

# Material Safety Data Sheet(MSDS)

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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1. Product Name : S-OIL GREASE EP 2
2. Advisable use and Restriction
  - Advisable use :grease
  - Restriction :Please avoid to mix with different oil
3. Manufacturer/Supplier information
  - Manufacturer : KOREA HOUGHTON CO., LTD. 20-31, Seobunam-ro 151beon-gil, Seonjang-myeon, Asan-si, Chungnam-do, S.KOREA(+82-2-3284-3353)
  - Supplier : S-OIL CORPORATION CO.,LTD, 192, Baekbeom-ro, Mapo-gu, Seoul 04196, Korea


S.KOREA

  - Information service or emergency number : +82-2-3284-3353
  - Dept. responsible for information/contact number : KOREA HOUGHTON CO., LTD. YOUNG UK, KWON (+82-10-2025-8059)

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## 2. HAZARD IDENTIFICATION

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1. Hazard classification
  - ACUTE TOXICITY(Inhalation:Dust/mist) Category 4
2. Allocation label elements
  - Symbol  

  - Signal word : Warning
  - Hazard statements :  
H332 Harmful if inhaled.
  - Precautionary statements
    - Prevention  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.
    - Response  
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P312 Call a POISON CENTER or doctor/physician you feel unwell.
3. Other hazard information not included in hazard classification (NFPA)

※ No NFPA data of the product. thus NFPA data was described by the product component..			
Chemical Name	NFPA Level		
	Health	Flamm ability	Reactivity
1. DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC	1	1	0
2. Substance1	1	0	0
3. Substance2	1	1	0
4. Substance3	1	1	0
5. Substance4	1	1	0
6. Substance5	1	0	0

### 3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(W%)
1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC	DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC	64742-54-7	60.0~70.0
2) Substance1	-	-	15.0~25.0
3) Substance2	-	-	5.0~10.0
4) Substance3	-	-	1.0~5.0
5) Substance4	-	-	0.1~1.0
6) Substance5	-	-	0.1~1.0

### 4. FIRST AID MEASURES

#### 1) Following eye contact

- Get medical aid immediately.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

#### 2) Following skin contact

- Call a POISON CENTER or doctor/physician you feel unwell.
- For minor skin contact, avoid spreading material on unaffected skin.
- Get medical aid immediately.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.

#### 3) Following inhalation

- Administer oxygen if breathing is difficult.
- 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.
- Give artificial respiration if victim is not breathing.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Keep victim warm and quiet.
- Move victim to fresh air.
- Seek immediate medical assistance. .

#### 4) Following ingestion

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

#### 5) Advice to physician

- Do not apply drugs of the adrenaline ephedrine group.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

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## 5. FIRE FIGHTING MEASURES

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

- Use dry sand or earth to smother fire.
- Large fire: Water spray/fog, regular foam (Suitable extinguishing media).
- Large fire: Foam (Suitable extinguishing media).
- Small fire: CO2 (Suitable extinguishing media).
- Direct water (Unsuitable extinguishing media).
- Large fire: Dry chemical (Suitable extinguishing media).
- Small fire: Dry chemical (Suitable extinguishing media).
- Large fire: Excess water (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 (Suitable extinguishing media).
- Small fire: Water spray (Suitable extinguishing media).
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- High-pressure water (Unsuitable extinguishing media).
- Large fire: CO2 (Suitable extinguishing media).

- Large fire: Alcohol-resistant foam (Suitable extinguishing media).
2. Special hazards arising from the substance
- Specific hazards arising from the chemical(e.g. nature of any hazardous combustion products)
    - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
  - Special protective equipment and precautions for fire-fighters :
    - Some may burn but none ignite readily.
    - Fire may produce irritating and/or toxic gases.
    - Containers may explode when heated.

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## 6. ACCIDENTAL RELEASE MEASURES

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- 1) Health considerations and protective equipment
- Avoid breathing dust/fume/gas/mist/vapours/spray.
  - Clean up spills immediately, observing precautions in Protective Equipment section.
  - Cover with plastic sheet to prevent spreading.
  - Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
  - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
  - Do not touch or walk through spilled material.
  - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
  - Please note that materials and conditions to be avoided.
  - Prevent dust cloud.
  - Stop leak if you can do it without risk.
  - Ventilate the contaminated area.
- 2) Environmental precautions
- Prevent entry into waterways, sewers, basements or confined areas.
- 3) For cleaning up
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  - 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.
  - Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
  - Large Spill: Dike far ahead of liquid spill for later disposal.
  - Reduce airborne dust and prevent scattering by moistening with water.
  - Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
  - Small Spill: Flush area with flooding quantities of water.
  - With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

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## 7. HANDLING AND STORAGE

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- 1) Precautions for safe handling
  - No reference
- 2) Conditions for safe storage (including any incompatibilities)
  - No reference

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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1. Exposure exposure limits, Biological exposure standard :
  - ※ No exposure limits and biological exposure data of the product. thus data was described by the product component.

