

# Material Safety Data Sheet

<b>Product</b>	Kixx Geartec GL-5 75W-90		
<b>List No.</b>	<b>Issuing date</b>	<b>Last revised date</b>	<b>Department</b>
LB2754	2012-11-30	2019-06-13	Finished Lubricants R&D Team

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

### 1) Product identifier

- Kixx Geartec GL-5 75W-90

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

- Relevant identified uses : (Lubricants and additives)
- Uses advised against : 정해진 용도 이외에는 사용하지 말것

### 3) Supplier information

#### Manufacturer information

- Company name : GS Caltex Corporation  
[Manufacture]
- Address : 서울특별시 강남구 논현로 508
- Emergency telephone number : 02-1899-5145
- Fax :

## 2. HAZARD IDENTIFICATION

### 1) Hazard classification

- Not applicable

### 2) Allocation 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 : Health , Flammability , Reactivity

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

※ Chemical NFPA Level.

- Distillates (petroleum), hydrotreated heavy paraffinic : Health=1, Flammable=1, Reaction=0
- Business Secret1 : Health=0, Flammable=0, Reaction=0
- tert-Alkyl(C=12-14) amines : Health=1, Flammable=0, Reaction=0
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Health=1, Flammable=0, Reaction=0
- Dipentyl hydrogen phosphate : Health=0, Flammable=0, Reaction=0

### 3. Composition/Information on ingredients

Chemical name	Trade names and Synonyms	CAS No.	EC No.	Contain Ratio(%)
Distillates (petroleum), hydrotreated heavy paraffinic		64742-54-7	265-157-1	85 ~ 95
Business Secret1				5 ~ 8
tert-Alkyl(C=12-14) amines		68955-53-3	273-279-1	0.1 ~ 0.5
2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole		89347-09-1	289-493-3	0.05 ~ 0.2
Dipentyl hydrogen phosphate		3138-42-9	221-537-9	0.05 ~ 0.2

### 4. FIRST AID MEASURES

#### 1) Following eye contact

- In case of contact with material, immediately flush eyes with running water for at least 15 minutes.
- Get medical aid immediately.

#### 2) Following 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.
- Get medical aid immediately.

#### 3) Following inhalation

- Move to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Seek immediate medical assistance.

#### 4) Following ingestion

- If unconscious but breathing, never give anything by mouth.
- Get medical aid immediately.

#### 5) Advice to physician

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

- Do not apply drugs of the adrenaline ephedrine group.

## 5. FIRE FIGHTING MEASURES

### 1) Suitable (and unsuitable) extinguishing media

#### ○ Suitable extinguishing media

- Small fire: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO<sub>2</sub> (Suitable extinguishing media).
- Large fire: Water spray/fog, regular foam (Suitable extinguishing media).

#### ○ Unsuitable extinguishing media

- High-pressure water (Unsuitable extinguishing media).

### 2) Special hazards arising from the substance or mixture

- May ignited from heat, friction or contamination.
- Containers may explode when heated.
- Some may burn but none ignite readily.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.
- Some liquids produce vapors that may cause dizziness or suffocation.

### 3) Special protective equipment for firefighters

- Move containers from fire area if you can do it without risk.
- 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

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Stop leak if you can do it without risk.
- Please note that materials and conditions to be avoided.
- Ventilate the contaminated area.
- Do not touch or walk through spilled material.
- Prevent dust cloud.
- Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.

### 2) Environmental precautions

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

### 3) For cleaning up

- Small Spill: Flush area with flooding quantities of water.

- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- 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.

## 7. HANDLING AND STORAGE

### 1) Precautions for safe handling

- Please note that materials and conditions to be avoided.
- Wash ... thoroughly after handling.
- Handling refer to engineering control/personal protection section.
- CAUTION: High temperature.
- CAUTION: This material does not contain oxygen and may cause asphyxia if released in a confined area.
- High concentration of this gas will create an oxygen-deficient atmosphere, creating the risk of asphyxiation. Check oxygen content before entering area.
- CAUTION: Vapors displace air and can cause asphyxiation in confined spaces if released material.
- CAUTION: Can be reach toxic concentration quickly in air if released.
- Do not spray. Can be reach toxic concentration quickly in air if sprayed.
- Keep under 20°C. This material evaporate slowly at 20°C and reach toxic concentration.
- Do not spray. This material does not easily evaporated. But can be reach toxic concentration quickly in air if sprayed.
- Check oxygen content before entering area.
- Do not spray. Can be evaporate quickly if sprayed.
- Use adequate machine for prevention when package handling.
- Avoid any skin and eye contact when insert undiluted solution. Wash ... thoroughly after handling.
- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

