

Material Safety Data Sheet

Product	Kixx ATF Multi		
List No.	Issuing date	Last revised date	Department
LB2699	2012-11-30	2019-05-16	Finished Lubricants R&D Team

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

1) Product identifier

- Kixx ATF Multi

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

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

3) Supplier information

☐ Manufacturer information

- Company name : GS Caltex Corporation
[Manufacture]
- Address : GS Tower, 508, Nonhyeon-ro, Gangnam-gu, Seoul, Korea
- Emergency telephone number : 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
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Health=0, Flammable=0, Reaction=0
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Health=1, Flammable=0, Reaction=0
- ar-Nonyl-N-(nonylphenyl)benzenamine : Health=1, Flammable=1, Reaction=0
- N-n-Octadecyldimethylamine : Health=3, Flammable=1, 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	90 ~ 95
Business Secret1				1 ~ 5
3-(Decyloxy)tetrahydrothiophene 1,1-dioxide		18760-44-6	242-556-9	0.5 ~ 1.5
2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole		89347-09-1	289-493-3	0.1 ~ 0.5
ar-Nonyl-N-(nonylphenyl)benzenamine		36878-20-3	253-249-4	0.1 ~ 0.5
N-n-Octadecyldimethylamine		124-28-7	204-694-8	0.05 ~ 0.1

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, CO₂ (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.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.
- Some liquids produce vapors that may cause dizziness or suffocation.
- 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

- 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.
- 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: 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.
- 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 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)
 - Not applicable
- ☐ Occupational exposure limits (ACGIH)
 - Not applicable
- ☐ Biological limit values
 - Not applicable

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.
- Provide emergency showers and eyewash.
- 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	Clear, Red liquid
Smell	a specific smell of Hydrocarbon
Smell Threshold	No Data
pH	Notapplicable
Melting/Freezing Poing	No Data
Boilling Point	290~500 °C
Flash Point	210 °C
Evaporating Rate	No Data
Flammability	Notapplicable
Explosibility Range	No Data
Steam Pressure	<0.1 kPa (at 20°C)
Solubility	No Data
Vapor Density	No Data
Specific Gravity	0.845
Distribution Coefficient	No Data
SelfIgnition Temperature	No Data
Pyrolysis Temperature	No Data

Viscosity	7.0 mm ² /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

- 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

- Gases can be exposed through the respiratory tract, eyes and skin.
- 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)

- Distillates (petroleum), hydrotreated heavy paraffinic : LD50 >15000 mg/kg Species : Rat
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LD50 >10000 mg/kg Species : Rat
- ar-Nonyl-N-(nonylphenyl)benzenamine : LD50 >5000 mg/kg Species : Rat
- N-n-Octadecyldimethylamine : LD50 2116 mg/kg (Rat)

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

- Distillates (petroleum), hydrotreated heavy paraffinic : LD50 >5000 mg/kg Species : Rabbit
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LD50 >2000 mg/kg Species : Rabbit
- ar-Nonyl-N-(nonylphenyl)benzenamine : LD50 > 2000 mg/kg bw (Rat; male/female; OECD Guideline 402; 1988)
- N-n-Octadecyldimethylamine : LD50=3432 mg/kg (Rabbit)

*** Inhalation(Gas) - PRODUCT : Not applicable (ATEMix = 0)**

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

*** Inhalation(Vapour) - PRODUCT : Not applicable (ATEMix = 0)**

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

*** Inhalation(Dust, mist) - PRODUCT : Not Applicable (ATEMix > 5 mg/L)**

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 5.53 mg/L 4h Rat
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

○ Skin corrosion/Irritation

- Distillates (petroleum), hydrotreated heavy paraffinic : Rabbit - slightly irritating
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : Slightly irritating
- N-n-Octadecyldimethylamine : rabbit; corrosive

○ Serious eye damage/irritation

- Distillates (petroleum), hydrotreated heavy paraffinic : Rabbit, not irritating, OECD TG 405 GLP (Read-across CAS No. 64742-53-6)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : Rabbit - not irritating
- N-n-Octadecyldimethylamine : skin corrosive

