SDS(Safety Data Sheet)

Product	Kixx Gear EP S 320		
MSDS Number	List No.	Issuing date	Last revised date
-	LB3070	2012-11-30	2026-02-19

1. IDENTIFICATION

1) Product name

Kixx Gear EP S 320

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 Gear EP S 320	0	1	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
1-Decene, homopolymer, hydrogenated	Hydrogenated decene homopolymer	68037-01-4	500-183-1	85 ~ 89
Fatty acids, (C=8-10), triesters with trimethylolpropane	Priolube 370	91050-89-4	293-036-3	10
2-Methyl-1-propene, sulfurized	Sulfurized isobutylene	68511-50-2	270-943-2	0.5 ~ 2
Trade secret				0.5 ~ 1
Trilauryl phosphite	Phosphorous acid,tridodecyl ester	3076-63-9	221-356-5	0.1 ~ 0.5
N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene		68411-46-1	270-128-1	0.1 ~ 0.5
3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester	Octyl-3,5-di-tert-butyl-4-hydroxy-hydrocinnamate	125643-61-0	406-040-9	0.1 ~ 0.5
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	0.1 ~ 0.5
Distillates (petroleum), hydrotreated heavy paraffinic	Emulsifiable oil	64742-54-7	265-157-1	0.1 ~ 0.3
tert-Alkyl(C=12-14) amines	C12-14-tert-ALKYL AMINES	68955-53-3	273-279-1	0 ~ 0.3

※ 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)
1-Decene, homopolymer, hydrogenated	Not available	Not available	Not available	Not available
Fatty acids, (C=8-10), triesters with trimethylolpropane	Not available	Not available	Not available	Not available
2-Methyl-1-propene, sulfurized	Not available	Not available	Not available	Not available
Trade secret	Not available	Not available	Not available	Not available
Trilauryl phosphite	Not available	Not available	Not available	Not available

N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene	Not available	Not available	Not available	Not available
3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester	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
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
tert-Alkyl(C=12-14) amines	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	a specific smell of Hydrocarbon
Smell Threshold	No Data
pH (Numerical value)	No Data
Melting/Freezing Point	No Data
Boilling Point	No Data
Flash Point	248 ℃
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	No Data
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	320 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)**

- 1-Decene, homopolymer, hydrogenated : rat(male/female); LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 423, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : rat(male/female); LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 401) (ECHA)
- 2-Methyl-1-propene, sulfurized : LD50 5000 ㎎/kg rat
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rat(male/female); LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 401) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : rat(male/female); LD50 > 2000 mg/kg bw, no deaths (OECD TG 401, GLP) ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rat(male/female); LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 401, GLP) (read across: 64742-56-9) (ECHA)
- 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)
- tert-Alkyl(C=12-14) amines : Rat(Female/Male); LD50 = 612 mg/kg (OECD TG 401, GLP)(HPVIS)

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

- 1-Decene, homopolymer, hydrogenated : rat(male/female); LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: Oronite XS 1010) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : rabbit(male/female); LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (ECHA)
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rat(male/female); LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 402) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : rat(male/female); LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit(male/female); LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: 64742-56-9) (ECHA)

- 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)
- tert-Alkyl(C=12-14) amines : rat(male/female); LD50 = 251 mg/kg (OECD TG 402, GLP)(HPVIS)

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

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not available
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

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

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : Rat(Female/Male); inhalation: Vapours, LC50 > 0.94 mg/L 4h (OECD TG 403, GLP) (HPVIS)

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

- 1-Decene, homopolymer, hydrogenated : rat(male/female); inhalation: aerosol; LC50 > 5.2 mg/L air /4h, no deaths (OECD TG 403, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : rat(male/female); inhalation: aerosol; LC50 > 5.1 mg/L air /4h, no deaths (OECD TG 403) (ECHA)
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : 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)
- 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)
- tert-Alkyl(C=12-14) amines : Not available

