Material Safety Data Sheet

Product	Kixx Brake Oil DOT 4		
List No.	Issuing date	Last revised date	Department
LB3240	2012-11-30	2019-06-14	Finished Lubricants R&D Team

1. Identification of the substance/mixture and of the company/undertaking

1) Product identifier

- Kixx Brake Oil DOT 4

2) Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified uses : (Lubricants and additives)
  Automotive Brake System
- Uses advised against : Do not use for any other purpose.

3) Supplier information

○ **Manufacturer information**

- Company name [Manufacture] : DASCO CHEMICAL LTD.
- Address : 293-14, Gieopdanji-ro, Wongok-Myeon, Anseong-si, Gyeonggi-do, Republic of Korea
- Emergency telephone number : +82-31-652-1301
- Fax :

○ **Supplier/Distributer information**

- Company name [Importer] : GS Caltex Corporation
- Address : GS Tower, 508, Nonhyeon-ro, Gangnam-gu, Seoul, Korea
- Emergency telephone number : +82-1899-5145
- Fax :

2. HAZARD IDENTIFICATION

1) Hazard classification

Serious eye damage/eye irritation Category 2

Reproductive toxicity Category 2

Specific target organ toxicity repeated exposure Category 1

2) Allocation label elements

○ **Hazard pictograms**

○ **Signal word**

Danger

○ **Hazard statements**

- H319 Causes serious eye irritation.

- H361 Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

- H372 Causes damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.

- P202 Do not handle until all safety precautions have been read and understood.

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.

- P264 Wash ... thoroughly after handling.

- P270 Do no eat, drink or smoke when using this product.

- P280 Wear protective gloves/protective clothing/eye protection/face protection.

2) Response

- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

- P314 Get medical advice/attention if you feel unwell.

- P337 + P313 If eye irritation persists: Get medical advice/attention.

3) Storage

- P405 Store locked up.

4) Disposal

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

3) Other hazards

○ **Product NFPA Level : Health , Flammability , Reactivity**

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

※ Chemical NFPA Level.

- Triethylene glycol monobutyl ether : Health=2, Flammable=1, Reaction=0

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Health=0, Flammable=0, Reaction=0

- Diethylene glycol : Health=1, Flammable=1, Reaction=0

- Methylbenzotriazole : Health=1, Flammable=1, Reaction=0

- 2,6-Di-tert-butyl-p-cresol : Health=2, Flammable=1, Reaction=0

3. Composition/Information on ingredients

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
Triethylene glycol monobutyl ether		143-22-6	205-592-6	30 ~ 40
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate		30989-05-0	250-418-4	25 ~ 35

Diethylene glycol		111-46-6	203-872-2	15 ~ 25
Methylbenzotriazole		29385-43-1	249-596-6	0.1 ~ 0.2
2,6-Di-tert-butyl-p-cresol		128-37-0	204-881-4	0.01 ~ 0.1

4. FIRST AID MEASURES

1) Following eye contact

- Seek immediate medial assistance.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

2) Following skin contact

- Seek immediate medial assistance.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.

3) Following inhalation

- Move to fresh air.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or 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.
- Keep victim warm and quiet.

4) Following ingestion

- Seek immediate medial assistance.
- Do not use mouth-to-mouth method if victim ingested or 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.

5) Advice to physician

- 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

○ Suitable extinguishing media

- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.
- Dry chemical.
- Water spray.
- CO2.

○ Unsuitable extinguishing media

- Direct water.

2) Special hazards arising from the substance or mixture

- Can decompose at high temperatures forming toxic gases.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

- Containers may explode when heated.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Can decompose at high temperatures forming toxic gases.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Containers may explode when heated.
- Some may burn but none ignite readily.
- Fire may produce irritating, corrosive and/or toxic gases.

3) Special protective equipment for firefighters

- Rescuers should put on appropriate protective gear.
- Evacuate area and fight fire from a safe distance.
- Substance may be transported in a molten form.
- Dike fire-control water for later disposal; do not scatter the material.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- 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.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Isolate hazard area.
- Keep unnecessary and unprotected personnel from entering.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Please note that materials and conditions to be avoided.

2) Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

3) For 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.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

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.
- Use care in handling/storage.
- Loosen closure cautiously before opening.
- Avoid breathing vapors from heated material.
- Do not enter storage area unless adequately ventilated.
- 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)

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.
- Keep away from food and drinking water.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard

○ Occupational exposure limits (Domestic)

- Triethylene glycol monobutyl ether : TWA Not applicable, STEL Not applicable
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : TWA Not applicable, STEL Not applicable
- Diethylene glycol : TWA Not applicable, STEL Not applicable
- Methylbenzotriazole : TWA Not applicable, STEL Not applicable
- 2,6-Di-tert-butyl-p-cresol : TWA 2 mg/㎥, STEL Not applicable

○ Occupational exposure limits (ACGIH)

- Triethylene glycol monobutyl ether : TWA Not applicable, STEL Not applicable
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : TWA Not applicable, STEL Not applicable
- Diethylene glycol : TWA Not applicable, STEL Not applicable
- Methylbenzotriazole : TWA Not applicable, STEL Not applicable
- 2,6-Di-tert-butyl-p-cresol : TWA 2 mg/m3, STEL Not applicable

○ Biological limit values

- Triethylene glycol monobutyl ether : Not applicable
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Diethylene glycol : Not applicable
- Methylbenzotriazole : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable

2) Appropriate engineering controls

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

3) Personal protection equipment

○ Respiratory protection

- If high frequency of use or exposure, wear air respirator.
- Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.

○ Eye protection

- Wear suitable protective goggles and face shields.
- Wear face shield to protect eyes from scattering dust or hazardous liquid.
- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

○ Hand protection

- Wear insulated gloves.
- Wear suitable protective gloves.
- Wear Non-moisture permeable chemical resistance protective gloves(latex, nitrile rubber, PVC) for prevent skin contact.

○ Body protection

- Wear suitable protective clothing.
- When contact is likely wear chemical resistant, oil and grease resistant, non-moisture permeable shoes and clothes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Item	Input Value
Apperance	Amber liquid
Smell	No Data
Smell Threshold	No Data
pH	7-9
Melting/Freezing Poing	250 ℃
Boilling Point	140
Flash Point	No Data
Evaporating Rate	No Data
Flammability	No Data
Explosibility Range	3-15 vol%
Steam Pressure	<0.01 mmHg (20℃)
Solubility	soluble
Vapor Density	> 1
Specific Gravity	1.034(20℃)
Distribution Coefficient	No Data
SelfIgnition Temperature	> 200 ℃
Pyrolysis Temperature	No Data
Viscosity	No Data
Molecular Weight	No Data

10. STABILITY AND REACTIVITY

1) Stability and hazardous reactivity

- Can decompose at high temperatures forming toxic gases.

- Containers may explode when heated.

- Some may burn but none ignite readily.

- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

- Fire may produce irritating, corrosive and/or toxic gases.

2) Conditions to avoid

- Ignition source(heat, spark, flame, etc.).

3) Incompatible materials

- Combustibles, reducing material.

4) Hazardous decomposition products

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

- Corrosive/toxic fume.

- Irritating, corrosive and/or toxic gas.

11. TOXICOLOGICAL INFORMATION

1) Exposure route information

○ Inhalation

- Can be absorbed in body by inhalation.

○ Skin Contact

- Can be absorbed in by contact skin and the digestive organs or inhalation of aerosol.

○ Eye Contact

- Liquids can be exposed through the eyes, skin and oral.

- Vapors/mist can be exposed through the respiratory tract, eyes and skin.

○ Ingestion

- Can be absorbed in body by inhalation and contact the digestive organs.

2) Health hazard information

○ Acute toxicity

*** Oral - PRODUCT : Not Applicable (ATEMix > 2,000 mg/kg)**

- Triethylene glycol monobutyl ether : LD50 5170 mg/kg Rat

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : LD50> 2000 mg/kg bw(rat; male/female; oral; no deaths; OECD Guideline 401 ; 1995)

- Diethylene glycol : Acute toxicity(Oral) Category 4 EU CLP Notice

- Methylbenzotriazole : LD50 1830 mg/kg Rat

- 2,6-Di-tert-butyl-p-cresol : LD50>6000 mg/kg bw(rat; male/female; oral; OECD Guideline 401; 1989)

*** Dermal - PRODUCT : Not Applicable (ATEMix > 2,000 mg/kg)**

- Triethylene glycol monobutyl ether : LD50 3540 mg/kg Rabbit

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : LD50> 2000 mg/kg bw(rat; male/female; dermal; No deaths; OECD Guideline 402; 2010)

- Diethylene glycol : LD50 > 18000 mg/kg Rabbit

- Methylbenzotriazole : No data

- 2,6-Di-tert-butyl-p-cresol : LD50>2000 mg/kg bw(rat; male/female; dermal; no deaths; OECD Guideline 402; 1988)

*** Inhalation(Gas) - PRODUCT : No data (ATEMix = 0)**

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : No data

*** Inhalation(Vapour) - PRODUCT : No data (ATEMix = 0)**

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : No data

*** Inhalation(Dust, mist) - PRODUCT : Not applicable (ATEMix = 0)**

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : LC50 > 5.2 mg/L Rat
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : RD50=59.7 ppm/30 min(mouse; male; inhalation: vapour)