○ Respiratory sensitization

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data

- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

○ Skin sensitization

- Distillates (petroleum), hydrotreated heavy paraffinic : Not sensitising (Guinea Pig)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not sensitising (Guinea Pig)
- N-n-Octadecyldimethylamine : No data

○ Carcinogenicity

- Distillates (petroleum), hydrotreated heavy paraffinic : EU CLP:1B The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measure by IP 346
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No substance related carcinogenic effects were observed in any organ. NOAEL-values were established based on general signs of general toxicity. For males the NOAEL is 42.3 for females it is 52.6 mg/kg

○ Germ cell mutagenicity

- Distillates (petroleum), hydrotreated heavy paraffinic : CHO cell - Negative
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : in vitro mammalian chromosome aberration test (Human peripheral blood lymphocytes; OECD 473; 2006); Metabolic activation: with and without; negative
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : in vitro - Negative (Bacterial Reverse Mutation Assay, S. typhimurium TA 1535, TA 1537, TA 98 and TA 100)
- N-n-Octadecyldimethylamine : In vitro- Negative (Bacterial Reverse Mutation Assay; OECD TG 471)

○ Reproductive toxicity

- Distillates (petroleum), hydrotreated heavy paraffinic : Reproductive performance was not adversely affected at any dose level evaluated. (Rat)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : rat(female/male); 0, 50, 175 and 600 mg/kg/day; for 7days; oral; NOAEL=600mg/kg/day. NOAEL(male, systemic toxicity)=50 mg/kg/day, NOAEL(female, systemic toxicity)=175 mg/kg/day
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : Parental toxicity was observed at 500 mg/kg bw (Rat; OECD Guideline 414 ; 2014)
- N-n-Octadecyldimethylamine : In this reproduction / development toxicity screening test with rats the no-observed-effect level (NOEL) for both parent animals and their pups was 50 mg test item/ kg b.w./day, by gavage. 150 mg/kg b

○ Specific target organ toxicity (single exposure)

- Distillates (petroleum), hydrotreated heavy paraffinic : No systemic effects were observed.
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

○ Specific target organ toxicity (repeated exposure)

- Distillates (petroleum), hydrotreated heavy paraffinic : No systemic effects were observed.

- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : oral; rat(female/male); 0, 100, 500 and 1000 mg/kg/day, 28days. The target organs of toxicity identified in this study were liver and thyroid gland of male and female, and male kidney.
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : NOEL<100 mg/kg bw/day(Rat(m/f); OECD Guideline 408) Regarding clinical examination, incipient general systemic toxicity was observed in males of the high dose group(1000 mg/kg bw/d). These animals sho
- N-n-Octadecyldimethylamine : Under the conditions of the test no systemic toxicity could be observed. Therefore the NOEL is > 1.5 mg a.i./kg bw, based on the highest concentration tested. However this concentration produced sligh

○ Aspiration hazard

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity

○ Fish

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 > 100 mg/L Fish(Pimephales promelas)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : LC50=14.066 mg/L (96 h)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : LC50 > 100 mg/L Fish(Pimephales promelas)
- ar-Nonyl-N-(nonylphenyl)benzenamine : LC50>100 mg/L (Danio rerio; 96h; OECD Guideline 203; 1989)
- N-n-Octadecyldimethylamine : LC50 0.079 mg/l 96 hr Oryzias latipes

○ Crustacean

- Distillates (petroleum), hydrotreated heavy paraffinic : LC50 > 10000 mg/L Aquatic invertebrates(Gammarus pulex)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : LC50=9.043 mg/L (48 h)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : EC50(Daphnia magna) > 1 mg/l(48h) (OECD 202)
- ar-Nonyl-N-(nonylphenyl)benzenamine : EC50> 100 mg/L(Daphnia magna; 48h; OECD Guideline 202; 2004)
- N-n-Octadecyldimethylamine : LC50 0.016 mg/l 48 hr Daphnia magna