○ Skin corrosion/Irritation : Not classified

- 1-Decene, homopolymer, hydrogenated : rabbit; not irritating (OECD TG 404, GLP) (ECHA)
- Fatty acids, (C=8-10), : rabbit; not irritating (OECD TG 404) (ECHA)

triesters with trimethylolpropane

- 2-Methyl-1-propene, sulfurized : rabbit; Not irritating
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rabbit; not irritating (OECD TG 404) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : rabbit; not irritating (OECD TG 404, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit; not irritating (GLP) (read across: 64742-56-9) (ECHA)
- 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)
- tert-Alkyl(C=12-14) amines : Rabbit; corrosive (GLP)(HPVIS)

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

- 1-Decene, homopolymer, hydrogenated : rabbit; not irritating (OECD TG 405, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : rabbit; not irritating (OECD TG 405) (ECHA)
- 2-Methyl-1-propene, sulfurized : rabbit; Not irritating
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rabbit; not irritating (OECD TG 405) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Rabbit; not irritating (OECD TG 405, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : rabbit; not irritating (OECD TG 405, GLP) (read across: 64742-56-9) (ECHA)
- 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)

- tert-Alkyl(C=12-14) amines : Rabbit; serious damage to eyes (Draize Test, GLP) (EPA HPVIS)

○ **Respiratory sensitization : Not classified**

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : Not available

○ **Skin sensitization : Not classified**

- 1-Decene, homopolymer, hydrogenated : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : guinea pig; Not sensitizing
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Distillates (petroleum), : guinea pig; not sensitising (OECD TG 406, GLP) (read across: 64742-53-6) (ECHA)

solvent-dewaxed heavy paraffinic

- 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)
- tert-Alkyl(C=12-14) amines : guinea pig; Not sensitizing (OECD TG 406, GLP) (HPVIS)

○ **Carcinogenicity : Not classified**

- 1-Decene, homopolymer, hydrogenated : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Fatty acids, (C=8-10), triesters with trimethylolpropane : 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
- Trade secret : Not available
- Trilauryl phosphite : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : 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)
- 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)
- tert-Alkyl(C=12-14) amines : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed

○ **Germ cell mutagenicity : Not classified**

- 1-Decene, homopolymer, hydrogenated : In vitro Bacterial Reverse Mutation Assay : negative (OECD TG 471, GLP) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test : negative (OECD TG 474, GLP) (read across: Oronite XS 101) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : In vitro Bacterial Reverse Mutation Assay : negative (OECD TG 471, GLP) (ECHA)
  In vivo : Not available
- 2-Methyl-1-propene, sulfurized : No clear evidence for germ cell mutagenicity
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with : In vitro Bacterial Reverse Mutation Assay : negative (OECD TG 471) (ECHA)
  In vivo rodent dominant lethal assay : negative (OECD TG 478) (ECHA)

2,4,4-trimethylpentene

- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : In vitro Bacterial Reverse Mutation Assay; negative (OECD TG 471, GLP) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test; negative (OECD TG 474, GLP) (ECHA)
- 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)
- 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)
- tert-Alkyl(C=12-14) amines : In vitro bacterial reverse mutation assay: negative (OECD TG 471, GLP) (EPA HPVIS)
  In vivo Mouse(Female/Male) Bone Marrow Chromosome Aberration Test: negative (OECD TG 474, GLP) (EPA HPVIS)

○ **Reproductive toxicity : Not classified**

- 1-Decene, homopolymer, hydrogenated : rat(male/female); 0, 100, 500, or 1000 mg/kg/day; one-generation reproductive toxicity; Ethylflo 166 did not appear to have any effects on reproduction. (OECD TG 415, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : rat; 800 and 2000 mg/kg bw/day; No adverse effects were observed in any maternal or reproductive parameter nor on external and skeletal development of fetuses. (OECD TG 414) (read across: Stock 59) (ECHA)
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rat(male/female); 25, 75 and 225 mg/kg bw; No toxicologically relevant effects on reproductive parameters were noted with treatment up to 225 mg/kg bw/day. The mating, fertility and conception indices, precoital time, and number of corpora lutea and implantation sites were unaffected by treatment. No toxicologically relevant effects on the gestation index and duration, parturition, maternal care or on most aspects of early postnatal pup development (clinical signs, body weight and macroscopy) were observed up to 225 mg/kg bw/day. (OECD TG 422, GLP) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : rabbit; oral; 20, 40, 80 mg/kg bw/day; It is not thought that the increase in post implantation loss is due to the slight maternal toxicity recorded. However, due to a deficiency in the food consumption data it is not possible to draw a firm conclusion based on an incomplete maternal data set. Therefore Evernox 1135 will not be classified at this stage but an embryo-fetal study, on a second

