

E Model Series / Empty (Pulsarlube E ; no grease filling)

1. MANUFACTURER INFORMATION

1) Product Name : E Model Series (E60/EO60, E120/EO120, E240/EO240 etc.)
/ EMPTY (Pulsarlube E Empty ; no grease filling)

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.

597-2, Geumseung-ri Tanhyeonmyeon,

Paju-si, Gyeonggi-do,

Republic of Korea

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2. HAZARDS IDENTIFICATION

1) Hazard / Risk Classification

A. Ethylene Glycol

- Acute toxicity, Oral (Category 4)
- Specific target organ toxicity - repeated exposure (Category 2)

B. Potassium carbonate

- Acute toxicity, Oral (Category 4)
- Skin irritation (Category 2) Eye irritation (Category 2)
- Specific target organ toxicity - single exposure (Category 3)

C. Potassium Iodide

- Acute toxicity, Oral (Category 4)
- Skin irritation (Category 2) Eye irritation (Category 2)

D. Water

- Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

2) Label elements including precautionary statements

○ Pictogram



PSDS (Product Safety Data Sheet)

- Signal word : Danger
- Hazard/Risk Statement :
 - H302 Harmful if swallowed
 - H315 Causes skin irritation
 - H319 Causes serious eye irritation
 - H335 May causes respiratory irritation
 - H360 May damage fertility or the unborn child
 - H370 Causes damage to organ
 - H372 Causes damage to organs through prolonged or repeated exposure

○ Precautionary Statement

<Prevention>

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understand.
- P260 Do not breathe dust/fume/gas/vapours/spray.
- P264 Wash... thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

<Response>

- P302+P352 IF ON SKIN : Immerse in cool water [or wrap in wet bandages].
- P304+P340 IF INHALED : Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contract lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned : Get medical advice/attention
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment (see ... on this label).
- P330 Rinse mouth.
- P332+P313 If skin irritation occurs : Get medical advice/attention.
- P337+P313 If eye irritation persists : Get medical advice/attention.
- P362 Take off contaminated clothing.

<Storage>

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

<Disposal>

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

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

Material / NFPA	Health	Flammability	Reactivity
1) Water	0	0	0
2) Ethylene Glycol	2	1	0
3) Potassium carbonate	3	0	0
4) Potassium Iodide	1	0	0
5) Proprietary (S1)	1	0	0

PSDS (Product Safety Data Sheet)
3. COMPOSITION/INFORMATION ON INGREDIENTS

(Based on the electrolyte)

Chemical name	Other name	CAS No	Content (%)
1) Water	DIHYDROGEN OXIDE	7732-18-5	95
2) Ethylene Glycol	1,2-Ethandiol 1,2-Dihydroxyethane	107-21-1	0.3
3) Potassium carbonate	Carbonic Acid Dipotassium Salt	584-08-7	3.0
4) Potassium Iodide	Potassium Monoiodide	7681-11-0	1
5) Proprietary (S1)	Proprietary (S1)	Proprietary (S1)	Proprietary (S1)

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.

If inhaled

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration 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. 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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides, Potassium oxides, Hydrogen iodide,

Advice for firefighters

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

Further information

None

PSDS (Product Safety Data Sheet)**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.

Environmental precautions

Do not let product enter drains.

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

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.

Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic. air, light, and moisture sensitive. Store under inert gas.

Specific end uses

no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

(Based on the electrolyte)

Control parameters

- ACGIH : none
- biological limit values : none

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

Material tested: Dermatrill? (Anonymous Z677272, Size M)

PSDS (Product Safety Data Sheet)

Splash protection
 Material: Nitrile rubber
 Minimum layer thickness: 0.11 mm

Break through time: > 30 min
 Material tested: Dermatril? (Anonymous Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de,
 test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

1) Ethylene Glycol

a) Appearance	Liquid, Colourless
b) Odour	no data available
c) Odour threshold	no data available
d) pH	no data available
e) Melting point/freezing point	melting point/range : -13 °C
f) Initial boiling point and boiling range	196 ~ 198 °C
g) Flash point	111 °C - closed cup
h) Evaporation rate	1
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	Upper explosion limit : 15.3%(V) Lower explosion limit : 3.2%(V)
k) Vapor pressure	0.11 hPa at 20 °C 0.13 hPa at 20 °C
l) Vapor density	2.14 – (Air = 1.0)
m) Relative density	1,113 g/mL at 25 °C
n) Water solubility	completely miscible/soluble
o) Partition coefficient: n-octanol/water	log Pow: -1.36
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

PSDS (Product Safety Data Sheet)
2) Potassium carbonate

a) Appearance	Powder, White
b) Odour	no data available
c) Odour threshold	no data available
d) pH	11.0 ~ 13 at 138 g/l at 25 °C
e) Melting point/freezing point	melting point/range : 891 °C
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
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) Vapor density	no data available
m) Relative density	2.43 g/mL at 25 °C
n) Water solubility	138 g/l at 20 °C- completely soluble
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) Explosive properties	no data available
t) Oxidizing properties	no data available

3) Potassium Iodide

a) Appearance	Crystals with lumps, White
b) Odour	no data available
c) Odour threshold	no data available
d) pH	6.0. ~ 9 at 166 g/l at 25 °C
e) Melting point/freezing point	melting point/range : 681 °C
f) Initial boiling point and boiling range	1,330 °C
g) Flash point	no data available
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	1 hPa at 745 °C
l) Vapor density	no data available
m) Relative density	3,130 g/cm ³
n) Water solubility	no data available
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) Explosive properties	no data available
t) Oxidizing properties	no data available