○ Acuatic algae

- Distillates (petroleum), hydrotreated heavy paraffinic : NOEC >= 100 mg/L Aquatic algae(Pseudokirchnerella subcapitata)
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : EC50=11.257 mg/L (96 h)
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : EC50(Pseudokirchnerella subcapitata) > 1 mg/l(72h) (OECD 201)
- ar-Nonyl-N-(nonylphenyl)benzenamine : EC50 > 100 mg/L (Desmodesmus subspicatus; 72h; OECD Guideline 201; 2006)
- N-n-Octadecyldimethylamine : ErC50=0.0141 mg/L, NOErC=0.00517 mg/L(Desmodesmus subspicatus; 72hr; OECD TG 201) 로 수정

2) Persistence and degradation

○ Persistence

- Distillates (petroleum), hydrotreated heavy paraffinic : log Kow 6
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Log kow=3.345

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Log Kow= 1.72 - 2.94
- ar-Nonyl-N-(nonylphenyl)benzenamine : 12.24 log Kow
- N-n-Octadecyldimethylamine : 8.39 log Kow (estimated)

○ Degradation

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : No data

○ biodegradation

- Distillates (petroleum), hydrotreated heavy paraffinic : BOD 77 %
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : not readily biodegradable
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : 15 (%) 28 day
- N-n-Octadecyldimethylamine : 68% degradation after 28 days (OECD Guideline 301 D)

3) Bioaccumulative potential

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : BCF=74.8
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : BCF=15.71
- ar-Nonyl-N-(nonylphenyl)benzenamine : 27400 BCF
- N-n-Octadecyldimethylamine : No data

4) Mobility in soil

- Distillates (petroleum), hydrotreated heavy paraffinic : No data
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Koc=828.1
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : 2055000
- ar-Nonyl-N-(nonylphenyl)benzenamine : 35900000 (estimated)
- N-n-Octadecyldimethylamine : No data

5) Hazard to the ozone layer

- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- N-n-Octadecyldimethylamine : Not applicable

6) Other adverse effects

- Distillates (petroleum), hydrotreated heavy paraffinic : Fish: NOEC(Pimephales promelas) >5000 mg/L/7d
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : No data
- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : No data
- ar-Nonyl-N-(nonylphenyl)benzenamine : No data
- N-n-Octadecyldimethylamine : 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 :

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

2) Toxic Chemical Control Act in Korea - PRODUCT :

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Existing Commercial Chemical Substances
- Distillates (petroleum), hydrotreated heavy paraffinic : Existing Commercial Chemical Substances
- ar-Nonyl-N-(nonylphenyl)benzenamine : Existing Commercial Chemical Substances
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Existing Commercial Chemical Substances
- N-n-Octadecyldimethylamine : Existing Commercial Chemical Substances

- Business Secret : No data

3) Safety Control of Dangerous Substances Act in Korea - PRODUCT : 제4류 제4석유류 (6000 L)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : 제4류 제4석유류 (6000 L)
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

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)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

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

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

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

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : Not applicable

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

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : Not applicable

○ U.S.A. management information(Montreal Protocol on Substances)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Not applicable
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : Not applicable

○ EU Classification (CLASSIFICATION)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : Carc. 1B
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

○ EU Classification (Risk Phrases)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : H350
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

○ EU Classification (Safety Phrases)

- 2,5-Bis(tert-nonyldithio)-1,3,4-thiadiazole : Not applicable
- Distillates (petroleum), hydrotreated heavy paraffinic : S:53-45
- ar-Nonyl-N-(nonylphenyl)benzenamine : Not applicable
- 3-(Decyloxy)tetrahydrothiophene 1,1-dioxide : Not applicable
- N-n-Octadecyldimethylamine : Not applicable
- Business Secret : No data

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

○ Date of last revision

- 2019-05-16

○ Last Revision History

- No revision information

4) Other

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