species, namely the rat, will be triggered at the next tonnage band so that a firm and definitive conclusion can be drawn regarding Evernox 1135 and whether it does, or does not, warrant classification as a Reproductive Toxicant. (OECD TG 414, GLP) (ECHA)

- 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)
- 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)
- tert-Alkyl(C=12-14) amines : rat(male/female); one-generation reproduction toxicity study; 10weeks; 250, 750, 1500 ppm; NOEL(parental toxicity) = 250 ppm due to decreased pup weights at both 750 and 1500 ppm (OECD TF 415, GLP)(HPVIS)

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

- 1-Decene, homopolymer, hydrogenated : oral; rat(male/female); Clinical observations included transient mild depression and oily hair coats. Animals appeared grossly normal by day 5 post-exposure. LD50 > 5000 ㎎/㎏ bw, no deaths (OECD TG 423, GLP) (ECHA)
  dermal; rat(male/female); Necropsy at the end of the 14 day observation period revealed a dilated pelvis in the kidney of one male rat treated at 2000 mg/kg, but this was not considered to be a treatment-related. LD50 > 2000 ㎎/㎏ bw, no deaths (OECD TG 402, GLP) (read across: Oronite XS 1010) (ECHA)
  inhalation: aerosol; rat(male/female); No treatment-related changes in pathology were observed. LC50 > 5.2 mg/L air /4h, no deaths (OECD TG 403, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : oral; rat(male/female); No clinical signs of toxicity were observed up to the end of the 14-day observation period. LD50 > 2000 ㎎/㎏ bw, no deaths (OECD TG 401) (ECHA)
  dermal; rabbit(male/female); No clinical signs of toxicity were observed up to the end of the 14-day observtion period. LD50 > 2000 ㎎/㎏ bw, no deaths (OECD TG 402, GLP) (ECHA)
  inhalation: aerosol; rat(male/female); Necropsy and histopathological examination revealed no substance-related findings. LC50 > 5.1 mg/L air /4h, no deaths (OECD TG 403) (ECHA)
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : oral; rat(male/female); No compound related gross organ changes were observed. LD50 > 5000 ㎎/㎏ bw, no deaths (OECD TG 401) (ECHA)
  dermal; rat(male/female); No adverse findings noted. LD50 > 2000 ㎎/㎏ bw, no deaths (OECD TG 402) (ECHA)

- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : oral; rat(male/female); Effects on organs: No deviations from the normal morphology. (OECD TG 401, GLP) ECHA)

- 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)

- 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)

- tert-Alkyl(C=12-14) amines : Not available

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

- 1-Decene, homopolymer, hydrogenated : oral; rat(male/female); 91 days; 0, 100, 500, or 1000 mg/kg/day; The subchronic NOAEL for ethylflo 166 in rats is 1000 mg/kg/day. (OECD TG 408, GLP) (ECHA)

- Fatty acids, (C=8-10), triesters with trimethylolpropane : dermal; rat(male/female); 13 weeks; 800 and 2000 mg/kg bw/day; NOAEL>=2000 mg/kg bw/day (highest dose tested) (OECD TG 411) (ECHA)

- 2-Methyl-1-propene, sulfurized : No evidence of specific target organ toxicity due to repeated administration or prolonged exposure

- Trade secret : Not available

- Trilauryl phosphite : Not available

- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : rat(male); oral; 28 days; Based on the absence of clinical findings and effects on body weight, dose levels of 100, 300 and 1000 mg/kg bw were chosen for subchronic dosing. (ECHA)

- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : rat(male/female); oral; 90 days; no effects (OECD TG 408, GLP) (ECHA)

- 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)