### 2) Conditions for safe storage (including any incompatibilities)

- Store in a closed container.
- Store in a dry place. Store in a closed container.
- Please note that materials and conditions to be avoided.
- Store containers: AVOID the place where can be damage and contamination.
- Store in a cool/low-temperature, well-ventilated {dry} place {away from heat and ignition sources}
- Choose a place that can be protected from strong oxidizers and acid.
- Drum Handling: Must work at safe place., Loading more than 3 stack is prohibited.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 1) Chemical exposure limits, Biological exposure standard

#### ○ Occupational exposure limits (Domestic)

- Distillates (petroleum), hydrotreated heavy paraffinic : TWA 해당없음, STEL 해당없음
- Business Secret1 : TWA 해당없음, STEL 해당없음
- tert-Alkyl(C=12-14) amines : TWA 해당없음, STEL 해당없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : TWA 해당없음, STEL 해당없음

- Dipentyl hydrogen phosphate : TWA 해당없음, STEL 해당없음

○ **Occupational exposure limits (ACGIH)**

- Distillates (petroleum), hydrotreated heavy paraffinic : TWA 5 mg/m3, STEL 해당없음
- Business Secret2 : TWA 해당없음, STEL 해당없음
- tert-Alkyl(C=12-14) amines : TWA 해당없음, STEL 해당없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : TWA 해당없음, STEL 해당없음
- Dipentyl hydrogen phosphate : TWA 해당없음, STEL 해당없음

○ **Biological limit values**

- Distillates (petroleum), hydrotreated heavy paraffinic : 해당없음
- Business Secret3 : 해당없음
- tert-Alkyl(C=12-14) amines : 해당없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 해당없음
- Dipentyl hydrogen phosphate : 해당없음

**2) Appropriate engineering controls**

- 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.
- Wear Non-moisture permeable goggle for dust protection.
- 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	물리적 상태-액체(점성), 색상-갈색
Smell	석유계 화합물의 냄새
Smell Threshold	No Data
pH	Notapplicable

Melting/Freezing Point	No Data
Boiling Point	330~500 °C
Flash Point	212 °C
Evaporating Rate	No Data
Flammability	Not applicable
Explosibility Range	No Data
Steam Pressure	20°C에서 0.1 Kpa 이하
Solubility	No Data
Vapor Density	No Data
Specific Gravity	0.87
Distribution Coefficient	No Data
Self Ignition Temperature	No Data
Pyrolysis Temperature	No Data
Viscosity	12.3 mm <sup>2</sup> /s (at 100°C)
Molecular Weight	No Data

## 10. STABILITY AND REACTIVITY

### 1) Stability and hazardous reactivity

- Stable under normal temperatures and pressures.
- Containers may explode when heated.
- Some may burn but none ignite readily.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.
- Some liquids produce vapors that may cause dizziness or suffocation.

### 2) Conditions to avoid

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

### 3) Incompatible materials

- Combustibles.
- Irritating and/or toxic gas.

### 4) Hazardous decomposition products

- Not available

## 11. TOXICOLOGICAL INFORMATION

### 1) Exposure route information

#### ○ Inhalation

- After inhalation: No data

#### ○ Skin Contact

- Following skin contact: No data

#### ○ Eye Contact

- After eye contact: No data

## ○ Ingestion

- After ingestion: No data

## 2) Health hazard information

### ○ Acute toxicity

#### \* Oral - PRODUCT : 해당없음 (ATEMix > 2,000 mg/kg)

- Distillates (petroleum), hydrotreated heavy paraffinic : LD50 >15000 mg/kg 실험종 : Rat
- tert-Alkyl(C=12-14) amines : LD50 > 5,000 mg/kg Rat
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LD50 >10000 mg/kg 실험종 : Rat
- Dipentyl hydrogen phosphate : 자료없음

