SDS(Safety Data Sheet)

Product	Kixx WAY LUBE 32(formerly, GS WAY LUBE 32)		
MSDS Number	List No.	Issuing date	Last revised date
-	LB3095	2012-11-30	2026-02-19

1. IDENTIFICATION

1) Product name

Kixx WAY LUBE 32(formerly, GS WAY LUBE 32)

2) Recommended use of the chemical and restriction on use

- Recommended use Lubricants
- Restrictions on use Do not use for any other purpose.

3) Details of the supplier of the safety data sheet

○ **Manufacturer**

- Company name GS Caltex Corporation
- Address GS Tower, 508, Nonhyeon-ro, Gangnam-gu, Seoul, Korea
- Emergency telephone number 1899-5145

2. HAZARDS IDENTIFICATION

1) Classification of the product

- Not applicable

2) Label elements

○ **Hazard pictograms**

- Not applicable

○ **Signal word**

- Not applicable

○ **Hazard statements**

- Not applicable

○ **Precautionary statements**

1) Prevention

- Not applicable

2) Response

- Not applicable

3) Storage

- Not applicable

4) Disposal

- Not applicable

3) Other hazards

○ **Product NFPA Level**

(※ 0-Lack, 1-Low, 2-Moderate, 3-High, 4-Very High)

Product name	Health	Flammable	Reaction
Kixx WAY LUBE 32(formerly, GS WAY LUBE 32)	0	1	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
Distillates (petroleum), hydrotreated heavy paraffinic	Emulsifiable oil	64742-54-7	265-157-1	95.0 ~ 97.0
Distillates (petroleum), hydrotreated light paraffinic	Mineral oil, petroleum distillates, hydrotreated (severe) light paraffinic	64742-55-8	265-158-7	2.0 ~ 4.0
(Z)-9-Octadecenoic acid methyl ester	Methyl oleate	112-62-9	203-992-5	0.4 ~ 0.6
2-Methyl-1-propene, sulfurized	Sulfurized isobutylene	68511-50-2	270-943-2	0.4 ~ 0.6
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Adriatic spindle oil; Mineral oil, petroleum distillates, solvent dewaxed heavy paraffinic (severe solvent-refining and/or hydrotreatment) ; Solvent dewaxed heavy paraffinic distillate	64742-65-0	265-169-7	0.2 ~ 0.4
Paraffin oils (petroleum), catalytic dewaxed heavy	MINERAL OIL, PETROLEUM DISTILLATES CATALYTIC DEWAXED HEAVY PARAFFINIC (mild or no solvent-refining or hydrotreatment)	64742-70-7	265-174-4	0.1 ~ 0.2
(Z)-9-octadecenoic acid	(Z)-Octadec-9-enoic acid ; 9,10-Octadecenoic acid ; 9-Octadecanoic acid	112-80-1	204-007-1	0.1 ~ 0.2
Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate		68603-55-4	271-663-3	0.1 ~ 0.2
Trade secret				0.1 ~ 1.7

※ Except for the above components, all components are not listed as they do not meet the criteria for hazardous risk classification in Article 104 (Classification of Hazardous Factors) of Regulated Acts and Occupational Safety and Health Act.

※ This product has less than 3% DMSO extract as measured by the IP346 method.

4. FIRST AID MEASURES

1) Eye contact - In case of contact with material, immediately flush eyes with running water for at

least 15 minutes.
- If eye irritation persists: Get medical advice/attention.

2) Skin contact

- In case of contact with material, immediately flush skin with running water for at least 15 minutes.
- Remove and isolate contaminated clothing and shoes.
- Launder contaminated clothing and shoes before re-use.
- If skin irritation occurs: Get medical advice/attention.

3) Inhalation

- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

4) Ingestion

- If unconscious but breathing, never give anything by mouth
- If swallowed do not induce vomiting, seek medical advice immediat.
- Get immediate medical advice/attention.
- Rinse mouth.

5) Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE FIGHTING MEASURES

1) Suitable (and unsuitable) extinguishing media

- Small fire: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO2 (Suitable extinguishing media)
- Large fire: Water spray/fog, regular foam (Suitable extinguishing media)
- High-pressure water (Unsuitable extinguishing media)

2) Special hazards arising from the substance or mixture

- May be ignited by heat, sparks or flames.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.

