP
 - no data available
 - * EU CLP
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : Carc.1B
 - [Residual oils (petroleum), hydrotreated] : Carc.1B
- Germ cell mutagenicity
 - no data available
- Reproductive toxicity
 - no data available
- STOT-single exposure
 - no data available
- STOT-repeated exposure
 - May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- Aspiration hazard
 - no data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

- Fish
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : LC50 5000 mg/l 96 hr Oncorhynchus mykiss (IUCLID)
 - [Secret] : LC50 = 25042.387 mg/l 96 hr (Estimate)
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt] : LC50 1 mg/l 96 hr Pimephales promelas (IUCLID)
 - [Secret] : LC50 1000 mg/l 96 hr (IUCLID)
 - [Secret] : LC50 8970000 mg/l 96 hr (Estimate)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : LC50 100 mg/L 96hr (ECHA)
- Crustaceans
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : EC50 1000 mg/l 48 hr Daphnia magna (IUCLID)
 - [Secret] : LC50 = 40.299 mg/l 48 hr (Estimate)
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt]: EC50 1 mg/l 48 hr Daphnia magna (OECD TG 202(GLP)) (IUCLID)
 - [Secret] : EC50 1000 mg/l 48 hr Daphnia magna (IUCLID)
 - [Secret] : LC50 6470000 mg/l 48 hr (Estimate)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : EC50 51 mg/l 48 hr (ECHA)
- Algae
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : EC50 1000 mg/l 96 hr Scenedesmus subspicatus (IUCLID)
 - [Secret] : EC50 = 11.563 mg/l 96 hr (Estimate)
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt] : EC50 1 mg/l 96 hr Selenastrum capricornutum(OECD TG 201(GLP)) (IUCLID)
 - [Secret] : EC50 900 mg/l 72 hr Scenedesmus subspicatus (IUCLID)
 - [Secret] : EC50 2911000 mg/l 96 hr (Estimate)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : EC50 ≥ 100 mg/l 96 hr Selenastrum capricornutum(read across 101-67-7)

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Persistence and degradability

- Persistence
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : log Kow = 3.9 ~ 6 (Estimate)
 - [Secret] : log Kow 2.60 (Estimate)
 - [Secret] : log Kow = -1.37 (NLM/HSDB)
 - [Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt] : log Kow 2.86 (IUCLID)
 - [Secret] : log Kow = -0.41 (NLM)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : log Kow 7.05 (>6 (HPVIS)) (Estimate) ~ 6
- Degradability
 - [Secret] : COD = 1290 BOD5/COD = 0.019 (IUCLID)

Bioaccumulative potential

- Bioaccumulative potential
 - [Secret] : BCF 56.23 (Estimate)
 - [Secret] : BCF = 3 (NLM/HSDB)
 - [Secret] : BCF = 3.162 (Estimate)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : BCF 12520 (Estimate)
 - [Secret] : BCF 3.162 (Estimate)
- Biodegradation
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : Biodegradability = 6 (%) 28 day(Aerobic, Domestic wastewater, does not decompose easily)
 - [Secret] : Biodegradability = 68 (%) 4 week (89,90%) (CHRIP)
 - [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : Under test conditions no biodegradation observed(100%)(ECHA), 9 (%) 28 day (read across 68442-68-2) (e-Chemportal : HPVIS)

Mobility in soil

- [N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene] : Koc 60460 (Estimates)

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Offer surplus and non-recyclable solutions to a licensed disposal company.
Waste must be classified and labelled prior to recycling or disposal.
Contact a licensed professional waste disposal service to dispose of this material.

Above all, Dispose of in accordance with all applicable federal, state and local regulations.

14. TRANSPORT INFORMATION

UN number

ADR/RID: - IMDG: - IATA: -

UN proper shipping name

ADR/RID: no data available
IMDG: no data available
IATA: no data available

Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

Packaging group

ADR/RID: - IMDG: - IATA: -

Environmental hazards

ADR/RID: no IMDG Marine pollute: no IATA: no

Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.

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- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- Air transport(IATA): Not subject to IATA regulations.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available

15. REGULATORY INFORMATION

REGULATORY INFORMATION

- POPs Management Law
 - Not applicable
- Information of EU Classification
 - * Classification
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : Carc. Cat. 2; R45
 - [Residual oils (petroleum), hydrotreated] : Carc. Cat. 2; R45
 - [Secret] : Xi; R36
 - * Risk Phrases
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : R45
 - [Residual oils (petroleum), hydrotreated] : R45
 - [Secret] : R36
 - * Safety Phrase
 - [Distillates (petroleum), hydrotreated heavy paraffinic] : S53, S45
 - [Residual oils (petroleum), hydrotreated] : S53, S45
 - [Secret] : S2
- U.S. Federal regulations
 - * OSHA PROCESS SAFETY (29CFR1910.119)
 - Not applicable
 - * CERCLA Section 103 (40CFR302.4)
 - Not applicable
 - * EPCRA Section 302 (40CFR355.30)
 - Not applicable
 - * EPCRA Section 304 (40CFR355.40)
 - Not applicable
 - * EPCRA Section 313 (40CFR372.65)
 - Not applicable
- Rotterdam Convention listed ingredients
 - Not applicable
- Stockholm Convention listed ingredients
 - Not applicable
- Montreal Protocol listed ingredients
 - Not applicable

16. OTHER INFORMATION

1) Source of the data

- (1) Chemical manufacturer's information : SDS(SAFETY DATA SHEET) Data
- (2) Chem Guide CAS DataBase
- (3) Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
- (4) ECB-ESIS(European chemical Substances Information System)(<http://ecb.jrc.it/esis>)
- (5) ECOTOX Database, EPA(<http://cfpub.epa.gov/ecotox>)
- (6) IUCLID Chemical Data Sheet, EC-ECB
- (7) International Chemical Safety Cards(ICSC)(<http://www.nihs.go.jp/ICSC>)
- (8) TOXNET, U.S. National Library of Medicine(<http://toxnet.nlm.nih.gov>)
- (9) The Chemical Database, The Department of Chemistry at the University of Akron
(<http://ull.chemistry.uakron.edu/erd>)
- (10) Korea Information System for Chemical Safety, KISChem (<http://kischem.nier.go.kr>)
- (11) Chemical information system (<http://ncis.nier.go.kr>)
- (12) Grease Raw material manufacturer's information : PSDS(PRODUCT SAFETY DATA SHEET) Data

2) The first creation date : 2015.02.11

PSDS (Product Safety Data Sheet)

3) The number of times, and the final revision date : Revision times 03

The final revision date : 2017.06.12

Further information

Pulsarlube has prepared copyrighted Product Safety Datasheets to provide information on the different Pulsarlube automatic grease lubricator systems. As defined in above the text Pulsarlube automatic grease lubricator are manufactured articles, which do not result in exposure to a hazardous chemical under normal conditions of use. The information and recommendations set forth herein are made in good faith, for information only, and are believed to be accurate as of the date of preparation. However, Pulsarlube USA, Inc. MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM REFERENCE ON IT.