SDS(Safety Data Sheet)

Product	Kixx DX5 CF 50		
MSDS Number	List No.	Issuing date	Last revised date
-	LB3088	2012-11-30	2020-08-20

1. IDENTIFICATION

1) Product name

Kixx DX5 CF 50

2) Recommended use of the chemical and restriction on use

- Recommended use: 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

LONG-TERM HAZARDS TO THE AQUATIC ENVIRONMENT : Category 3

2) Label elements

○ **Hazard pictograms**

- Not applicable

○ **Signal word**

- Not applicable

○ **Hazard statements**

- H412 Harmful to aquatic life with long lasting effects.

○ **Precautionary statements**

1) Prevention

- P273 Avoid release to the environment.

2) Response

- Not applicable

3) Storage

- Not applicable

4) Disposal

- P501 Dispose of contents/container to ....

3) Other hazards

○ **Product NFPA Level**

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

Product name	Health	Flammable	Reaction
Kixx DX5 CF 50	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	85 ~ 95
Business Secret				5 ~ 15
Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	Phosphorodithioic acid, O,O-bis(1,3-dimethylbutyl and isopropyl) esters, zinc salts	84605-29-8	283-392-8	0 ~ 1
Dodecylphenol, branched	Dodecylphenol, branched	121158-58-5	310-154-3	0 ~ 0.1

4. FIRST AID MEASURES

1) Eye contact

- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.
- If eye irritation persists: Get medical advice/attention.

2) Skin contact

- In case of contact with substance, immediately flush skin with running water for at least 20 minutes.
- If skin irritation occurs: Get medical advice/attention.

3) Inhalation

- Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

4) Ingestion

- Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.
- High-pressure water (Unsuitable extinguishing media)

2) Special hazards arising from the substance or mixture
- Fire may produce irritating, corrosive and/or toxic gases.
- Heating may cause a fire or explosion.

3) Special protective equipment and precautions for firefighters
- Rescuers should put on appropriate protective gear.
- In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
- Eliminate all ignition sources if safe to do so.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment
- Clean up spills immediately, observing precautions in Protective Equipment section.
- Please note that materials and conditions to be avoided.

2) Environmental precautions
- Large spill: Prevent entry into waterways, sewers, basements or confined areas.
- Avoid release to the environment.

3) Methods and material for containment and cleaning up
- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

7. HANDLING AND STORAGE

1) Precautions for safe handling
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Please note that materials and conditions to be avoided.
- Handling refer to engineering control/personal protection section.

2) Conditions for safe storage (including any incompatibilities)
- Please note that materials and conditions to be avoided.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Store in a well-ventilated place. Keep container tightly closed.

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	Not available	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
Business Secret	Not available	Not available	Not available	Not available
Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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

- Install local exhaust ventilation system.
- Check legal suitability of exposure level.

3) Personal protection equipment

○ **Respiratory protection**

- If exposure consentration of the material is lower than 100 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposured particulate material ; such
- If exposure consentration of the paticle material is lower than 250 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposured particulate material
- If exposure consentration of the particle material is lower than 500 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposured particulate materia
- If exposure consentration of the particle material is lower than 10000 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposured particulate mater
- If exposure consentration of the material is lower than 100000 ppm of the permitted exposure standards, Wear a respiratory protective device, equipped with an adequate filter by considering physicochemical properties of exposured particulate material ; su
- If exposure consentration of the material exceeds the permitted exposure standards, Wear European Standard EN 149 approved full or half face piece (with goggles) respireatory protective equipment.

○ **Eye protection**

- An eye wash unit and safety shower station should be available nearby work place.
- Wear breathable safety goggles to protect from vapour state organic material causing eye irritation or other disorder.

○ **Hand protection**

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

○ **Body protection**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Item	Input Value
Apperance	Liquid
Color	Brown
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	268
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	0.88
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	19.4 mm2/s (at 100℃)
Molecular Weight	No Data

10. STABILITY AND REACTIVITY

1) Chemical Stability and hazardous reactivity - Can form explosive mixtures at temperatures at or above the flashpoint.
- Fire may produce irritating, corrosive and/or toxic gases.

