SDS(Safety Data Sheet)

Product	Kixx GX7 DL-1 0W-30		
MSDS Number	**List No.**	**Issuing date**	**Last revised date**
-	LB3951	2024-08-27	2024-08-27

1. IDENTIFICATION

1) Product name

Kixx GX7 DL-1 0W-30

2) Recommended use of the chemical and restriction on use

- Recommended use: Lubricants; Diesel engine oil
- 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: +82-1899-5145

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 GX7 DL-1 0W-30	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	55 ~ 65
1-Decene, homopolymer, hydrogenated		68037-01-4	500-183-1	20 ~ 30
Trade secret				10 ~ 15
3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester		125643-61-0		0.1 ~ 1
Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased		68784-26-9	272-234-3	0.1 ~ 1
Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt		722503-70-0		0.1 ~ 1
Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt		4259-15-8	224-235-5	0.1 ~ 1
Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts	Dialkyl(C1-C14)dithiophosphoric acid, zinc salt ; DI-C1-14 ALKYL DITHIOPHOSPHORIC ACID, ZINC SALT ; Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts	68649-42-3	272-028-3	0.1 ~ 1
Dodecylphenol, branched	Phenol, dodecyl-, branched	121158-58-5	310-154-3	0.1 ~ 0.4

※ 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.

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

- Do not touch or walk through spilled material.

protective equipment

- 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
1-Decene, homopolymer, hydrogenated	Not available	Not available	Not available	Not available
Trade secret	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
Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased	Not available	Not available	Not available	Not available
Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt	Not available	Not available	Not available	Not available
Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt	Not available	Not available	Not available	Not available
Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts	Not available	Not available	Not available	Not available
Dodecylphenol, branched	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	Light yellow
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	230 °C
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	0.842
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	10.0 mm2/s (at 100℃)
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)
- 1-Decene, homopolymer, hydrogenated : rat(male/female); LD50 > 5000 ㎎/kg bw, no deaths (OECD TG 423, GLP) (ECHA)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Rat; LD50 >5000 ㎎/kg, no deaths (OECD TG 401, GLP)(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : rat(male); LD50 = 3100 ㎎/kg bw (OECD TG 401) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rat; LD50 = 3100 mg/kg bw (read across: zinc bis(O,O?diisooctyl) bis(dithiophosphate) (ECHA)
- Dodecylphenol, branched : LD50=2100 mg/kg bw(rat, female/male), For the doses of 1260, 1580, 2000, 2510, 3160 and 3980 mg/kg, the number of deaths were 1, 2, 2, 4, 4 and 4, respectively, out of 5 animals per group.(OECD TG 401)(ECHA)

*** 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)
- 1-Decene, homopolymer, hydrogenated : rat(male/female); LD50 > 2000 ㎎/kg bw, no deaths (OECD TG 402, GLP) (read across: Oronite XS 1010) (ECHA)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Rabbit; LD50 >4000 ㎎/kg, no deaths (OECD TG 402, GLP)(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : rabbit(male); LD50 > 5000 ㎎/kg bw (OECD TG 402) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rabbit(male/female); LD50 > 3160 mg/kg bw, no deaths (ECHA)
- Dodecylphenol, branched : rabbit(male); LD50=ca. 15000 mg/kg bw; No deaths (OECD TG 402) (ECHA)

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

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

- Distillates (petroleum), hydrotreated heavy paraffinic : rat(male/female), LC50 > 5.53 mg/L air /4h No deaths (read-across: MRD-87-102) (OECD TG 403)(ECHA)
- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : LC50 >1.67 mg/L / 1h -> conversion for 4h-exposure: > 0.835 mg/L /4h, no deaths(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rat; LC50 > 5 mg/L air, no deaths (no data for exposure time)(ECHA)
- Dodecylphenol, branched : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : rat(male/female); inhalation: aerosol; LC50 > 5.2 mg/L air /4h, no deaths (OECD TG 403, GLP) (ECHA)
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : 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)
- 1-Decene, homopolymer, hydrogenated	:	rabbit; not irritating (OECD TG 404, GLP) (ECHA)
- Trade secret	:	Not available
- 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)

- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : not dermal irritants(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : rabbit; not irritating (OECD TG 404, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rabbit; irritating (PDII = 4) (read across: Cetrimonium chloride (CAS No: 112-02-7))(ECHA)
- Dodecylphenol, branched : Rabbit; Severe skin irritant (PDII=6.2), erythema and edema formation for 24, 48 and 72 hours was calculated to be 3.5 (OECD TG 404, GLP)(ECHA)