3) Special protective equipment and precautions for firefighters

- Substance may be transported hot.
- Runoff may cause pollution.
- Contact may cause burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Ventilate the contaminated area.
- Stop leak if you can do it without risk.
- Prevent dust cloud.
- Please note that materials and conditions to be avoided.

2) Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

3) Methods and material for containment and cleaning up

- Small Spill: Flush area with flooding quantities of water.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

7. HANDLING AND STORAGE

1) Precautions for safe handling

- Wash ... thoroughly after handling.
- Please note that materials and conditions to be avoided.
- Handling refer to engineering control/personal protection section.
- Cuation: High temperature

2) Conditions for safe storage (including any incompatibilities)

- Store in a dry place. Store in a closed container.
- Please note that materials and conditions to be avoided.
- Store in a closed container.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Control parameters

Chemical name	Exposure limits	ACGIH TLV	OSHA PEL	Biological limit values(BLV)
Distillates (petroleum), hydrotreated heavy paraffinic	TWA : 0.8 mg/m3	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available

Distillates (petroleum), hydrotreated light paraffinic	TWA : 0.8 mg/m3	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
(Z)-9-Octadecenoic acid methyl ester	Not available	Not available	Not available	Not available
2-Methyl-1-propene, sulfurized	Not available	Not available	Not available	Not available
Distillates (petroleum), solvent-dewaxed heavy paraffinic	TWA : 0.8 mg/m3	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
Paraffin oils (petroleum), catalytic dewaxed heavy	Not available	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
(Z)-9-octadecenoic acid	Not available	Not available	Not available	Not available
Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate	Not available	Not available	Not available	Not available
Trade secret	Not available	Not available	Not available	Not available

2) Appropriate engineering controls

- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- Adjust the ventilation rate to suit the condition.

3) Personal protection equipment

○ **Respiratory protection**
- Wear a adequate respiratory protection equipment with certificate by considering physicochemical properties of exposured particulate material.
- In case exposured to particulate material, the respiratory protective equipments as follow are recommended. - facepiece filtering respirator or air-putifying respirator, high-efficiency particulate air(HEPA) filter media or resporator equipped with power
- In lack of oxigan(<19.6%), wear the supplied-air respiratior or self-contained breathing apparatus.
- Consider the warning characteristics beforehand.

○ **Eye protection**
- Wear breathable safety goggles to protect from material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.
- In case of direct exposure or potential exposure to the substance, wear safety glasses for chemicals approved in the country.

○ **Hand protection**

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.
- In case of direct exposure or potential exposure to the substance, wear safety gloves for chemicals approved in the country.

○ **Body protection**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.
- In case of direct exposure or potential exposure to the substance, wear protective clothing for chemicals approved in the country.

9. PHYSICAL AND CHEMICAL PROPERTIES

Item	Input Value
Apperance	Liquid
Color	No Data
Smell	No Data
Smell Threshold	No Data
pH (Numerical value)	No Data
Melting/Freezing Point	No Data
Boilling Point	No Data
Flash Point	224 ℃
Evaporating Rate	No Data
Flammability(Solid, Gas)	No Data
Explosibility Range	No Data
Steam Pressure	No Data
Solubility	No Data
Vapor Density	No Data
Specific Gravity	0.85
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	32 mm2/s (at 40℃)
Molecular Weight	No Data

10. STABILITY AND REACTIVITY

1) Chemical Stability and hazardous reactivity

- Stable under normal temperatures and pressures.
- Containers may explode when heated.

- Some may burn but none ignite readily.

2) Conditions to avoid - Ignition source(heat, spark, flame)

3) Incompatible materials - Combustibles
- Irritating and/or toxic gas

4) Hazardous decomposition products - Not available

11. TOXICOLOGICAL INFORMATION

1) Information on the likely routes of exposures

○ **Inhalation**

- No inhalation effects through respiratory system.

○ **Skin contact**

- No effect on skin contact.

○ **Eye contact**

- No effect on eye contact.

○ **Ingestion**

- No ingestion effect through mouth.

