SDS(Safety Data Sheet)

Product	Kixx Gear EP 220		
MSDS Number	List No.	Issuing date	Last revised date
-	LB3026	2012-11-30	2026-04-08

1. IDENTIFICATION

1) Product name

Kixx Gear EP 220

2) Recommended use of the chemical and restriction on use

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

3) Details of the supplier of the safety data sheet

○ **Manufacturer**

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

2. HAZARDS IDENTIFICATION

1) Classification of the product

CARCINOGENICITY : Category 1B

2) Label elements

○ **Hazard pictograms**



○ **Signal word**

Danger

○ **Hazard statements**

- H350 May cause cancer.(oral)

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

2) Response

- P308 + P313 IF exposed or concerned: Get medical advice/attention.

3) Storage

- P405 Store locked up.

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 Gear EP 220	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 ~ 90
Polyisobutylene	Propene, 2-methyl-, polymers	9003-27-4		10 ~ 15
2-Methyl-1-propene, sulfurized	Sulfurized isobutylene	68511-50-2	270-943-2	0.5 ~ 2
Trade secret				0.1 ~ 0.5
tert-Alkyl(C=12-14) amines	C12-14-tert-ALKYL AMINES	68955-53-3	273-279-1	0.1 ~ 0.3
Alkyl phosphonate				0 ~ 0.3

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

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.
- IF exposed or concerned: Get medical advice/attention.

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
- Exposures require specialized first aid with contact and medical follow-up.
- 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 dry sand or earth to smother fire.
- Direct 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.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Please note that materials and conditions to be avoided.

2) Environmental precautions
- Large spill: Prevent entry into waterways, sewers, basements or confined areas.

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.
- Absorb the liquid and scrub the area with detergent and water.

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.
- Avoid breathing vapors from heated material.
- Please note that materials and conditions to be avoided.
- Handling refer to engineering control/personal protection section.
- Use only outdoors or in a well-ventilated area.

2) Conditions for safe storage (including any
- Please note that materials and conditions to be avoided.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

incompatibilities) - 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	TWA : 0.8 mg/m3	TWA 5 mg/m3, Inhalable particulate matter(Mineral oil, Pure, highly and severely refined)	Not available	Not available
Polyisobutylene	Not available	Not available	Not available	Not available
2-Methyl-1-propene, sulfurized	Not available	Not available	Not available	Not available
Trade secret	Not available	Not available	Not available	Not available
tert-Alkyl(C=12-14) amines	Not available	Not available	Not available	Not available
Alkyl phosphonate	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	No Data
Smell	a specific smell of Hydrocarbon
Smell Threshold	No Data
pH (Numerical value)	No Data
Melting/Freezing Point	No Data
Boilling Point	Notapplicable
Flash Point	246 ℃
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	0.87
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	220 mm2/s (at 40℃)
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)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : LD50 5000 mg/kg rat
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Rat(Female/Male); LD50 = 612 mg/kg (OECD TG 401, GLP)(HPVIS)
- Alkyl phosphonate : 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)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : rat(male/female); LD50 = 251 mg/kg (OECD TG 402, GLP)(HPVIS)
- Alkyl phosphonate : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not available

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

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Rat(Female/Male); inhalation: Vapours, LC50 > 0.94 mg/L 4h (OECD TG 403, GLP) (HPVIS)
- Alkyl phosphonate : Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic : inhalation: aerosol; rat(male/female); 4h-LC50 > 5.53 mg/L. No deaths (read-across: MRD-87-102) (OECD TG 403)(ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : 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)
- Polyisobutylene	:	Not available
- 2-Methyl-1-propene, sulfurized	:	rabbit; Not irritating
- Trade secret	:	Not available
- tert-Alkyl(C=12-14) amines	:	Rabbit; corrosive (GLP)(HPVIS)
- Alkyl phosphonate	:	Not available

○ Serious eye damage/irritation : Not classified

- Distillates (petroleum), hydrotreated heavy paraffinic	:	Solvent dewaxed light paraffinic oil is not considered to be an ocular irritant. (read-aross: 64742-56-9) (equivalent or similar to guideline OECD TG 405, GLP) (ECHA)
- Polyisobutylene	:	Not available
- 2-Methyl-1-propene, sulfurized	:	rabbit; Not irritating
- Trade secret	:	Not available
- tert-Alkyl(C=12-14) amines	:	Rabbit; serious damage to eyes (Draize Test, GLP) (EPA HPVIS)
- Alkyl phosphonate	:	Not available

○ Respiratory sensitization : Not classified

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

- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : Not available

○ **Skin sensitization : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Under the conditions of the test, Solvent dewaxed light paraffinic oil is considered non-sensitizing for guinea-pigs. (read-aross: 64742-56-9) (OECD TG 406, GLP) (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : guinea pig; Not sensitizing
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : guinea pig; Not sensitizing (OECD TG 406, GLP) (HPVIS)
- Alkyl phosphonate : Not available