○ **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) (OECD TG 405, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : rabbit; not irritating (OECD TG 405, GLP) (ECHA)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : All eyes were clear of irritation by day seven and the chemicals were considered slightly irritating to eyes. (NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : rabbit; zinc salt causes persistent eye irritation through 21 days. (OECD TG 405, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rabbit; irritating (read across: Stearyltrimethylammonium chloride) (OECD TG 405)(ECHA)
- Dodecylphenol, branched : Rabbit; not irritating (OECD TG 405, GLP)(ECHA)

○ **Respiratory sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available

- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : 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. (read-aross: 64742-56-9) (OECD TG 406, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not sensitising (Guinea Pig) (OECD TG 406, GLP)(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters : Human(patch test); not sensitising(positive reaction index=0) (read across: Cetrimonium chloride (CAS No: 112-02-7))(ECHA)

zinc salts

- Dodecylphenol, branched : Not sensitising (Guinea Pig)(OECD TG 406, GLP)(ECHA)

○ **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)
- 1-Decene, homopolymer, hydrogenated : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Trade secret : Not available
- 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
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Dodecylphenol, branched : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed

○ **Germ cell mutagenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : In vitro(CHO cell) Chromosome Aberration Test: negative (read-aross : 64742-53-6) (OECD TG 473, GLP)
  In vivo (mouse micronucleus assay) : negative (read-across : SDPO = solvent-extracted, dewaxed paraffin oil) (OECD TG 474)(ECHA)
- 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)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : in vitro Bacterial Reverse Mutation Assay; negative(OECD 471, GLP)(NICNAS), in vitro Mammalian Cell Gene Mutation Test; negative(OECD TG 476, GLP)(NICNAS)

- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : In vitro bacterial reverse mutation assay; negative (OECD TG 471, GLP) (ECHA)
  In vivo Mammalian Erythrocyte Micronucleus Test: negative (OECD TG 474, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : In vitro - Bacterial reverse mutation test ; Negative (OECD TG 471) (read across; Cetrimonium chloride (CAS No: 112-02-7), 2',4',5',7'-tetrabromo-4,5,6,7-tetrachloro-3',6'-dihydroxy-3H-spiro[2-benzofuran-1,9'-xanthen]-3-one) (ECHA)
  In vivo: Not available
- Dodecylphenol, branched : In vitro; negative (Bacterial Reverse Mutation Assay; OECD TG 471, GLP)(ECHA),
  In vitro; negative (Mammalian Cell Gene Mutation Test; OECD TG 476)(ECHA)
  In vivo; negative (Mammalian Erythrocyte Micronucleus Test; OECD TG 474) (ECHA)

○ **Reproductive toxicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : 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)
- 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)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : A dose level of 50 mg/kg/day was considered to be the clear NOAEL (no observable adverse effect level) for systemic parental and neonatal toxicity and 300 mg/kg/day was considered to be the NOAEL for reproductive toxicity. There was no evidence of cumulative toxic effect across generations in this study. (OECD TG 416, GLP)(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : rat(male/female); oral; 30, 100, 200 mg/kg/day; Reproduction / Developmental Toxicity Screening Test; NOAEL(parental and neonatal toxicity)=30 mg/kg/day (OECD TG 421, GLP) (ECHA)
- Phosphorodithioic acid : In a developmental toxicity study, Sprague-Dawley female rats were treated with

O,O-dialkyl(C=1-14) esters zinc salts		Quat-Silsesquioxane in the concentration of 0, 100, 300, or 1000 mg/kg/day orally by gavage in corn oil.No maternal mortality and clinical signs or behavioral changes were observed in treated female rats as compared to control. NOAEL(P)=300 mg/kg bw, NOAEL(F1)=1000 mg/kg bw (read across : Quaternary Silsesquioxane)(ECHA)
- Dodecylphenol, branched	:	EU CLP 1272/2008 : Repr. 1B As a result of oral toxicity study with dosing of 0, 1.5, 15, 75 mg/kg/day in rats(F/M), reduced implantation site, increased estrus cycle length and decreased mean epididymal sperm concentration were observed.NOAEL(Reproduction toxicity)=15mg/kg bw/day (OECD TG 416, GLP) (ECHA) 100 mg/kg/day was considered to be the NOEL for maternal toxicity, embryotoxicity, fetotoxicity and teratogenicity. At 300 mg/kg/day the test material was maternally toxic, embryotoxic and fetotoxic. An increase in malformation rate was seen at the high dose level however, it is not clear if this was a direct effect or secondary to maternal toxicity. (OECD TG 414, GLP)(ECHA)