2) Health hazard information

○ **Acute toxicity**

*** Oral - Not classified (ATEmix > 2000 mg/kg)**

- Distillates (petroleum), hydrotreated heavy paraffinic : rat(male/female), LD50 > 5,000 mg/kg bw, no deaths (read-across: 64742-56-9) (OECD TG 401, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : rat; LD50 = 2000 mg/kg bw (GESTIS)
- 2-Methyl-1-propene, sulfurized : LD50 5000 mg/kg rat
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-octadecenoic acid : LD50 > 2000, >5000, >19100 mg/kg bw (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : rat(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 401, GLP) (ECHA)
- Trade secret : Not available

*** Dermal - Not classified (ATEmix > 2000 mg/kg)**

- Distillates (petroleum), hydrotreated heavy paraffinic : rabbit(male/female), LD50 > 5,000 mg/kg bw, no deaths (read-across: 64742-56-9) (OECD TG 402, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rabbit(male/female); LD50 > 5000 mg/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit(male/female); LD50 > 5000 mg/kg bw, no

deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)

- Paraffin oils (petroleum), catalytic dewaxed heavy : rabbit(male/female); LD50 > 5000 ㎎/㎏ bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-octadecenoic acid : guinea pig; LD50 > 3000 mg/kg (HSDB)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : rat(male/female); LD50 > 2000 ㎎/㎏ bw (OECD TG 402) (ECHA)
- Trade secret : Not available

*** Inhalation(Gas) - Not applicable**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not available

*** Inhalation(Vapour) - Not classified (ATEmix > 20 mg/L)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

*** Inhalation(Dust, mist) - Not classified (ATEmix > 5 mg/L)**

- Distillates (petroleum), hydrotreated heavy paraffinic : inhalation: aerosol; rat(male/female); 4h-LC50 > 5.53 mg/L. No deaths (read-across: MRD-87-102) (OECD TG 403)(ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); inhalation: aerosol; LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rat(male/female); inhalation: aerosol; LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rat(male/female); inhalation: aerosol; LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

○ Skin corrosion/Irritation : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic : Solvent dewaxed light paraffinic oil is not considered to be irritating to the skin of rabbits. (read across : 64742-56-9) (GLP) (ECHA)

- Distillates (petroleum), hydrotreated light paraffinic : rabbit; not irritating (GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : MO did not trigger any skin irritations. (GESTIS)
- 2-Methyl-1-propene, sulfurized : rabbit; Not irritating
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit; not irritating (GLP) (read across: 64742-56-9) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rabbit; not irritating (GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-octadecenoic acid : Not irritating (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : human skin model; irritating (OECD TG 431, GLP) (ECHA)
- Trade secret : Not available

○ **Serious eye damage/irritation : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Solvent dewaxed light paraffinic oil is not considered to be an ocular irritant. (read-aross: 64742-56-9) (equivalent or similar to guideline OECD TG 405, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rabbit; not irritating (OECD TG 405, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : rabbit; Not irritating
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit; not irritating (OECD TG 405, GLP) (read across: 64742-56-9) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rabbit; not irritating (OECD TG 405, GLP) (read across: 64742-56-9) (ECHA)
- (Z)-9-octadecenoic acid : Not irritating (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : bovine eyes; not irritating (OECD TG 437, GLP) (ECHA)
- Trade secret : Not available

○ **Respiratory sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Not available

- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

○ **Skin sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Under the conditions of the test, Solvent dewaxed light paraffinic oil is considered non-sensitizing for guinea-pigs. (read-aross: 64742-56-9) (OECD TG 406, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : The skin-sensitising potential of MO was examined in a valid animal experiment (maximisation test on guinea pigs in accordance with OECD guideline 406). Sensitisations could not be induced in this test. Nor were indications of a skin-sensitising potential observed for methyl esters of similar fatty acids. (GESTIS)
- 2-Methyl-1-propene, sulfurized : guinea pig; Not sensitizing
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : guinea pig; not sensitising (OECD TG 406, GLP) (read across: 64742-53-6) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : guinea pig; not sensitising (OECD TG 406, GLP) (read across: 64742-53-6) (ECHA)
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Trade secret : Not available

○ **Carcinogenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : EU CLP 1272/2008 : Carc. 1B (Note L : The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346)
- Distillates (petroleum), hydrotreated light paraffinic : EU CLP 1272/2008 : Carc. 1B (Note L : The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346)
- (Z)-9-Octadecenoic acid methyl ester : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- 2-Methyl-1-propene, sulfurized : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed

- Distillates (petroleum), solvent-dewaxed heavy paraffinic : EU CLP 1272/2008 : Carc. 1B (Note L : The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346)
- Paraffin oils (petroleum), catalytic dewaxed heavy : EU CLP 1272/2008: Carc. 1B (Note L: Lubricant base oils are non-carcinogenic if DMSO extract as measured by IP346 is less than 3% and are considered sufficiently refined.)
- (Z)-9-octadecenoic acid : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Trade secret : Not available

○ **Germ cell mutagenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : In vitro bacterial reverse mutation assay: negative (equivalent or similar to guideline OECD TG 471) (ECHA)
  In vitro mammalian chromosome aberration test: negative (read-aross : 64742-53-6) (equivalent or similar to guideline OECD TG 473, GLP) (ECHA)
  In vivo micronucleus assay : negative (read-across : 64741-62-4, 64741-53-3) (equivalent or similar to guideline OECD TG 474) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : In vitro Bacterial Reverse Mutation Assay : positive (OECD TG 471) (read across: 64741-50-0) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473) (read across: L-06 Light Hydrotreated Feedstock) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474) (read across: solvent-extracted, dewaxed paraffin oil) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Methyl oleate was found to be negative when tested for mutagenicity using the Salmonella/microsome preincubation assay, using the standard protocol approved by the National Toxicology Program (NTP). Methyl oleate was tested in as many as 5 Salmonella typhimurium strains (TA1535, TA1537, TA97, TA98, and TA100) in the presence and absence of rat and hamster liver S-9, at doses of 0.100, 0.333, 1.000, 3.333, and 10.000 mg/plate. The highest negative dose tested in any S. typhimurium strain was 10.000 mg/plate. Slight clearing of the background bacterial lawn occurred at the high dose in cultures without activation. (HSDB)
- 2-Methyl-1-propene, sulfurized : No clear evidence for germ cell mutagenicity
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : In vitro Bacterial Reverse Mutation Assay : positive (OECD TG 471) (read across: 64741-50-0) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473) (read across: L-06 Light Hydrotreated Feedstock) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474) (read across: solvent-extracted, dewaxed paraffin oil) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : In vitro Bacterial Reverse Mutation Assay : positive (OECD TG 471) (read across: 64741-50-0) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473) (read across: L-06 Light Hydrotreated Feedstock) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474) (read across: solvent-extracted, dewaxed paraffin oil) (ECHA)

- (Z)-9-octadecenoic acid : In vitro Bacterial Reverse Mutation Assay: negative (OECD SIDS)
  In vitro Chromosome aberration: negative (OECD SIDS)
  In vivo Chromosome aberration: negative (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : In vitro Bacterial Reverse Mutation Assay : negative (OECD TG 471, GLP) (ECHA), In Vitro Mammalian Chromosome Aberration Test : negative (OECD TG 473, GLP) (ECHA), In Vitro Mammalian Cell Gene Mutation Test : negative (OECD TG 476, GLP) (ECHA)
  In vivo : Not available
- Trade secret : Not available

○ **Reproductive toxicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : rat; screening for reproductive / developmental toxicity; Reproductive performance was not adversely affected at any dose level evaluated. There were no neonatal toxicity observed at any dose level. There were no differences in terms of systemic toxicity between either of the dose formulations. (read-aross : Chevron 100 Neutral) (OECD TG 421, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rat(male/female); 1000 mg/kg/day; Reproduction / Developmental Toxicity Screening Test; Reproductive performance was not adversely affected at any dose level evaluated. There were no neonatal toxicity observed at any dose level. There were no differences in terms of systemic toxicity between either of the dose formulations. (OECD TG 421, GLP) (read across: Chevron 100 Neutral) (ECHA)
  rat; Dermal administration of the base oil did not adversely affect maternal reproductive performance, nor did it affect offspring survival or development. (OECD TG 414) (read across: 100 SUS solvent refined base oil) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Nor in the 90-day study on rats performed with ethyl oleate were reproduction toxic effects observed after exposures of rats up to the highest dose, corresponding to 5,000 mg per kg of body weight per day. (GESTIS)
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rat(male/female); 1000 mg/kg/day; Reproduction / Developmental Toxicity Screening Test; Reproductive performance was not adversely affected at any dose level evaluated. There were no neonatal toxicity observed at any dose level. There were no differences in terms of systemic toxicity between either of the dose formulations. (OECD TG 421, GLP) (read across: Chevron 100 Neutral) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rat(male/female); 1000 mg/kg/day; Reproduction / Developmental Toxicity Screening Test; Reproductive performance was not adversely affected at any dose level evaluated. There were no neonatal toxicity observed at any dose level. There were no differences in terms of systemic toxicity between either of the dose formulations. (OECD TG 421, GLP) (read across: Chevron 100 Neutral) (ECHA)
- (Z)-9-octadecenoic acid : Effects on fertility and/or reproductive organs: CAS 60-33-3, NOAEL = 467-1970 (M) and 112-85-6, NOAEL = 1000 (M/F) (OECD SIDS)
  Developmental toxicity (oral): CAS 60-33-3 NOEL = 10000 (OECD SIDS)
- Amines, alkyl(C=12-14), : rat(male/female); 10, 30, 100 mg/kg bw/day; No treatment-related changes were