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

3) Incompatible materials - Combustibles

4) Hazardous decomposition products - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : rat(male/female), LD50 = 4468 mg/kg bw (OECD TG 401) (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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : rat(male/female), LD50 > 2002 mg/kg bw (OECD TG 402) (ECHA)
- Dodecylphenol, branched : LD50=ca. 15000 mg/kg bw(rabbit, male), No deaths (OECD TG 402)(ECHA)

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : rat(male/female), inhalation: vapour, LC50 > 2.3 ㎎/ℓ 4 hr, no death (OECD TG 403) (ECHA)
- Dodecylphenol, branched : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : rabbit; irritant (OECD TG 404, GLP) (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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : rabbit; Under the conditions of this study, the test material caused ocular irritation that persisted through Day 21. ; irreversible effects on the eye (ECHA)
- Dodecylphenol, branched : Rabbit; not irritating (OECD TG 405, GLP)(ECHA)

○ Respiratory sensitization : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Dodecylphenol, branched : Not sensitising (Guinea Pig)(OECD TG 406, GLP)(ECHA)

○ Carcinogenicity : Not classified

- Distillates (petroleum), hydrotreated heavy : 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

paraffinic		extract as measured by IP 346)
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	IARC, OSHA, NTP, ACGIH, EU CLP 1272/2008 : not listed
- Dodecylphenol, branched	:	IARC, OSHA, NTP, ACGIH, EU CLP 1272/2008 : 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)
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	In vitro Bacterial reverse mutation test: negative(OECD TG 471) (ECHA) In vivo Mammalian Erythrocyte Micronucleus Test: negative (OECD TG 474, GLP) (ECHA)
- 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)
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	EC 283-392-8 has not been tested for reproduction toxicity, however experimental data on structurally related substances EC 270-608-0 was available and suitable for read-across. Based on this study, NOAEL(reproductive fertility, neonatal toxicity)=160mg/kg/day. (read-across: 68457-79-4) (OECD TG 422) (ECHA)
- Dodecylphenol, branched	:	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	:	Hydronephrosis of the right kidney was observed in one rat but was not considered treatment-related by the study authors. No other abnormalities

paraffinic		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)
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	Dermal; rat(male/female), LD50 > 2002 mg/kg bw; Prostration in one animal. No other behavioral anomalies. (OECD TG 402) (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)
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	rat(male/female); oral; 0, 10, 40, or 160 mg/kg/day; The oral repeat dose toxicity of an analog substance was evaluated with rats at doses as high as 160 mg/kg/day for up to 52 days. Substance-related toxicity was limited to morbundity, adverse clinical signs, and epithelial hyperplasia, hyperkeratosis, and inflammation of the stomach. NOAEL(systemic toxicity)=160 mg/kg/day (read across: EC 270-608-0) (OECD TG 422, GLP) (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 paraffinic	:	Viscosity: 73.9 mm2/s (40°C)(ECHA) & hydrocarbons
- Business Secret	:	Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts	:	Viscosity: 407.6 cSt(40 °C; ASTM D445-97; 2009)(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)
- LONG-TERM HAZARDS TO THE AQUATIC ENVIRONMENT : Category 3

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

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP)(ECHA)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : 96h-LL50(Oncorhynchus mykiss)=4.5 mg/L (OECD TG 203) (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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : 48h-EC50(Daphnia magna)=23 mg/L (OECD TG 202) (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
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : 72h-ErL50(Desmodesmus subspicatus)=24 mg/L (OECD TG 201, GLP) (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
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : 21d-NOEC(Daphnia magna)=0.4 mg/L (OECD TG 211, GLP)(ECHA)
- 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available

- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : log Kow = 0.56(ECHA)
- Dodecylphenol, branched : log Kow = 7.14 (OECD TG 123)(ECHA)

○ **Degradability**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not available
- 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)
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : 1.5% degradation after 28 days; not readily biodegradable (OECD TG 301 B, GLP) (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
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Koc=1017000
- Dodecylphenol, branched : Not available

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Business Secret : Not available
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not available
- Dodecylphenol, branched : Not available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Waste must be disposed of in accordance with federal, state and local environmental control regulation.

2) Special precaution for disposal

- Consider the required attentions in accordance with waste treatment management regulation.

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

- 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
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

Substances restricted under REACH

- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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 : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Hazardous substance

subject to control

- Dodecylphenol, branched : Not applicable

○ **K-REACH**

- Distillates (petroleum), hydrotreated heavy paraffinic : Phase-in Substances
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Phase-in Substances
- Dodecylphenol, branched : Phase-in Substances

○ **Chemical Control Act in Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **CERCLA Section 302 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **CERCLA Section 304 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **CERCLA Section 313 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **Stockholm Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

○ **Montreal Protocol list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Not applicable
- Dodecylphenol, branched : Not applicable

National Inventory

○ **Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Phase-in Substances
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : Phase-in Substances
- Dodecylphenol, branched : Phase-in Substances

○ **U.S.A**

- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : US TSCA phase-in substance
- Dodecylphenol, branched : Not applicable

○ **China**

- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters zinc salts : China phase-in substance
- Dodecylphenol, branched : China phase-in substance

○ **Japan**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Business Secret : Not applicable
- Phosphorodithioic acid mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) 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

- 2012-11-30

3) Revision number and Last date revised

○ **Number of revised**

- 3

○ **Date of last revision**

- 2020-08-20

○ **Last Revision History**

- Composition/Information on Ingredients, Physical and Chemical Properties

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.