○ **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)
- 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)
- Trade secret	:	Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased	:	Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs.,	:	Not available

calcium salt

- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : oral; rat(male); Depresson, diarrhea, reduced food intake. LD50 = 3100 mg/kg bw (OECD TG 401) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Significant effects not observed. (ECHA)
- Dodecylphenol, branched : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : 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)
  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. (read-aross : 64742-70-7) (OECD TG 412)(ECHA)
- 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)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Oral; 90days; There was no mortality or any effect noted in clinical observations or from serum chemistry. There were no effects noted in gross pathology, organ weights or test substance related microscopic findings from histopathology. NOAEL=1000 mg/kg bw/day(OECD TG 408)(NICNAS)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : oral; rat(male/female); 10, 50, 125, 250, 500 mg/kg/day; 28 days; NOAEL(systemic toxicity)=125 mg/kg bw/day (OECD TG 407, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Sprague-Dawley female rats were treated with Quat-Silsesquioxane in the concentration of 0, 100, 300, or 1000 mg/kg/day orally by gavage in corn oil.No maternal mortality and clinical signs or behavioral changes were observed in treated female rats as compared to control. NOAEL(P)=300 mg/kg bw, NOAEL(F1)=1000 mg/kg bw (read across : Quaternary Silsesquioxane)(ECHA)
- Dodecylphenol, branched : Rat(F/M); oral; 90 days; 0, 50, 100, 150, 200 mg/kg/day; NOAEL=100 mg/kg bw/day(based on histological effects) (OECD TG 408, GLP)(ECHA)

○ **Aspiration hazard : Not classified**

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

paraffinic

- 1-Decene, homopolymer, hydrogenated : 31.0 mm2/s (40°C) (ECHA) & hydrocarbons
- Trade secret : Not available
- 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
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : 131.6 cSt at 40°C (ECHA) & not hydrocarbons
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Viscosity: > 9 - < 15 mm2/s (100°C; OECD TG 114)(ECHA) & not hydrocarbons
- Dodecylphenol, branched : Viscosity : 450cSt(40 °C; ASTM D 445)(ECHA) & not hydrocarbons

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)
- 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
- Trade secret : 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), 96h-LC50(Danio rerio) > 94 mg/L (OECD TG 203, GLP) (ECHA); no short-term toxicity
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : 96h-LL50(Oncorhynchus mykiss) = 4.4 mg/L (OECD TG 203, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.000000000005072 mg/L at 25° C)(ECHA)

- Dodecylphenol, branched : 96h-LC50(Pimephales promelas)=40 mg/L(OECD TG 203, GLP)(ECHA)

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 48h-EL50(Daphnia magna) > 10,000 mg/L(read across : 64742-53-6 or 64741-97-5) (OECD TG 202)(ECHA)
- 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
- Trade secret : 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), 24h-EC50(Daphnia magna) = 4.3 mg/L (OECD TG 202, GLP) (ECHA); no short-term toxicity
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : 48h-EL50(Daphnia magna) = 75 mg/L (OECD TG 202, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.000000000005072 mg/L at 25° C)(ECHA)
- Dodecylphenol, branched : 48h-EC50(Daphnia magna)=0.037 mg/L(OECD TG 202, GLP) (ECHA)

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 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
- Trade secret : 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), 72h-ErC50(Desmodesmus subspicatus) > 3 mg/L (OECD TG 201, GLP) (ECHA); no short-term toxicity
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : 72h-ErL50(Desmodesmus subspicatus) = 410 mg/L (OECD TG 201, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.000000000005072 mg/L at 25° C)(ECHA)
- Dodecylphenol, branched : 72h-ErC50(Desmodesmus subspicatus)=0.36 mg/L(OECD TG 201, GLP)(ECHA)

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

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : Not available

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 21d-NOEL(Daphnia magna)=10 mg/L(OECD TG 211, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : 21d-NOELR(Daphnia magna) = 125 mg/L (OECD TG 211, GLP) (ECHA)
- Trade secret : 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), 21d-NOEC(Daphnia magna) <= 0.01 mg/L (OECD TG 211, GLP) (ECHA)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : 28d-NOEC(Daphnia magna) = 0.4 mg/L (OECD TG 211, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : 21d-NOEC(Daphnia magna)=0.004 mg/L(OECD TG 211, GLP) (ECHA)

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOErL(Pseudokirchnerella subcapitata) >= 100 mg/L (OECD TG 201) (ECHA)
- 1-Decene, homopolymer, hydrogenated : 72h-NOErLR(Scenedesmus capricornutum) = 1000 mg/L (OECD TG 201, GLP) (ECHA)
- Trade secret : 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), 72h-NOErC(Desmodesmus subspicatus) > 3 mg/L (OECD TG 201, GLP) (ECHA); no short-term toxicity
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : 72h-NOEC(Desmodesmus subspicatus)=0.07 mg/L(OECD TG 201, GLP)(ECHA)