PSDS (Product Safety Data Sheet)

4) WATER

a) Appearance	Liquid, Colourless
b) Odour	no data available
c) Odour threshold	no data available
d) pH	6.0.~ 8.0 at 25 °C
e) Melting point/freezing point	0.0 °C
f) Initial boiling point and boiling range	100 °C – lit
g) Flash point	no data available
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) Vapor density	no data available
m) Relative density	1,000 g/cm ³ at 3.98 °C
n) Water solubility	completely miscible
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) Explosive properties	no data available
t) Oxidizing properties	no data available

10. STABILITY AND REACTIVITY

1) Ethylene Glycol

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Incompatible materials

Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, aluminum

Hazardous decomposition products

Other decomposition products - no data available

2) Potassium carbonate

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

no data available

Conditions to avoid

Exposure to moisture

Incompatible materials

Acids, Strong oxidizing agents

t) Oxidizing properties no data available

Other decomposition products - no data available

PSDS (Product Safety Data Sheet)

3) Potassium Iodide

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

no data available

Conditions to avoid

Tin/tin oxides

Incompatible materials

Strong reducing agents, Nickel, Strong acids, and its alloys, Steel (all types and surface treatments), Aluminum, Alkali metals, Brass, Magnesium, Zinc, cadmium, copper

Hazardous decomposition products

Other decomposition products - no data available

4) WATER

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

no data available

11. TOXICOLOGICAL INFORMATION

1) Ethylene Glycol

Information on toxicological effects
Acute toxicity

LD50 Oral - rat - 4.700 mg/kg

LD50 Dermal - rabbit - 10.626 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC : No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Laboratory experiments have shown teratogenic effects.

PSDS (Product Safety Data Sheet)

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion Harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure

When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage. Exposure to and/or consumption of alcohol may increase toxic effects.

Additional Information

RTECS: KW2975000

2) Potassium carbonate

Information on toxicological effects**Acute toxicity**

LD50 Oral - rat - 1.870 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

Genotoxicity in vivo - rat - Oral

Unscheduled DNA synthesis

Carcinogenicity

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

PSDS (Product Safety Data Sheet)

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes serious eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS: TS7750000

3) Potassium Iodide

Information on toxicological effects**Acute toxicity**

LD50 Oral - mouse - 1.000 mg/kg

Skin corrosion/irritation

Skin - rabbit - Irritating to skin.

Serious eye damage/eye irritation

Eyes - rabbit - Irritating to eyes. - 24 h - Draize Test

Respiratory or skin sensitization

Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity

no data available

Carcinogenicity

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Exposure to excessive amounts of iodine during pregnancy is capable of producing fetal hypothyroidism. Iodine-containing drugs have been associated with fetal goiter.

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes serious eye irritation.

Signs and Symptoms of Exposure

Prolonged exposure to iodides may produce iodism in sensitive individuals. Symptoms of exposure include: skin rash, running nose, headache and irritation of the mucous membrane. For severe cases the skin may show pimples, boils, hives, blisters and black and blue spots. Iodides are readily diffused across the placenta. Neonatal deaths from respiratory distress secondary to goiter have been reported. Iodides have been known to cause drug-induced fevers, which are usually of short duration.

Additional Information

RTECS: TT2975000

PSDS (Product Safety Data Sheet)

4) WATER

Information on toxicological effects**Acute toxicity**

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation May cause respiratory tract irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS: ZC0110000

12. ECOLOGICAL INFORMATION

1) Ethylene Glycol

Toxicity

Toxicity to fish

LC50 - Oncorhynchus mykiss (rainbow trout) - 18.500 mg/l - 96 h

LC50 - Leuciscus idus (Golden orfe) - > 10.000 mg/l - 48 h

NOEC - Pimephales promelas (fathead minnow) - 32.000 mg/l - 7 d

NOEC - Pimephales promelas (fathead minnow) - 39.140 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 74.000 mg/l - 24 h

NOEC - Daphnia - 24.000 mg/l - 48 h

LC50 - Daphnia magna (Water flea) - 41.000 mg/l - 48 h

PSDS (Product Safety Data Sheet)

Persistence and degradability

no data available

Bioaccumulative potential

Does not bioaccumulate.

Bioaccumulation other fish - 61 d -50 mg/l
 Bioconcentration factor (BCF): 0,60

Mobility in soil

no data available

Results of PBT and vPvB assessment

no data available

Other adverse effects

no data available

2) Potassium carbonate

Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - < 510 mg/l - 96 h

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Results of PBT and vPvB assessment

no data available

Other adverse effects

no data available

3) Potassium Iodide

Toxicity

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 2.190 mg/l - 96 h
 Toxicity to daphnia and EC50 - Daphnia - 2,7 mg/l - 24 h
 other aquatic invertebrates

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Results of PBT and vPvB assessment

no data available

Other adverse effects

no data available

4) WATER

Toxicity

no data available

PSDS (Product Safety Data Sheet)**Persistence and degradability**

not applicable

Bioaccumulative potential

no data available

Mobility in soil

no data available

Results of PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product

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: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

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

no data available

15. REGULATORY INFORMATION**REGULATORY INFORMATION**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

Chemical Safety Assessment

no data available

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>)

2) The first creation date : 2015.02.11

3) The number of times, and the final revision date : Revision times 0

The final revision date : 2015.02.11

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.