○ **Carcinogenicity : Category 1B**

- 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)
- Polyisobutylene : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- 2-Methyl-1-propene, sulfurized : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : IARC, EU CLP 1272/2008, OSHA, ACGIH, US EPA IRIS, NTP : not listed
- Alkyl phosphonate : Not available

○ **Germ cell mutagenicity : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : In vitro bacterial reverse mutation assay: negative (equivalent or similar to guideline OECD TG 471) (ECHA)
  In vitro mammalian chromosome aberration test: negative (read-aross : 64742-53-6) (equivalent or similar to guideline OECD TG 473, GLP) (ECHA)
  In vivo micronucleus assay : negative (read-across : 64741-62-4, 64741-53-3) (equivalent or similar to guideline OECD TG 474) (ECHA)
- Polyisobutylene : In vitro Cell Transformation: positive (US Dashboard)
- 2-Methyl-1-propene, sulfurized : No clear evidence for germ cell mutagenicity
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : In vitro bacterial reverse mutation assay: negative (OECD TG 471, GLP) (EPA HPVIS)
  In vivo Mouse(Female/Male) Bone Marrow Chromosome Aberration Test: negative (OECD TG 474, GLP) (EPA HPVIS)
- Alkyl phosphonate : Not available

○ **Reproductive toxicity : Not classified**

- Distillates (petroleum), : rat; screening for reproductive / developmental toxicity; Reproductive

hydrotreated heavy paraffinic		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)
- Polyisobutylene	:	Not available
- 2-Methyl-1-propene, sulfurized	:	Not available
- Trade secret	:	Not available
- tert-Alkyl(C=12-14) amines	:	rat(male/female); one-generation reproduction toxicity study; 10weeks; 250, 750, 1500 ppm; NOEL(parental toxicity) = 250 ppm due to decreased pup weights at both 750 and 1500 ppm (OECD TF 415, GLP)(HPVIS)
- Alkyl phosphonate	:	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)
- Polyisobutylene	:	Not available
- 2-Methyl-1-propene, sulfurized	:	Not available
- Trade secret	:	Not available
- tert-Alkyl(C=12-14) amines	:	Not available
- Alkyl phosphonate	:	Not available

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

- Distillates (petroleum), hydrotreated heavy paraffinic	:	Dermal; The systemic toxicity NOAEL for this 28-day dermal toxicity study in the rabbit is 1,000 mg/kg, based on the lack of adverse systemic effects observed at this dose level. (read-aross : 64742-53-6) (OECD TG 410, GLP) (ECHA) Inhalation; rat; 4 weeks; 0, 50, 220 or 1000 mg/m3; No systemic effects were observed. The NOAEL for lung changes associated with oil deposition in the lungs was 220 mg/m3. As no systemic toxicity was observed, the overall NOAEL for systemic effects was > 980 mg/m3. (equivalent or similar to guideline OECD TG 412) (ECHA)
- Polyisobutylene	:	Not available
- 2-Methyl-1-propene, sulfurized	:	No evidence of specific target organ toxicity due to repeated administration or prolonged exposure
- Trade secret	:	Not available
- tert-Alkyl(C=12-14) amines	:	rat(male/female); inhalation : vapor; 4weeks; 2, 19, 129, 537 mg/m3; NOAEL = 19 mg/m3; At the end of the four-week exposure period, neurological evalutions of all surviving animals showed no signs of a cumulative toxic effect on the nervous system in any group (OECD TG 412, GLP)(HPVIS)

- Alkyl phosphonate : Not available

○ **Aspiration hazard : Not classified**

- Distillates (petroleum), hydrotreated heavy paraffinic : Viscosity: 73.9 mm2/s (40°C)(ECHA) & hydrocarbons
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not available

12. ECOLOGICAL INFORMATION

1) Ecotoxicity

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

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

Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : 96h-LL50(Pimephales promelas) > 100 mg/L (OECD TG 203, GLP) (ECHA)
- Polyisobutylene : 96h-LC50(Rainbow Trout) > 5600 mg/L (US Dashboard)
- 2-Methyl-1-propene, sulfurized : LC50 0.721 mg/L 96 hr (estimated)
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : 96h-LC50(Oncorhynchus mykiss) = 1.3 mg/L (OECD TG 203, GLP)(HPVIS)
- Alkyl phosphonate : Not available

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 48h-EL50(Daphnia magna) > 10,000 mg/L (read across : 64742-53-6 or 64741-97-5) (equivalent or similar to guideline OECD TG 202) (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : LC50 0.604 mg/L 48 hr (estimated)
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : 48h-EC50(Daphnia magna) = 4.1 mg/L (OECD TG 202, GLP)(HPVIS)
- Alkyl phosphonate : Not available