#### \* Dermal - PRODUCT : 해당없음 (ATEMix > 2,000 mg/kg)

- Distillates (petroleum), hydrotreated heavy paraffinic : LD50 >5000 mg/kg 실험종 : Rabbit
- tert-Alkyl(C=12-14) amines : LD50 > 5,000 mg/kg Rat
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LD50 >2000 mg/kg 실험종 : Rabbit
- Dipentyl hydrogen phosphate : 자료없음

#### \* Inhalation(Gas) - PRODUCT : 해당없음

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : 자료없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

#### \* Inhalation(Vapour) - PRODUCT : 해당없음 (ATEMix > 20 mg/L)

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : LC50 > 17.9 mg/L Rat
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

#### \* Inhalation(Dust, mist) - PRODUCT : 해당없음 (ATEMix > 5 mg/L)

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 > 5.53 mg/L 4h Rat
- tert-Alkyl(C=12-14) amines : 자료없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

### ○ Skin corrosion/Irritation

- Distillates (petroleum), hydrotreated heavy paraffinic : 약한 자극성(rabbit)
- tert-Alkyl(C=12-14) amines : 토끼를 이용한 피부자극성시험(49CFR, Section 173.240(a,2)) 결과 1차 자극지수 7.3(각막자극지수 4, 부종, 3.3)으로 회복되지 않는 피부부식성 나타남
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

### ○ Serious eye damage/irritation

- Distillates (petroleum), hydrotreated heavy paraffinic : 토끼, 비자극성 OECD TG 405, GLP (Read-across CAS No. 64742-53-6)
- tert-Alkyl(C=12-14) amines : 토끼를 이용한 눈 손상/자극성 시험결과, 눈주변 탈모, 순막이 창백해짐, 눈꺼풀의 가피, 각막의 팽창을 동반한 심한 자극성이 있음. (각막지수 37 결막부종 지수 19.2 홍채지수 4.2, GLP)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Respiratory sensitization

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음

- tert-Alkyl(C=12-14) amines : 자료없음

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Skin sensitization

- Distillates (petroleum), hydrotreated heavy paraffinic : 비과민성(Guinea Pig)

- tert-Alkyl(C=12-14) amines : 기니피그를 이용한 Modified Buehler 시험(GLP) 결과 과민반응을 유발함

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Carcinogenicity

- Distillates (petroleum), hydrotreated heavy paraffinic : EU CLP:1B IP346 방법에 의해 측정된 DMSO extract가 3% 미만인 경우는 제외

- tert-Alkyl(C=12-14) amines : 자료없음

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Germ cell mutagenicity

- Distillates (petroleum), hydrotreated heavy paraffinic : 음성 CHO cell

- tert-Alkyl(C=12-14) amines : 생체 내 유전독성과 변이원성시험결과, 양성

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Reproductive toxicity

- Distillates (petroleum), hydrotreated heavy paraffinic : 랫드에서 어떤 농도에서도 생식 활동에 부정적인 영향을 보이지 않음. Rat

- tert-Alkyl(C=12-14) amines : 랫드를 이용한 발생독성 시험 결과, 모체에서 과도한 소리, 활동항진상태, 혈떡거림이 발생. 사망, 흥반, 부종, 피부갈변, 탈모증세, 배아기형유발성에는 영향이 없음 (산모독성 NOAEL=5 mg/kg bw/day, 최기성 NOAEL=45 mg/kg bw/day) (OECD TG 414, GLP), 랫드(암/수)를 이용한 2세대 생식독성시험결과, 통계적으로 의미를

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Specific target organ toxicity (single exposure)

- Distillates (petroleum), hydrotreated heavy paraffinic : 황색으로 얼룩진 향문, 생식부위 탈모, 부은 뒷발이 임상증상으로 확인되었다. Rat

- tert-Alkyl(C=12-14) amines : 마우스 (암/수)를 이용한 경구독성시험결과 위해성이 있음. 떨림, 위장변색, 활동항진상태, 운동실조의 증상을 보임. LD50=552 mg/kg bw (OECD TG 401, GLP), 랫드(암/수)를 이용한 흡입독성시험 결과, 타액분비, 불규칙한 호흡의 호흡기 자극과 주둥이 부분의 붉은 얼룩, 소극적인 행동 증상을 동반한 독성이 있음. LC50>0.94 mg/