alkyl(C=6-10) phosphate		noted in any of the reproductive and developmental parameters investigated in this study. NOAEL=100 mg/kg bw/day (OECD TG 422, GLP) (ECHA)
- Trade secret	:	Not available

○ **Specific target organ toxicity (single exposure) : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic	:	Hydronephrosis of the right kidney was observed in one rat but was not considered treatment-related by the study authors. No other abnormalities were observed in any male or female rats. (read-across: 64742-56-9) (OECD TG 401, GLP)(ECHA) Dermal administration of API 78-9 at 5000 mg/kg did not result in any dermal irritation or signs of clinical toxicity. Gross necroscopy did not reveal any signs of systemic toxicity at the 5000 mg/kg dose level. (read-across: 64742-56-9) (OECD TG 402, GLP)(ECHA)
- Distillates (petroleum), hydrotreated light paraffinic	:	oral; rat(male/female); No clinical signs of toxicity observed in either male or female rats. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA) dermal; rabbit(male/female); No visible signs of clinical toxicity were observed in male and female rabbits dosed with API 78-9 at 5000 mg/kg. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA) inhalation: aerosol; rat(male/female); The test material which was deposited on the animal fur during exposure diminished by observation Day 10. No mortality in either the control or exposed group was reported. There were no statistically significant differences in mean body weight between groups. LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester	:	Not available
- 2-Methyl-1-propene, sulfurized	:	Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic	:	oral; rat(male/female); No clinical signs of toxicity observed in either male or female rats. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA) dermal; rabbit(male/female); No visible signs of clinical toxicity were observed in male and female rabbits dosed with API 78-9 at 5000 mg/kg. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA) inhalation: aerosol; rat(male/female); The test material which was deposited on the animal fur during exposure diminished by observation Day 10. No mortality in either the control or exposed group was reported. There were no statistically significant differences in mean body weight between groups. LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy	:	oral; rat(male/female); No clinical signs of toxicity observed in either male or female rats. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA) dermal; rabbit(male/female); No visible signs of clinical toxicity were observed in male and female rabbits dosed with API 78-9 at 5000 mg/kg. LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA) inhalation: aerosol; rat(male/female); The test material which was deposited on the animal fur during exposure diminished by observation Day 10. No mortality

in either the control or exposed group was reported. There were no statistically significant differences in mean body weight between groups. LC50 > 5.53 mg/L air /4h, no deaths (OECD TG 403) (read across: MRD-87-102) (ECHA)

- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

○ **Specific target organ toxicity (repeated exposure) : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dermal; The systemic toxicity NOAEL for this 28-day dermal toxicity study in the rabbit is 1,000 mg/kg, based on the lack of adverse systemic effects observed at this dose level. (read-aross : 64742-53-6) (OECD TG 410, GLP) (ECHA)
  Inhalation; rat; 4 weeks; 0, 50, 220 or 1000 mg/m3; No systemic effects were observed. The NOAEL for lung changes associated with oil deposition in the lungs was 220 mg/m3. As no systemic toxicity was observed, the overall NOAEL for systemic effects was > 980 mg/m3. (equivalent or similar to guideline OECD TG 412) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : rabbit(male/female); dermal; The systemic toxicity NOAEL for this 28-day dermal toxicity study in the rabbit is 1,000 mg/kg, based on the lack of adverse systemic effects observed at this dose level. (OECD TG 410, GLP) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : No evidence of specific target organ toxicity due to repeated administration or prolonged exposure
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit(male/female); dermal; The systemic toxicity NOAEL for this 28-day dermal toxicity study in the rabbit is 1,000 mg/kg, based on the lack of adverse systemic effects observed at this dose level. (OECD TG 410, GLP) (read across: 64742-53-6) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : rat(male/female); dermal; 13 weeks; No systemic or local effects were considered significant, and the NOAEL is ≥ 2000 mg/kg/day. (OECD TG 411) (ECHA)
- (Z)-9-octadecenoic acid : In a 90 day study (no guideline specified), groups of ten rats/sex/group were administered 9-octadecenoic acid, (Z)- (CAS No 112-80-1) in the diet at 5, 10 and 25% (ca. 0, 3300, 6100, 14,000 mg/kg bw/day). In the absence of microscopic abnormalities in these organs, this effect was not considered adverse. The NOAEL was = 25% (14,000 mg/kg bw/day) (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : rat(male/female); 10, 30, 100 mg/kg bw/day; Under the study conditions, no NOAEL could be determined for parental systemic toxicity and hence the LOAEL for systemic toxicity was determined to be 10 mg/kg bw/day (OECD TG 422, GLP) (ECHA)
- Trade secret : Not available