### 1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC

- Other regulation (Domestic) : No reference
- ACGIH : No reference
- biologische standard : No reference

### 2) Substance1

- Other regulation (Domestic) : No reference
- ACGIH : No reference
- biologische standard : No reference

### 3) Substance2

- Other regulation (Domestic) : No reference
- ACGIH : No reference
- biologische standard : No reference

### 4) Substance3

- Other regulation (Domestic) : No reference
- ACGIH : No reference
- biologische standard : No reference

### 5) Substance4

- Other regulation (Domestic) : No reference
- ACGIH : No reference
- biologische standard : No reference

### 6) Substance5

- Other regulation (Domestic) : No reference
- ACGIH : No reference

- biologische standard : No reference
- 2. Appropriate engineering controls
  - If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
  - Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- 3. Personal protection
  - Respiratory protection
    - No reference
  - Eye protection
    - Provide emergency showers and eyewash.
    - Wear suitable protective goggles and face shields.
  - Hand protection
    - Wear insulated gloves.
    - Wear suitable protective gloves.
  - Body protection
    - Wear suitable protective clothing.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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1. Appearances : brown
2. Odors : slight oil
3. Odor Threshold Values : No reference
4. pH Values : No reference
5. Melting Point : No reference
6. Boiling Point : No reference
7. Flash Points : Not applicable (but, base oil flash point : 243°C/(C.O.C.))
8. Evaporation Rates : No reference
9. Flammability (solid, gas) : No reference
10. Upper/lower flammability or explosive limits : No reference
11. Vapor Pressure : No reference
12. Water Solubilities : No reference
13. Vapor Densities : No reference

14. Specific Gravity :  $0.88 \pm 0.05(15/4^{\circ}\text{C})$
15. Coefficient of Octanol/Water Distribution (Kow) : No reference
16. Autoignition Temperatures : No reference
17. Decomposition temperature : No reference
18. Viscosity : NLGI No.2
19. Molecular Weight : No reference

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## 10. STABILITY AND REACTIVITY

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- 1) Stability and hazardous reactivity :
  - Containers may explode when heated.
  - Fire may produce irritating, corrosive and/or toxic gases.
  - May cause toxic effects if inhaled.
  - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
  - Some liquids produce vapors that may cause dizziness or suffocation.
  - Some may burn but none ignite readily.
  - Stable under normal temperatures and pressures.
- 2) Conditions to avoid :
  - Ignition source(heat, spark, flame, etc.).
- 3) Incompatible materials :
  - Combustibles, reducing material.
  - Irritating and/or toxic gas.
- 4) Hazardous decomposition products :
  - Corrosive/toxic fume.
  - Irritating, corrosive and/or toxic gas.

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## 11. TOXICOLOGICAL INFORMATION

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- 1) Exposure route information
  - by respiratory organ : No reference
  - by mouth : No reference
  - by skin and contact : No reference
  - by eye and contact : No reference
2. Health hazard information
  - ※ No data of the product. thus data was described by the product component.
  - 1) **DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC**  
**(DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)**

- ACUTE TOXICITY
  - Oral : Not applicable / LD50 > 5000 mg/kg Rat
  - Dermal : Not applicable / LD50 > 2000 mg/kg Rabbit
  - Inhalation–Gases : No reference
  - Inhalation–Vapours : No reference
  - Inhalation–Dust/mist : Category 4 / LC50 2.18 mg/L Rat
- SKIN CORROSION/IRRITATION : Not applicable / Not irritating Rabbit
- SERIOUS EYE DAMAGE/EYE IRRITATION : Not applicable / Not irritating Rabbit
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : Not applicable / Not sensitising Guinea pig
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : No reference
  - OSHA : No reference
  - ACGIH : No reference
  - NTP : No reference
  - EU CLP : No reference
- GERM CELL MUTAGENICITY : Not applicable / Negative CHO cell
- REPRODUCTIVE TOXICITY : Not applicable / Reproductive performance was not adversely affected at any dose level evaluated. Rat
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No reference
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not applicable / No systemic effects were observed. Rat
- ASPIRATION HAZARD : No reference

## 2) Substance1

- ACUTE TOXICITY
  - Oral : Not applicable / LD50 4100 mg/kg Rat
  - Dermal : Not applicable / LD50 > 3000 mg/kg Rat
  - Inhalation–Gases : No reference
  - Inhalation–Vapours : Not applicable / LC50 > 1.71 mg/L Rat
  - Inhalation–Dust/mist : No reference
- SKIN CORROSION/IRRITATION : Not applicable / Not irritating Rabbit
- SERIOUS EYE DAMAGE/EYE IRRITATION : Not applicable / Not irritating Rabbit
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : Not applicable / Not sensitising Guinea pig
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : 3