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음

- Dipentyl hydrogen phosphate : 자료없음

#### ○ Specific target organ toxicity (repeated exposure)

- Distillates (petroleum), hydrotreated heavy paraffinic : 전신에 영향이 관찰되지 않음 Rat

- tert-Alkyl(C=12-14) amines : 랫드(암/수)를 이용한 반복흡입독성 시험 결과, 호흡곤란, 혈떡임, 불안정한 보행, 타액분비, 눈물흘림, 체중감소, 사료소비감소 증세를 보임. NOAEL(6h/day, 4week)= 19 mg/m<sup>3</sup> air (OECD TG 412, GLP) 랫드(암/수)를 이용한 반복경피독성시험결과, 주둥이와 눈의 홍조, 탈모, 피부병, 체중감소, 사료소비감소, 장기무게증가,



- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

○ **Aspiration hazard**

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : 자료없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

## 12. ECOLOGICAL INFORMATION

### 1) Aquatic toxicity

○ **Fish**

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 > 100 mg/L Fish(Pimephales promelas)
- tert-Alkyl(C=12-14) amines : ECHA LC50 1.3 mg/l 96 hr Oncorhynchus mykiss(NOEC=0.56mg/L, 지수식 (OECD Guideline 203,GLP))
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LC50=0.000189 mg/l(96h)
- Dipentyl hydrogen phosphate : LC50=14.128 mg/l (96h)

○ **Crustacean**

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 > 10000 mg/L Aquatic invertebrates(Gammarus pulex)
- tert-Alkyl(C=12-14) amines : ECHA EC50 0.26 mg/l ~ 0.24 mg/l 48 hr Daphnia magna(사망있음.지수식)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LC50=0.000206 mg/l(48h)
- Dipentyl hydrogen phosphate : LC50=9.021 mg/l (48h)

○ **Aquatic algae**

- Distillates (petroleum), hydrotreated heavy paraffinic : NOEC >= 100 mg/L Aquatic algae(Pseudokirchnerella subcapitata)
- tert-Alkyl(C=12-14) amines : ECHA ErC50 0.44 mg/l 72 hr Selenastrum capricornutum(NOErC=0.05mg/L지수식(OECD Guideline 201, GLP))
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : EC50=0.002 mg/l(96h)
- Dipentyl hydrogen phosphate : EC50=10.917 ml/l (96h)

### 2) Persistence and degradation

○ **Persistence**

- Distillates (petroleum), hydrotreated heavy paraffinic : log Kow 6
- tert-Alkyl(C=12-14) amines : HSDB 2.9 log Kow
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Log Kow= 1.72 - 2.94
- Dipentyl hydrogen phosphate : log kow=3.271

○ **Degradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : ca. 22% (28 d; OECD Guideline 301 D; 1994)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

○ **biodegradation**

- Distillates (petroleum), hydrotreated heavy paraffinic : BOD 77 %

- tert-Alkyl(C=12-14) amines : ECHA 22 01 28 day
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

### 3) Bioaccumulative potential

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : 31.94
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : BCF=15.71
- Dipentyl hydrogen phosphate : BCF=10

### 4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : 자료없음
- tert-Alkyl(C=12-14) amines : ECHA 10232.9299228075 Koc
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 2055000
- Dipentyl hydrogen phosphate : Koc=657.9

### 5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : 해당없음
- tert-Alkyl(C=12-14) amines : 해당없음
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 해당없음
- Dipentyl hydrogen phosphate : 해당없음

### 6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : 어류: NOEC(Pimephales promelas) >5000 mg/L/7일
- tert-Alkyl(C=12-14) amines : 어류(Oncorhynchus mykiss) NOErC(96d) = 0.078 mg/L. (OECD Guideline 210, GLP) 조류 (Selenastrum capricornutum) ErC50(72h) =0.44 mg/L , NOErC=0.05mg/L, 지수식(OECD Guideline 201, GLP)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 자료없음
- Dipentyl hydrogen phosphate : 자료없음

## 13. DISPOSAL CONSIDERATIONS

### 1) Disposal methods

- Every commercial waste producer shall either treat wastes generated from his/her place of business by him/herself or commission the treatment of such wastes to a person who has license for a waste treatment business under Article 26(3), a person who recycles of such wastes under Article 44(2), a person who has installed and operates a waste disposal facility under Article 4 or 5, a person who has completed the registration of a business of discharging wastes into the sea under Article 18 of the Marine Environment Management Act.