○ Skin corrosion/Irritation

- Triethylene glycol monobutyl ether : Not irritating Rabbit
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : not irritating(rabbit; OECD Guideline 404; 1995)
- Diethylene glycol : Slightly irritating Rabbit
- Methylbenzotriazole : Not irritating Rabbit
- 2,6-Di-tert-butyl-p-cresol : not irritating(rabbit; OECD Guideline 404; 1988)

○ Serious eye damage/irritation

- Triethylene glycol monobutyl ether : Irreversible effects on the eye Rabbit
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : not irritating(rabbit; OECD Guideline 405; 1995)
- Diethylene glycol : Slightly irritating Rabbit
- Methylbenzotriazole : Slightly irritating Rabbit
- 2,6-Di-tert-butyl-p-cresol : not irritating(rabbit; OECD Guideline 405; 1988)

○ Respiratory sensitization

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : No data

○ Skin sensitization

- Triethylene glycol monobutyl ether : Not sensitising Guinea pig
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : not sensitising(guinea pig; OECD Guideline 406; 1990)
- Diethylene glycol : No data

- Methylbenzotriazole : Non sensitising Guinea pig

- 2,6-Di-tert-butyl-p-cresol : not sensitising(human; patch test)

○ Carcinogenicity

- Triethylene glycol monobutyl ether : No data

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data

- Diethylene glycol : No data

- Methylbenzotriazole : No data

- 2,6-Di-tert-butyl-p-cresol : ECHA: It is concluded that BHT at levels of 0.25% and 1% in the diet; has no carcinogenic effect in rats. (rat; male/female; oral; 104 weeks; 0.25 and 1%)

○ Germ cell mutagenicity

- Triethylene glycol monobutyl ether : Negative Mouse

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : negative(OECD Guideline 476; In vitro Mammalian Cell Gene Mutation Test; 2010)

- Diethylene glycol : No data

- Methylbenzotriazole : Negative Human

- 2,6-Di-tert-butyl-p-cresol : negative(in vitro Bacterial Reverse Mutation Assay)

○ Reproductive toxicity

- Triethylene glycol monobutyl ether : The test substance when administered by gavage on gestation days 7 -16 at doses of 250 or 1000 mg/kg/day showed no foetotoxic or teratogenic potential and exhibited no maternal toxicity. Rat

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : The oral administration of B-TEGME to pregnant rats by oral gavage during gestation at dose levels of 30; 300 and 1000 mg/kg bw/day resulted in treatment related effects in foetuses from females treat

- Diethylene glycol : No data

- Methylbenzotriazole : Did not find any evidence of dose-related pathology in the reproductive organs. Rat

- 2,6-Di-tert-butyl-p-cresol : No adverse effects on reproduction were found. The NOAEL for toxicity to reproduction was assumed to be 500 mg/kg body weight and day. (rat; male/female; oral; 0; 25; 100; 500 mg/kg bw/day)

○ Specific target organ toxicity (single exposure)

- Triethylene glycol monobutyl ether : No data

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data

- Diethylene glycol : No data

- Methylbenzotriazole : No data

- 2,6-Di-tert-butyl-p-cresol : By the woman who ingested 4g; stomach cramps; a feeling of worthlessness; vomiting; a feeling of fatigue; mental disorder; and a short term of unconsciousness was seen. Moreover; it is classified into

○ Specific target organ toxicity (repeated exposure)

- Triethylene glycol monobutyl ether : The substance does not seem to have the adverse effects on blood or testes that are associated with some other glycol ethers. Rabbit

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : This substance did not result in any toxicologically significant effects. NOAEL=1000 mg/kg bw/day (rat; male/female; oral; 10; 100 and 1000 mg/kg bw/day; OECD Guideline 408 (Repeated Dose 90-Day Oral

- Diethylene glycol : No data

- Methylbenzotriazole : Lethargy and respiratory difficulties after each dose. Rat

- 2,6-Di-tert-butyl-p-cresol : On chronic oral exposure of rats; liver and thyroid are the main targets. Doses above 25 mg/kg bw/day BHT resulted in thyroid hyperactivity; enlargement of the liver; induction of several liver enzyme

○ Aspiration hazard

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : 8.4 mm²/s (static)(40 °C; OECD Guideline 114; 2013)
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : 1.54 centistokes(120.0°C)

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity

○ Fish

- Triethylene glycol monobutyl ether : LC50 mg/L Fish(Leuciscus idus)
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : LC50> 222.2 mg/L(Oncorhynchus mykiss; 96h; OECD Guideline 203; 1999)
- Diethylene glycol : LC50 75200 mg/L Fish(Pimephales promelas)
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : LC50>0.57 mg/L(Danio rerio; 96h; EU Method C.1; 1994)

