

SDS(Safety Data Sheet)

Product	Kixx G1 SN PLUS 0W-30(E)	
List No.	Issuing date	Last revised date
LB3210	2018-12-14	2020-05-22

1. IDENTIFICATION

1) Product name

Kixx G1 SN PLUS 0W-30(E)

2) Recommended use of the chemical and restriction on use

- Recommended use (Lubricants and additives)
Gasoline 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 G1 SN PLUS 0W-30(E)	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	70 ~ 80
1-Decene, homopolymer, hydrogenated		68037-01-4		10 ~ 20
Business Secret1				5 ~ 15
Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts	Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts ; Phosphorodithioic acid O,O-dialkyl(C	68649-42-3	272-028-3	0.1 ~ 2
1-Propene polymer with ethene		9010-79-1		0.4 ~ 3

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

attention and special
treatment needed

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.
 - Caution: 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	Not available	TWA 5 mg/m ³ , 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
BUSINESS SECRET1	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
1-Propene polymer with ethene	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 exposed particulate material.
 - In case exposed to particulate material, the respiratory protective equipments as follow are recommended. - facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with power
 - In lack of oxygen(<19.6%), wear the supplied-air respirator 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 (Numerical value)	No Data
Flash Point (Numerical value)	232
Evaporating Rate	No Data
Flammability(Solid, Gas)	No Data
Explosibility Range	No Data
Steam Pressure	No Data
Solubility (Numerical value)	No Data
Vapor Density	No Data
Specific Gravity	0.84
Distribution Coefficient	No Data
Selfignition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity (Numerical value)	9.97 mm ² /s (at 100°C)
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 mg/kg bw, no deaths (OECD TG 423, GLP) (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)
 - 1-Propene polymer with ethene : Not available
 - * **Dermal - Not classified (ATEmix > 2000 mg/kg)**
 - Distillates (petroleum), hydrotreated heavy paraffinic : rabbit(male/female), LD50 > 5,000 mg/kg bw, no deaths (read-across: 64742-56-9) (OECD TG 402, GLP)(ECHA)
 - 1-Decene, homopolymer, hydrogenated : rat(male/female); LD50 > 2000 mg/kg bw, no deaths (OECD TG 402, GLP) (read across: Oronite XS 1010) (ECHA)
 - Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : rabbit(male/female); LD50 > 3160 mg/kg bw, no deaths (ECHA)
 - 1-Propene polymer with ethene : Not available
 - * **Inhalation(Gas) - Not applicable**
 - Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
 - 1-Decene, homopolymer, hydrogenated : Not applicable

- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- 1-Propene polymer with ethene : 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
- 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)
- 1-Propene polymer with ethene : 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)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available
- 1-Propene polymer with ethene : 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)
- 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)
- 1-Propene polymer with ethene : Not available

○ Serious eye damage/irritation : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic : Solvent dewaxed light paraffinic oil is not considered to be an ocular irritant. (read-across: 64742-56-9) (OECD TG 405, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : rabbit; not irritating (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)
- 1-Propene polymer with ethene : Not available

○ Respiratory sensitization : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters : Not available

zinc salts

- 1-Propene polymer with ethene : 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-across: 64742-56-9) (OECD TG 406, GLP)(ECHA)
- 1-Decene, homopolymer, hydrogenated : guinea pig; not sensitising (OECD TG 406, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Human(patch test); not sensitising(positive reaction index=0) (read across: Cetrimonium chloride (CAS No: 112-02-7))(ECHA)
- 1-Propene polymer with ethene : Not available

○ Carcinogenicity : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic : EU CLP 1272/2008 : Carc. 1B (Note L : The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346)
- 1-Decene, homopolymer, hydrogenated : IARC, OSHA, NTP, IRIS, ACGIH, EU CLP 1272/2008 : not listed
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : IARC, OSHA, NTP, ACGIH, EU CLP 1272/2008 : not listed
- 1-Propene polymer with ethene : 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-across : 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)
- 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
- 1-Propene polymer with ethene : Not available

○ 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-across : Chevron 100 Neutral) (OECD TG 421, GLP)(ECHA)
- 1-Decene, homopolymer, : rat(male/female); 0, 100, 500, or 1000 mg/kg/day; one-generation reproductive

- hydrogenated : toxicity; Ethylflo 166 did not appear to have any effects on reproduction. (OECD TG 415, 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)
- 1-Propene polymer with ethene : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Hydronephrosis of the right kidney was observed in one rat but was not considered treatment-related by the study authors. No other abnormalities were observed in any male or female rats. (read-across: 64742-56-9) (OECD TG 401, GLP)(ECHA)
Dermal administration of API 78-9 at 5000 mg/kg did not result in any dermal irritation or signs of clinical toxicity. Gross necroscopy did not reveal any signs of systemic toxicity at the 5000 mg/kg dose level. (read-across: 64742-56-9) (OECD TG 402, GLP)(ECHA)
- 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 mg/kg 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 mg/kg 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)
- Phosphorodithioic acid : Significant effects not observed. (ECHA)
O,O-dialkyl(C=1-14) esters zinc salts
- 1-Propene polymer with ethene : 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-across : 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-across : 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)
- Phosphorodithioic acid : Sprague-Dawley female rats were treated with Quat-Silsesquioxane in the O,O-dialkyl(C=1-14) esters zinc salts 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)