- 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)
- tert-Alkyl(C=12-14) amines : rat(male/female); inhalation : vapor; 4weeks; 2, 19, 129, 537 mg/m3; NOAEL = 19 mg/m3; At the end of the four-week exposure period, neurological evalutions of all surviving animals showed no signs of a cumulative toxic effect on the nervous system in any group (OECD TG 412, GLP)(HPVIS)

○ **Aspiration hazard : Not classified**

- 1-Decene, homopolymer, hydrogenated : 31.0 mm2/s (40°C) (ECHA) & hydrocarbons
- Fatty acids, (C=8-10), triesters with trimethylolpropane : 19.4 mm²/s at 40 °C (ECHA) & not hydrocarbons
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 352.7 mm²/s (40°C) (ECHA) & not hydrocarbons
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Viscosity : 110-115 mPa s (40°C) (OECD TG 114) (ECHA) & not hydrocarbons
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 52.1 mm2/s (40°C) & hydrocarbons
- Distillates (petroleum), hydrotreated heavy paraffinic : Viscosity: 73.9 mm2/s (40°C)(ECHA) & hydrocarbons
- tert-Alkyl(C=12-14) amines : Not applicable

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

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

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

Fish

- 1-Decene, homopolymer, hydrogenated : Water solubility:< 0.1 mg/L (ECHA), 96h-LL50(Oncorhynchus mykiss) > 1000 mg/L (US EPA, GLP) (ECHA); No toxic effects up to the limit of water solubility
- Fatty acids, (C=8-10), triesters with trimethylolpropane : No toxic effects up to the limit of water solubility (<0.05 mg/L)
- 2-Methyl-1-propene, sulfurized : LC50 0.721 mg/L 96 hr (estimated)
- Trade secret : Not available
- Trilauryl phosphite : No toxic effects up to the limit of water solubility. (EPISUITE)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 96h-LC50(Danio rerio) > 100 mg/L (OECD TG 203) (ECHA); No toxic effects occur within the range of water solubility.
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20°C, pH 6.4), 96h-LC50(Danio rerio) > 94 mg/L (OECD TG 203, GLP) (ECHA); no short-term toxicity
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- Distillates (petroleum), hydrotreated heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- tert-Alkyl(C=12-14) amines : 96h-LC50(Oncorhynchus mykiss) = 1.3 mg/L (OECD TG 203, GLP)(HPVIS)

Invertebrates

- 1-Decene, homopolymer, hydrogenated : Water solubility:< 0.1 mg/L (ECHA), 48h-EL50(Daphnia magna) > 1000 mg/L (OECD TG 202, GLP) (ECHA); No toxic effects up to the limit of water solubility
- Fatty acids, (C=8-10), triesters with trimethylolpropane : No toxic effects up to the limit of water solubility (<0.05 mg/L)
- 2-Methyl-1-propene, sulfurized : LC50 0.604 mg/L 48 hr (estimated)
- Trade secret : Not available
- Trilauryl phosphite : No toxic effects up to the limit of water solubility. (EPISUITE)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 48h-EC50(Daphnia magna) = 51 mg/L (OECD TG 202, GLP) (ECHA); No toxic effects occur within the range of water solubility.
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20°C, pH 6.4), 24h-EC50(Daphnia magna) = 4.3 mg/L (OECD TG 202, GLP) (ECHA); no short-term toxicity
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 48h-EL50(Daphnia magna) > 10000 mg/L (OECD TG 202) (ECHA)
- 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)
- tert-Alkyl(C=12-14) amines : 48h-EC50(Daphnia magna) = 4.1 mg/L (OECD TG 202, GLP)(HPVIS)

Aquatic algae

- 1-Decene, homopolymer, hydrogenated : Water solubility:< 0.1 mg/L (ECHA), 72h-ErL50(Scenedesmus capricornutum) > 1000 mg/L (OECD TG 201, GLP) (ECHA); No toxic effects up to the limit of water solubility
- Fatty acids, (C=8-10), triesters with trimethylolpropane : No toxic effects up to the limit of water solubility (<0.05 mg/L)
- 2-Methyl-1-propene, sulfurized : EC50 0.915 mg/L 96 hr (estimated)
- Trade secret : Not available
- Trilauryl phosphite : No toxic effects up to the limit of water solubility. (EPISUITE)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 72h-ErC50(Desmodesmus subspicatus) > 100 mg/L (OECD TG 201) (ECHA); No toxic effects occur within the range of water solubility.

- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20°C, pH 6.4), 72h-ErC50(Desmodesmus subspicatus) > 3 mg/L (OECD TG 201, GLP) (ECHA); no short-term toxicity
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : 72h-ErC50(Selenastrum capricornutum) = 0.2 mg/L (OECD TG 201, GLP)(HPVIS)

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

Fish

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20°C, pH 6.4), 36d-NOEC(Danio rerio) = 0.001 mg/L (OECD TG 210, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : 96d-NOErC(Oncorhynchus mykiss) = 0.078 mg/L (OECD TG 210, GLP)(HPVIS)

Invertebrates

- 1-Decene, homopolymer, hydrogenated : 21d-NOELR(Daphnia magna) = 125 mg/L (OECD TG 211, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 21d-EL10(Daphnia magna) = 1.69 mg/L (OECD TG 211, GLP) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20°C, pH 6.4), 21d-NOEC(Daphnia magna) <= 0.01 mg/L (OECD TG 211, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 21d-NOEL(Daphnia magna) = 10 mg/L (OECD TG 211, GLP) (ECHA)
- 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)
- tert-Alkyl(C=12-14) amines : Not available

Aquatic algae

- 1-Decene, homopolymer, hydrogenated : 72h-NOErLR(Scenedesmus capricornutum) = 1000 mg/L (OECD TG 201, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 72h-NOErC(Desmodesmus subspicatus) = 10-100 mg/L (OECD TG 201) (ECHA); No toxic effects occur within the range of water solubility.

- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : water solubility : < 0.03 mg/l (20℃, pH 6.4), 72h-NOErC(Desmodesmus subspicatus) > 3 mg/L (OECD TG 201, GLP) (ECHA); no short-term toxicity
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 72h-NOErL(Pseudokirchneriella subcapitata) >=100 mg/L (OECD TG 201) (ECHA)
- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOErL(Pseudokirchnerella subcapitata) >= 100 mg/L (read across: 72623-87-1) (OECD TG 201) (ECHA)
- tert-Alkyl(C=12-14) amines : Not available

2) Persistence and degradability

○ **Persistence**

- 1-Decene, homopolymer, hydrogenated : log Kow > 6.5 (20 ℃; pH:7) (OECD TG 117, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : log Kow=10.64 (QSAR) (ECHA); not valid (over -4<log Kow<8)
- 2-Methyl-1-propene, sulfurized : log Kow 4.67 (estimated)
- Trade secret : Not available
- Trilauryl phosphite : log Kow = 15.48 (estimated) (EPISUITE); not valid (over -4<log Kow<8)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : log Kow=7.05 (estimated) (EPISUITE)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : log Kow = 9.2 (0 ℃) (EU Method A.8, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : log Kow = 6.13 (experimental) (EPISUITE)
- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- tert-Alkyl(C=12-14) amines : log Kow = 4.65 (estimated)(EPISUITE)

○ **Degradability**

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : In contact with water no hydrolysis is expected. (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Hydrolysis; In accordance with REACH Annex VIII column 2, the study does not need to be conducted as the substance is highly insoluble in water, < 0.03 mg / l.
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- 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)
- tert-Alkyl(C=12-14) amines : Not available

3) Bioaccumulative potential

○ **Bioaccumulation**

- 1-Decene, homopolymer, hydrogenated : Members of this category are not expected to be bioaccumulative. (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : BCF 25.69 (estimated)

- Trade secret : Not available
- Trilauryl phosphite : BCF = 3.162 (estimated) (EPISIUTE)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : BCF=1730 (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : BCF=258 (OECD TG 305, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : BCF = 5147 (estimated) (EPISUITE)
- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- tert-Alkyl(C=12-14) amines : BCF = 31.94 (estimated)(EPISUITE)