○ **Aspiration hazard : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Viscosity: 73.9 mm2/s (40°C)(ECHA) & hydrocarbons
- Distillates (petroleum), : 17.0 mm2/s (40 °C) (ECHA) & hydrocarbons

hydrotreated light paraffinic

- (Z)-9-Octadecenoic acid methyl ester : 6.829 mPas (30°C) (GESTIS) & not hydrocarbons
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 52.1 mm2/s (40°C) & hydrocarbons
- Paraffin oils (petroleum), catalytic dewaxed heavy : >2 mm²/s (40 ºC) (ECHA) & hydrocarbons
- (Z)-9-octadecenoic acid : 25.6 cP at 30 °C (HSDB) & not hydrocarbons
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

- Acute toxicity : Not classfied (ATEmix>1mg/L)
- Chronic toxicity : Not classfied

○ **Acute (short-term) aquatic hazard:**

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : No toxicity effects observed within the limit of water solubility(0.01208 mg/L). (ECOSAR)
- 2-Methyl-1-propene, sulfurized : LC50 0.721 mg/L 96 hr (estimated)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- (Z)-9-octadecenoic acid : 96h-LC50(Oncorhynchus mykiss) > 56 mg/L (exceeds expected water solubility (0.01151 mg/L)) (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : 96h-LC50(Salmo gairdneri) = 5.5 mg/L (OECD TG 203) (ECHA)
- Trade secret : Not available

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 48h-EL50(Daphnia magna) > 10,000 mg/L (read across : 64742-53-6 or 64741-97-5) (equivalent or similar to guideline OECD TG 202) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 48h-EL50(Daphnia magna) > 10000 mg/L (OECD TG 202) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : No toxicity effects observed within the limit of water

solubility(0.01208 mg/L). (ECOSAR)

- 2-Methyl-1-propene, sulfurized : LC50 0.604 mg/L 48 hr (estimated)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 48h-EL50(Daphnia magna) > 10000 mg/L (OECD TG 202) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : 48h-EL50(Daphnia magna) > 10000 mg/L (OECD TG 202) (ECHA)
- (Z)-9-octadecenoic acid : 48h-EC50(Daphnia magna) >=32 mg/L (exceeds expected water solubility (0.01151 mg/L) (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : 48h-EC50(Daphnia magna) = ca. 0.315 mg/L (OECD TG 202, GLP) (ECHA)
- Trade secret : Not available

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : 96h-EC50(Green Algae) = 0.002 mg/L (estimated) (EPISUITE)
- 2-Methyl-1-propene, sulfurized : EC50 0.915 mg/L 96 hr (estimated)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : 72h-ErC50 >2.6 mg/L (exceeds expected water solubility (0.01151 mg/L) (J-CHCEK)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : 72h-ErC50(Desmodesmus subspicatus) = 0.58 mg/L (OECD TG 201, GLP) (ECHA)
- Trade secret : Not available

○ **Chronic (Long-term) aquatic hazard:**

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 21d-NOEL(Daphnia magna)=10 mg/L (read across: 64742-53-6) (equivalent or similar to guideline OECD TG 211, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 21d-NOEL(Daphnia magna) = 10 mg/L (OECD TG 211, GLP) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 21d-NOEL(Daphnia magna) = 10 mg/L (OECD TG 211, GLP) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : 21d-NOEL(Daphnia magna) = 10 mg/L (OECD TG 211, GLP) (ECHA)
- (Z)-9-octadecenoic acid : 21d-NOEC(Daphnia magna) = 0.32 mg/L (OECD TG 211, GLP) (J-CHECK); exceeds

expected water solubility (0.01151 mg/L)

- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOErL(Pseudokirchnerella subcapitata) >= 100 mg/L (read across: 72623-87-1) (OECD TG 201) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 72h-NOErL(Pseudokirchneriella subcapitata) >=100 mg/L (OECD TG 201) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 72h-NOErL(Pseudokirchneriella subcapitata) >=100 mg/L (OECD TG 201) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : 72h-NOErL(Pseudokirchneriella subcapitata) >=100 mg/L (OECD TG 201) (ECHA)
- (Z)-9-octadecenoic acid : 72h-NOECr = 2.6 mg/L (exceeds expected water solubility (0.01151 mg/L) (J-CHCEK)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : 72h-NOErC(Desmodesmus subspicatus) = 0.16 mg/L (OECD TG 201, GLP) (ECHA)
- Trade secret : Not available

2) Persistence and degradability

○ **Persistence**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : log Kow = 7.45 (HSDB)
- 2-Methyl-1-propene, sulfurized : log Kow 4.67 (estimated)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : log Kow = 6.13 (experimental) (EPISUITE)
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : log Kow = 7.64 (HSDB)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : log Kow > 2.47 (22 °C; pH:ca. 4) (OECD TG 107, GLP) (ECHA)
- Trade secret : Not available

○ **Degradability**

- Distillates (petroleum), hydrotreated heavy paraffinic : The chemical constituents that comprise the other lubricant base oils category consist entirely of carbon and hydrogen and do not contain hydrolyzable groups. As such, they have a very low potential to hydrolyze. Therefore, this degradative process will not contribute to their removal from the environment. (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

3) Bioaccumulative potential

○ **Bioaccumulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : BCF = 490 (estimated) (HSDB)
- 2-Methyl-1-propene, sulfurized : BCF 25.69 (estimated)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : BCF = 5147 (estimated) (EPISUITE)
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : BCF = 3.16 ? 56.2 (OECD SIDS)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : BCF = 45.66 (estimated) (EPISUITE)
- Trade secret : Not available

○ **Biodegradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Another lubricant base oil, Solvent Neutral 600 Base Oil (MRD-94 -981), was determined to be inherently biodegradable but not readily biodegradable with a mean degradation of 31.13% by day 28. (read across: Solvent Neutral 600 Base Oil (MRD-94-981)) (OECD TG 301F, GLP) (ECHA)
- Distillates (petroleum), hydrotreated light paraffinic : 31 % degradation after 28d; not readily biodegradable (OECD TG 301F, GLP) (ECHA)
- (Z)-9-Octadecenoic acid methyl ester : 91% degradation after 28d; readily biodegradable (J-CHECK)
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 31 % degradation after 28d; not readily biodegradable (OECD TG 301F, GLP) (ECHA)
- Paraffin oils (petroleum), catalytic dewaxed heavy : 31 % degradation after 28d; not readily biodegradable (OECD TG 301F, GLP) (ECHA)
- (Z)-9-octadecenoic acid : 78% degradation after 28d by BOD; readily biodegradation (J-CHECK)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : 76 % degradation after 28 days; readily biodegradable (OECD TG 301B, GLP) (ECHA)
- Trade secret : Not available

4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Koc = 62000 (estimated) (HSDB)
- 2-Methyl-1-propene, sulfurized : Koc 11290 (soil adsorption)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Koc=208800 (EPISUITE)
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Koc = 340000 (estimated) (HSDB)
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Koc = 97.92 (EPISUITE)
- Trade secret : Not available

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable

- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not available

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated light paraffinic : Not available
- (Z)-9-Octadecenoic acid methyl ester : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not available
- (Z)-9-octadecenoic acid : Not available
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not available
- Trade secret : Not available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Not available

2) Special precaution for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

1) UN No.