2) Persistence and degradability

○ **Persistence**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so not applicable.(ECHA)
- 1-Decene, homopolymer, hydrogenated : log Kow > 6.5 (20 °C; pH:7) (OECD TG 117, GLP) (ECHA)
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : log Kow = 9.2 (0 °C) (EU Method A.8, GLP) (ECHA)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : log Kow=14.47(estimated) (EPISUITE); but over -4<log Kow<8-not valid
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : log Kow = 3.59 (22 °C, pH:ca. 5) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : log Kow=14.876 (estimated)(EPISUITE); not valid (over -4<log Kow < 8)(ECHA)
- Dodecylphenol, branched : log Kow = 7.14 (OECD TG 123)(ECHA)

○ **Degradability**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : Not available

- 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.
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : An atmospheric half-life of 2.294 hours can be calculated based on hydroxyl radical interaction, but the low vapour pressure of this substance and its Henry's Law Constant indicate that partitioning into atmosphere will not be a significant pathway.(SIDS)

3) Bioaccumulative potential

○ **Bioaccumulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so not applicable.(ECHA)
- 1-Decene, homopolymer, hydrogenated : Members of this category are not expected to be bioaccumulative. (ECHA)
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : BCF=258 (OECD TG 305, GLP) (ECHA)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : BCF=3.162 (estimated)(EPISUITE)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : BCF=448.2 (estimated) (EPISUITE)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : BCF=3.162(ECHA)
- Dodecylphenol, branched : BCF=823 (OECD TG 305); TPP has a moderate potential to bioaccumulate.(SIDS)

○ **Biodegradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : 31% degradation after 28 days (OECD TG 301F) (read across: Solvent Neutral 600 Base Oil (MRD-94-981)) (OECD TG 301F, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : 2 % degradation after 28d; Not readily biodegradable (OECD TG 301D, GLP) (ECHA)
- Trade secret : Not available
- 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)
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : < 5% degradation after 27 days; no biodegradation observed (OECD TG 301D) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : 0% degradation after 28 days (Not biodegradable) (read across : Didecyl dimethyl ammonium chloride) (OECD TG 301C)(ECHA)
- Dodecylphenol, branched : 10% biodegradation after 56 days (OECD TG 302 D, GLP); cannot be considered to be inherently biodegradable(ECHA)

4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Koc=258600 (EPISUITE)

- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Koc=3615000000000 (EPISUITE)
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Koc=495900 (EPISUITE)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Koc=3268000000
- Dodecylphenol, branched : Not available

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Trade secret : Not available
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not available
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not available
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not available
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- Dodecylphenol, branched : 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
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : European EINECS phase-in substance
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : European EINECS phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : European EINECS phase-in substance
- Dodecylphenol, branched : European EINECS phase-in substance

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

Substances restricted under REACH

- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : 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
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Hazardous substance subject to control
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Hazardous substance subject to control
- Dodecylphenol, branched : Not applicable

○ **K-REACH**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **Chemical Control Act in Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : List of substance subjected to the PRTR
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : List of substance subjected to the PRTR
- Dodecylphenol, branched : Not applicable

○ **Safety Control of Dangerous Substances Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

U.S.A

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable

- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ CERCLA Designation of hazardous substances (40 CFR 302.4)

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ CERCLA Section 302 regulation

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ CERCLA Section 304 regulation

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ CERCLA Section 313 regulation

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable

- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **Stockholm Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **Montreal Protocol list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

National Inventory

○ **Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **U.S.A**

- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- 1-Decene, homopolymer, hydrogenated : US TSCA phase-in substance
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : US TSCA phase-in substance
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : US TSCA phase-in substance
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : US TSCA phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : US TSCA phase-in substance
- Dodecylphenol, branched : Not applicable

○ **China**

- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- 1-Decene, homopolymer, hydrogenated : China phase-in substance
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : China phase-in substance
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : China phase-in substance
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : China phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : China phase-in substance
- Dodecylphenol, branched : China phase-in substance

○ **Japan**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Trade secret : Not applicable
- 3,5-Bis(1,1-Dimethylethyl)-4-hydroxy benzene propanoic acid branched alkyl (C=7-9) ester : Not applicable
- Dodecyl phenol, sulfurized, carbonates, calcium salts, overbased : Not applicable
- Methylbenzenesulfonic acid, mono(C=20~28)-branched alkyl derivs., calcium salt : Not applicable
- Phosphorodithioic acid O,O-bis(2-ethylhexyl) ester, zinc salt : Japan ENCS phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Dodecylphenol, branched : 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

- 2024-08-27

3) Revision number and Last date revised

○ **Number of revised**

- 0

○ **Date of last revision**

- 2024-08-26

○ **Last Revision History**

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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.