- 1-Propene polymer with ethene : Not available

○ **Aspiration hazard : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Viscosity: 73.9 mm²/s (40°C)(ECHA) & hydrocarbons
- 1-Decene, homopolymer, hydrogenated : 31.0 mm²/s (40°C) (ECHA) & 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
- 1-Propene polymer with ethene : Not available

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

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

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

Fish

- 1-Propene polymer with ethene : Not available
- 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
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.00000000005072 mg/L at 25° C)(ECHA)

Invertebrates

- 1-Propene polymer with ethene : Not available
- 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
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.00000000005072 mg/L at 25° C)(ECHA)

Aquatic algae

- 1-Propene polymer with ethene : Not available
- 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
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Water solubility : not soluble (0.00000000005072 mg/L at 25° C)(ECHA)

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

Fish

- 1-Propene polymer with ethene : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available

Invertebrates

- 1-Propene polymer with ethene : Not available
- 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)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available

Aquatic algae

- 1-Propene polymer with ethene : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOEL(Pseudokirchnerella subcapitata) >= 100 mg/L (OECD TG 201) (ECHA)
- 1-Decene, homopolymer, hydrogenated : 72h-NOELR(Scenedesmus capricornutum) = 1000 mg/L (OECD TG 201, GLP) (ECHA)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available

2) Persistence and degradability

○ **Persistence**

- 1-Propene polymer with ethene : Not available
- 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)
- 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)

○ **Degradability**

- 1-Propene polymer with ethene : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not available

3) Bioaccumulative potential

○ **Bioaccumulation**

- 1-Propene polymer with ethene : Not available
- 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)
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : BCF=3.162(ECHA)

○ **Biodegradation**

- 1-Propene polymer with ethene : Not available
- 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)

- 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)

4) Mobility in soil

- 1-Propene polymer with ethene : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Koc=3268000000

5) Hazard to the ozone layer

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable

6) Other adverse effects

- 1-Propene polymer with ethene : Not available
- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- 1-Decene, homopolymer, hydrogenated : Not available
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : 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-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : European EINECS phase-in substance
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : European EINECS phase-in substance
- Business Secret1 : Not applicable

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

Substances restricted under REACH

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

Substances subject to authorization under REACH

REACH SVHC List

Korea

○ Occupational Safety and Health Act

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Hazardous substance subject to control
- Business Secret1 : Not applicable

○ K-REACH

- 1-Propene polymer with ethene : Phase-in Substances
- Distillates (petroleum), hydrotreated heavy paraffinic : Phase-in Substances
- 1-Decene, homopolymer, hydrogenated : Phase-in Substances
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Phase-in Substances
- Business Secret1 : Not applicable

○ Chemical Control Act in Korea

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : List of substance subjected to the PRTR
- Business Secret1 : Not applicable

○ Safety Control of Dangerous Substances Act

- 1-Propene polymer with ethene : Not applicable

- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

U.S.A

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

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

○ CERCLA Designation of hazardous substances (40 CFR 302.4)

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

○ CERCLA Section 302 regulation

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

○ CERCLA Section 304 regulation

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

○ CERCLA Section 313 regulation

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

Interntional Convention on Environment

○ Rotterdam Convention list

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

○ Stockholm Convention list

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable

- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

Montreal Protocol list

- 1-Propene polymer with ethene : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : Not applicable

National Inventory

Korea

- 1-Propene polymer with ethene : Phase-in Substances
- Distillates (petroleum), hydrotreated heavy paraffinic : Phase-in Substances
- 1-Decene, homopolymer, hydrogenated : Phase-in Substances
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Phase-in Substances
- Business Secret1 : Not applicable

U.S.A

- 1-Propene polymer with ethene : US TSCA phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- 1-Decene, homopolymer, hydrogenated : US TSCA phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : US TSCA phase-in substance
- Business Secret1 : Not applicable

China

- 1-Propene polymer with ethene : China phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- 1-Decene, homopolymer, hydrogenated : China phase-in substance
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : China phase-in substance
- Business Secret1 : Not applicable

Japan

- 1-Propene polymer with ethene : Japan ENCS phase-in substance
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 1-Decene, homopolymer, hydrogenated : Not applicable
- Phosphorodithioic acid O,O-dialkyl(C=1-14) esters zinc salts : Not applicable
- Business Secret1 : 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

- 2018-12-14

3) Revision number and Last date revised

- Number of revised**

- 1

○ **Date of last revision**

- 2020-05-22

○ **Last Revision History**

- Revision of chemical composition and company information

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.