- Not applicable

2) Proper shipping name

- Not applicable

3) Transport hazard class(es)

- Not applicable

4) Packing group

- Not applicable

5) Marine pollutant

- Not applicable

6) Special safety response for transportation or transportation measure

- Types of Emergency Measures in Case of Fire : Not applicable
- Types of Emergency Measures in Leakage : Not applicable
- Transport regulations according to ADR/RID, AND, IMDG and ICAO/IATA : Not applicable

15. REGULATORY INFORMATION

EINECS(or ELINCS)

- Distillates (petroleum), hydrotreated heavy paraffinic : European EINECS phase-in substance
- Distillates (petroleum), hydrotreated light paraffinic : European EINECS phase-in substance
- (Z)-9-Octadecenoic acid methyl ester : European EINECS phase-in substance

- 2-Methyl-1-propene, sulfurized : European EINECS phase-in substance
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : European EINECS phase-in substance
- Paraffin oils (petroleum), catalytic dewaxed heavy : European EINECS phase-in substance
- (Z)-9-octadecenoic acid : European EINECS phase-in substance
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : European EINECS phase-in substance
- Trade secret : Not applicable

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

Substances restricted under REACH

- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- Distillates (petroleum), hydrotreated light paraffinic : Substances restricted under REACH
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Substances restricted under REACH
- Paraffin oils (petroleum), catalytic dewaxed heavy : Substances restricted under REACH
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

Substances subject to authorization under REACH

REACH SVHC List

Korea

○ **Occupational Safety and Health Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Substance subject to occupational exposure limits, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination
- Distillates (petroleum), hydrotreated light paraffinic : Substance subject to occupational exposure limits, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Substance subject to submission of process safety reports
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Substance subject to occupational exposure limits, Harmful agents subject to work environment monitoring, Harmful agents subject to workers requiring health examination
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable

- Trade secret : Not applicable

○ **K-REACH**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **Chemical Control Act in Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **Safety Control of Dangerous Substances Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- Distillates (petroleum), hydrotreated light paraffinic : Dangerous substance
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Dangerous substance
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

U.S.A

○ **US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **CERCLA Designation of hazardous substances (40 CFR 302.4)**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable

- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **CERCLA Section 302 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **CERCLA Section 304 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **CERCLA Section 313 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable

- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **Stockholm Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **Montreal Protocol list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

National Inventory

○ **Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Not applicable
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

○ **U.S.A**

- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- Distillates (petroleum), hydrotreated light paraffinic : US TSCA phase-in substance
- (Z)-9-Octadecenoic acid methyl ester : US TSCA phase-in substance
- 2-Methyl-1-propene, sulfurized : US TSCA phase-in substance
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : US TSCA phase-in substance
- Paraffin oils (petroleum), catalytic dewaxed heavy : US TSCA phase-in substance
- (Z)-9-octadecenoic acid : US TSCA phase-in substance
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : US TSCA phase-in substance
- Trade secret : Not applicable

○ **China**

- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- Distillates (petroleum), hydrotreated light paraffinic : China phase-in substance
- (Z)-9-Octadecenoic acid methyl ester : China phase-in substance
- 2-Methyl-1-propene, sulfurized : China phase-in substance
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : China phase-in substance
- Paraffin oils (petroleum), catalytic dewaxed heavy : China phase-in substance
- (Z)-9-octadecenoic acid : China phase-in substance
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : China phase-in substance
- Trade secret : Not applicable

○ **Japan**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated light paraffinic : Not applicable
- (Z)-9-Octadecenoic acid methyl ester : Japan ENCS phase-in substance
- 2-Methyl-1-propene, sulfurized : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Japan ENCS phase-in substance
- Paraffin oils (petroleum), catalytic dewaxed heavy : Not applicable
- (Z)-9-octadecenoic acid : Japan ENCS phase-in substance
- Amines, alkyl(C=12-14), alkyl(C=6-10) phosphate : Not applicable
- Trade secret : Not applicable

16. OTHER INFORMATION

1) Reference

- Sources of information used in preparing this SDS included one or more of the following: Internal technical data, data from OECD eChemPortal, ECHA, NITE, TOXNET, IPCS and KOSHA search results.

2) Issue Date

- 2012-11-30

3) Revision number and Last date revised

○ **Number of revised**

- 4

○ **Date of last revision**

- 2026-01-05

○ **Last Revision History**

- Reflection of the 2025-year notices from Ministry of Employment and Labor and National Institute of Chemical Safety

4) Other

- The information contained in the Safety Data Sheet is at the date of its issuance to the best of our knowledge correct according to the data available to us. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.