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : EC50 0.915 mg/L 96 hr (estimated)
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : 72h-ErC50(Selenastrum capricornutum) = 0.2 mg/L (OECD TG 201, GLP)(HPVIS)
- Alkyl phosphonate : Not available

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

Fish

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

- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : 96d-NOErC(Oncorhynchus mykiss) = 0.078 mg/L (OECD TG 210, GLP)(HPVIS)
- Alkyl phosphonate : Not available

Invertebrates

- Distillates (petroleum), hydrotreated heavy paraffinic : 21d-NOEL(Daphnia magna)=10 mg/L (read across: 64742-53-6) (equivalent or similar to guideline OECD TG 211, GLP) (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : Not available

Aquatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : 72h-NOErL(Pseudokirchnerella subcapitata) >= 100 mg/L (read across: 72623-87-1) (OECD TG 201) (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : Not available

2) Persistence and degradability

○ **Persistence**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : log Kow 4.67 (estimated)
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : log Kow = 4.65 (estimated)(EPISUITE)
- Alkyl phosphonate : Not available

○ **Degradability**

- Distillates (petroleum), hydrotreated heavy paraffinic : The chemical constituents that comprise the other lubricant base oils category consist entirely of carbon and hydrogen and do not contain hydrolyzable groups. As such, they have a very low potential to hydrolyze. Therefore, this degradative process will not contribute to their removal from the environment. (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : Not available

3) Bioaccumulative potential

○ **Bioaccumulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : This substance is UVCB, so it is not applicable. (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : BCF 25.69 (estimated)

- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : BCF = 31.94 (estimated)(EPISUITE)
- Alkyl phosphonate : Not available

○ **Biodegradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Another lubricant base oil, Solvent Neutral 600 Base Oil (MRD-94 -981), was determined to be inherently biodegradable but not readily biodegradable with a mean degradation of 31.13% by day 28. (read across: Solvent Neutral 600 Base Oil (MRD-94-981)) (OECD TG 301F, GLP) (ECHA)
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : 22% degradation after 28days; not readily biodegradable (HPVIS)
- Alkyl phosphonate : Not available

4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Koc 11290 (soil adsorption)
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Koc = 2988 (estimated)(EPISUITE)
- Alkyl phosphonate : Not available

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not available

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Not available
- Polyisobutylene : Not available
- 2-Methyl-1-propene, sulfurized : Not available
- Trade secret : Not available
- tert-Alkyl(C=12-14) amines : Not available
- Alkyl phosphonate : 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

- 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
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : European EINECS phase-in substance
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : European EINECS phase-in substance
- Alkyl phosphonate : Not applicable

EU CLP (CLASSIFICATION) - PRODUCT : Not applicable

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

Substances restricted under REACH

- Distillates (petroleum), hydrotreated heavy paraffinic : Substances restricted under REACH
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : 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

- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Substance subject to submission of process safety reports
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **K-REACH**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **Chemical Control Act in Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **Safety Control of Dangerous Substances Act**

- Distillates (petroleum), hydrotreated heavy paraffinic : Dangerous substance
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

U.S.A

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

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

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **CERCLA Section 302 regulation**

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

- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **CERCLA Section 304 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **CERCLA Section 313 regulation**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

Interntional Convention on Environment

○ **Rotterdam Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **Stockholm Convention list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

○ **Montreal Protocol list**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Not applicable
- Alkyl phosphonate : Not applicable

National Inventory

○ **Korea**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Not applicable
- 2-Methyl-1-propene, sulfurized : Not applicable

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

○ **U.S.A**

- Distillates (petroleum), hydrotreated heavy paraffinic : US TSCA phase-in substance
- Polyisobutylene : US TSCA phase-in substance
- 2-Methyl-1-propene, sulfurized : US TSCA phase-in substance
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : US TSCA phase-in substance
- Alkyl phosphonate : Not applicable

○ **China**

- Distillates (petroleum), hydrotreated heavy paraffinic : China phase-in substance
- Polyisobutylene : China phase-in substance
- 2-Methyl-1-propene, sulfurized : China phase-in substance
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : China phase-in substance
- Alkyl phosphonate : Not applicable

○ **Japan**

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- Polyisobutylene : Japan ENCS phase-in substance
- 2-Methyl-1-propene, sulfurized : Not applicable
- Trade secret : Not applicable
- tert-Alkyl(C=12-14) amines : Japan ENCS phase-in substance
- Alkyl phosphonate : 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**

- 7

○ **Date of last revision**

- 2026-03-27

○ **Last Revision History**

- update

4) Other

- The information contained in the Safety Data Sheet is at the date of its issuance to the best of our knowledge correct according to the data available to us. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of

this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.