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

- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)
- Do not allow spill material to enter sewers, storm water drains, soil, etc.
- Empty containers recycled under environmental laws.
- Empty containers may rupture when pressured.
- Empty containers may explode and residues can be ignited when pressured, cut, weld, heated.

## 14. TRANSPORT INFORMATION

### 1) UN No.

- No Data

## 2) Proper shipping name

- No Data

## 3) Class or division

- No Data

## 4) Packing group

- No Data

## 5) Marine pollutant

- No Data

## 6) Special safety response for transportation or transportation measure

- Types of Emergency Measures in Case of Fire : No Data
- Types of Emergency Measures in Leakage : No Data
- 육상/해상/항공 운송규제사항(ADR/RID, ADN, IMDG, ICAO/IATA)에 의한 분류 및 규제 : 규제 없음

## 15. REGULATORY INFORMATION

### 1) Occupational Safety and Health Act in Korea - PRODUCT :

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Substance exposure limits
- tert-Alkyl(C=12-14) amines : Substance exposure limits
- Distillates (petroleum), hydrotreated heavy paraffinic : Substance exposure limits
- Dipentyl hydrogen phosphate : Substance exposure limits
- Business Secret : Substance exposure limits

### 2) Toxic Chemical Control Act in Korea - PRODUCT :

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Existing Commercial Chemical Substances
- tert-Alkyl(C=12-14) amines : Existing Commercial Chemical Substances
- Distillates (petroleum), hydrotreated heavy paraffinic : Existing Commercial Chemical Substances
- Dipentyl hydrogen phosphate : Existing Commercial Chemical Substances
- Business Secret : Existing Commercial Chemical Substances

### 3) Safety Control of Dangerous Substances Act in Korea - PRODUCT : 제4류, 제4석유류

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 해당없음
- tert-Alkyl(C=12-14) amines : 해당없음
- Distillates (petroleum), hydrotreated heavy paraffinic : 제4류 : 제4석유류 6000 ℓ
- Dipentyl hydrogen phosphate : 해당없음
- Business Secret : 자료없음

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

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### 5) Other regulations in KOREA and Abroad regulations

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

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No Data
- tert-Alkyl(C=12-14) amines : No Data
- Distillates (petroleum), hydrotreated heavy paraffinic : No Data
- Dipentyl hydrogen phosphate : No Data
- Business Secret : No Data

○ EU Classification (Risk Phrases)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : EU - CLP (1272/2008) - Annex VI - Table 3.1 - Classifications - Carcinogenicity
- tert-Alkyl(C=12-14) amines : EU - CLP (1272/2008) - Annex VI - Table 3.1 - Classifications - Carcinogenicity
- Distillates (petroleum), hydrotreated heavy paraffinic : EU - CLP (1272/2008) - Annex VI - Table 3.1 - Classifications - Carcinogenicity
- Dipentyl hydrogen phosphate : EU - CLP (1272/2008) - Annex VI - Table 3.1 - Classifications - Carcinogenicity
- Business Secret : EU - CLP (1272/2008) - Annex VI - Table 3.1 - Classifications - Carcinogenicity

## 16. OTHER INFORMATION

### 1) Reference

- 본 MSDS는 산업안전보건법 제 41조 및 고용노동부고시 제2016-19호(물질안전보건자료의 비치 등에 관한 기준)에 근거하여 국내 관련 규제 법규 현황 등을 고려하여 작성함.
- 본 MSDS는 KOSHA, NITE, ESIS, NLM, SIDS, IPCS, NCIS 등을 근거로 작성하였음.

### 2) Print date

- 2012-11-30

### 3) Revision date

- Number of revised
  - 4
- Date of last revision
  - 2019-06-13
- Last Revision History
  - 개정정보없음

### 4) Other

- 이 정보는 근로자 건강, 환경, 안전을 보호하고자, 현재 가용할 수 있는 DB를 근거로 하여 작성하였음.