○ **Biodegradation**

- 1-Decene, homopolymer, hydrogenated : 2 % degradation after 28d; Not readily biodegradable (OECD TG 301D, GLP) (ECHA)
- Fatty acids, (C=8-10), triesters with trimethylolpropane : 78% degradation after 28 days; readily biodegradable (OECD TG 301F, GLP) (ECHA)
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : 1% degradation after 28 days; under test conditions no biodegradation observed (OECD TG 301B, GLP) (ECHA)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : not inherently biodegradable (EU Method C.9, GLP) (ECHA)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : 31 % degradation after 28d; not readily biodegradable (OECD TG 301F, GLP) (ECHA)
- 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)
- tert-Alkyl(C=12-14) amines : 22% degradation after 28days; not readily biodegradable (HPVIS)

4) Mobility in soil

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Koc=316600 (EPISUITE)
- 2-Methyl-1-propene, sulfurized : Koc 11290 (soil adsorption)
- Trade secret : Not available
- Trilauryl phosphite : Koc = 27210000000000 (EPISUITE)
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Koc=60460 (EPISUITE)
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Koc=258600 (EPISUITE)
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Koc=208800 (EPISUITE)
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : Koc = 2988 (estimated)(EPISUITE)

5) Hazard to the ozone layer

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not available
- Trilauryl phosphite : Not applicable

- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

6) Other adverse effects

- 1-Decene, homopolymer, hydrogenated : Not available
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- Trilauryl phosphite : Not available
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- tert-Alkyl(C=12-14) amines : 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)

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : European EINECS phase-in substance
- 2-Methyl-1-propene, sulfurized : European EINECS phase-in substance
- Trade secret : Not applicable
- Trilauryl phosphite : European EINECS phase-in substance
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : European EINECS phase-in substance
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : European EINECS phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : European EINECS phase-in substance
- tert-Alkyl(C=12-14) amines : European EINECS phase-in substance

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

Substances restricted under REACH

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Substances restricted under REACH
- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- tert-Alkyl(C=12-14) amines : Not applicable

Substances subject to authorization under REACH

REACH SVHC List

Korea

○ **Occupational Safety and Health Act**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Substance subject to submission of process safety reports
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable

- 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
- 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
- tert-Alkyl(C=12-14) amines : Not applicable

○ **K-REACH**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ **Chemical Control Act in Korea**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ **Safety Control of Dangerous Substances Act**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- tert-Alkyl(C=12-14) amines : Not applicable

U.S.A

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

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable

- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ CERCLA Designation of hazardous substances (40 CFR 302.4)

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ CERCLA Section 302 regulation

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ CERCLA Section 304 regulation

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ CERCLA Section 313 regulation

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable

- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ **Stockholm Convention list**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ **Montreal Protocol list**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

National Inventory

○ **Korea**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable

- Trade secret : Not applicable
- Trilauryl phosphite : Not applicable
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable

○ **U.S.A**

- 1-Decene, homopolymer, hydrogenated : US TSCA phase-in substance
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : US TSCA phase-in substance
- Trade secret : Not applicable
- Trilauryl phosphite : US TSCA phase-in substance
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : US TSCA phase-in substance
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : US TSCA phase-in substance
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : US TSCA phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- tert-Alkyl(C=12-14) amines : US TSCA phase-in substance

○ **China**

- 1-Decene, homopolymer, hydrogenated : China phase-in substance
- Fatty acids, (C=8-10), triesters with trimethylolpropane : China phase-in substance
- 2-Methyl-1-propene, sulfurized : China phase-in substance
- Trade secret : Not applicable
- Trilauryl phosphite : China phase-in substance
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : China phase-in substance
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : China phase-in substance
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : China phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- tert-Alkyl(C=12-14) amines : China phase-in substance

○ **Japan**

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Fatty acids, (C=8-10), triesters with trimethylolpropane : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- Trilauryl phosphite : Japan ENCS phase-in substance
- N-Phenylbenzenamine reaction products with 2,4,4-trimethylpentene : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Distillates (petroleum), solvent-dewaxed heavy paraffinic : Japan ENCS phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- tert-Alkyl(C=12-14) amines : Japan ENCS phase-in substance

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**

- 6

○ **Date of last revision**

- 2026-01-05

○ **Last Revision History**

- update

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.