○ Crustacean

- Triethylene glycol monobutyl ether : LC50 2210 mg/L Aquatic invertebrates(Daphnia magna)
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : EC50> 500mg/L(Daphnia magna; 48h; EU Method C.2; 1988)
- Diethylene glycol : EC50 > 10000 mg/L Aquatic invertebrates(Daphnia magna)
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : EC50=0.48 mg/L(Daphnia magna; 48h; OECD Guideline 202; 2010)

○ Acuatic algae

- Triethylene glycol monobutyl ether : EC50 > 612.6 mg/L Aquatic algae(Desmodesmus subspicatus)
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : ErC50> 224.4 mg/L(Pseudokirchneriella subcapitata; 72h; OECD Guideline 201; 1999)
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : ErC50>0.4 mg/L(Desmodesmus subspicatus; 72h; EU Method C.3; 1994)

2) Persistence and degradation

○ Persistence

- Triethylene glycol monobutyl ether : log Kow 0.51
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : log Pow=-0.62(OECD Guideline 117; 1987)
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : log Pow=5.1

○ Degradation

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data

- 2,6-Di-tert-butyl-p-cresol : This corresponds to an atmospheric half-life of about one days at an atmospheric concentration of 5X10+5 hydroxyl radicals per cu cm.

○ biodegradation

- Triethylene glycol monobutyl ether : BOD 85 %
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : >70%(10d; OECD Guideline 301 ; 1999)
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : 0.8 % degradation (28 d; OECD Guideline 301 C; 1992)

3) Bioaccumulative potential

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : BCF 100 Fish(Leuciscus idus melanotus)
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : BCF=781(OECD Guideline 305 C; 1992)

4) Mobility in soil

- Triethylene glycol monobutyl ether : Koc 10
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : Koc=15000

5) Hazard to the ozone laye

- Triethylene glycol monobutyl ether : Not applicable
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Diethylene glycol : Not applicable
- Methylbenzotriazole : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable

6) Other adverse effects

- Triethylene glycol monobutyl ether : No data
- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : No data
- Diethylene glycol : No data
- Methylbenzotriazole : No data
- 2,6-Di-tert-butyl-p-cresol : No data

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Isolate water and oil: Burn in isolated oil, disposed of water in water pollution control plant.
- Disposed by evaporation or concentration. Incinerated or stabilized the residues.
- Disposed by aggregation and precipitation. Incinerate the residues.
- Purified by isolation, distillation, extraction, filtration and thermal decomposition.
- Disposed by incineration or stabilization.

2) Precautions (including disposal of contaminated container of package)

- 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) Class or division

- 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
- This product is not regulated for carriage according to ADR/RID, ADN, IMDG, ICAO/IATA.

15. REGULATORY INFORMATION

1) Occupational Safety and Health Act in Korea - PRODUCT : Substance exposure limits

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Substance exposure limits
- Diethylene glycol : Not applicable

2) Toxic Chemical Control Act in Korea - PRODUCT :

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Pollutant release and transfer register substances,Existing Commercial Chemical Substances
- Methylbenzotriazole : Existing Commercial Chemical Substances
- Triethylene glycol monobutyl ether : Existing Commercial Chemical Substances
- 2,6-Di-tert-butyl-p-cresol : Pollutant release and transfer register substances,Existing Commercial Chemical Substances
- Diethylene glycol : Existing Commercial Chemical Substances

3) Safety Control of Dangerous Substances Act in Korea - PRODUCT : 제4류 : 제3석유류(수용성)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : 제4류 : 제3석유류(수용성)

4) Wastes Control Act in Korea - PRODUCT : 지정 폐기물

- 폐유(액체상태)

5) Other regulations in KOREA and Abroad regulations

○ U.S.A. management information(OSHA regulation)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Not applicable

○ U.S.A. management information(CERCLA regulation)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Not applicable

○ U.S.A. management information(Rotterdam Convention on Substances)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Not applicable

○ U.S.A. management information(Stockholm Convention on Substances)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Not applicable

○ U.S.A. management information(Mont- real Protocol on Substances)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Not applicable
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Not applicable

○ EU Classification (CLASSIFICATION)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : Eye Dam. 1
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : Acute Tox. 4

○ EU Classification (Risk Phrases)

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable

- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : H318
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : H302

○ **EU Classification (Safety Phrases)**

- Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate : Not applicable
- Methylbenzotriazole : Not applicable
- Triethylene glycol monobutyl ether : S:(2)-26-39-46
- 2,6-Di-tert-butyl-p-cresol : Not applicable
- Diethylene glycol : S:(2)-46

16. OTHER INFORMATION

1) Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

2) Print date

- 2012-11-30

3) Revision date

○ Number of revised

- 5

○ Date of last revision

- 2019-06-14

○ Last Revision History

- revision of composition/information on ingredients

4) Other

- This information is based on current available databases to protect the health, environment and safety of workers.