- OSHA : No reference
- ACGIH : No reference
- NTP : No reference
- EU CLP : No reference
- GERM CELL MUTAGENICITY : Not applicable / Negative CHO cell
- REPRODUCTIVE TOXICITY : No reference
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : Not applicable / No treatment-related deaths or toxic signs were reported. Rabbit
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not applicable / No abnormal reactions or deaths occurred during the study in rats. Rat
- ASPIRATION HAZARD : No reference

### 3) Substance2

- ACUTE TOXICITY
  - Oral : No reference
  - Dermal : No reference
  - Inhalation–Gases : No reference
  - Inhalation–Vapours : No reference
  - Inhalation–Dust/mist : No reference
- SKIN CORROSION/IRRITATION : No reference
- SERIOUS EYE DAMAGE/EYE IRRITATION : No reference
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : No reference
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : No reference
  - OSHA : No reference
  - ACGIH : No reference
  - NTP : No reference
  - EU CLP : No reference
- GERM CELL MUTAGENICITY : No reference
- REPRODUCTIVE TOXICITY : No reference
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No reference
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No reference
- ASPIRATION HAZARD : No reference

### 4) Substance3

- ACUTE TOXICITY
  - Oral : No reference

- Dermal : No reference
- Inhalation–Gases : No reference
- Inhalation–Vapours : No reference
- Inhalation–Dust/mist : No reference
- SKIN CORROSION/IRRITATION : No reference
- SERIOUS EYE DAMAGE/EYE IRRITATION : No reference
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : No reference
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : No reference
  - OSHA : No reference
  - ACGIH : No reference
  - NTP : No reference
  - EU CLP : No reference
- GERM CELL MUTAGENICITY : No reference
- REPRODUCTIVE TOXICITY : No reference
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No reference
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No reference
- ASPIRATION HAZARD : No reference

## 5) Substance4

- ACUTE TOXICITY
  - Oral : Not applicable / LD50 5000 mg/kg Rat
  - Dermal : No reference
  - Inhalation–Gases : No reference
  - Inhalation–Vapours : No reference
  - Inhalation–Dust/mist : No reference
- SKIN CORROSION/IRRITATION : No reference
- SERIOUS EYE DAMAGE/EYE IRRITATION : No reference
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : Not applicable / Guinea pig
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : No reference
  - OSHA : No reference
  - ACGIH : No reference
  - NTP : No reference
  - EU CLP : No reference

- GERM CELL MUTAGENICITY : No reference
- REPRODUCTIVE TOXICITY : No reference
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No reference
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No reference
- ASPIRATION HAZARD : No reference

## 6) Substance5

- ACUTE TOXICITY
  - Oral : No reference
  - Dermal : No reference
  - Inhalation-Gases : No reference
  - Inhalation-Vapours : No reference
  - Inhalation-Dust/mist : No reference
- SKIN CORROSION/IRRITATION : No reference
- SERIOUS EYE DAMAGE/EYE IRRITATION : No reference
- RESPIRATORY SENSITIZATION : No reference
- SKIN SENSITIZATION : No reference
- CARCINOGENICITY : Not applicable
  - Ministry of Employment and Labor : No reference
  - IARC : No reference
  - OSHA : No reference
  - ACGIH : No reference
  - NTP : No reference
  - EU CLP : No reference
- GERM CELL MUTAGENICITY : No reference
- REPRODUCTIVE TOXICITY : No reference
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : No reference
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : No reference
- ASPIRATION HAZARD : No reference

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## 12. ECOLOGICAL INFORMATION

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### 1. Aquatic toxicity

#### 1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC (DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

- Fish, Crustacean, Acuatic algae : No reference

#### 2) Substance1

- Fish, Crustacean, Acuatic algae : No reference

**3) Substance2**

- Fish, Crustacean, Acuatic algae : No reference

**4) Substance3**

- Fish, Crustacean, Acuatic algae : No reference

**5) Substance4**

- Fish, Crustacean, Acuatic algae : No reference

**6) Substance5**

- Fish, Crustacean, Acuatic algae : No reference

2. Persistence and degradation

**1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC  
(DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)**

- n-octanol water partition coefficient : log Kow 6

**2) Substance1**

- n-octanol water partition coefficient :No reference

**3) Substance2**

- n-octanol water partition coefficient :No reference

**4) Substance3**

- n-octanol water partition coefficient : log Kow 12.46

**5) Substance4**

- n-octanol water partition coefficient :No reference

**6) Substance5**

- n-octanol water partition coefficient : N/A

3. Bioaccumulative potential

**1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC  
(DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)**

- Bioaccumulation : No reference

**2) Substance1**

- Bioaccumulation : No reference

**3) Substance2**

- Bioaccumulation : No reference

**4) Substance3**

- Bioaccumulation : No reference

**5) Substance4**

Bioaccumulation : No reference

**6) Substance5**

Bioaccumulation : No reference

4. Mobility in soil

1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC  
(DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

– No reference

2) Substance1

– No reference

3) Substance2

– No reference

4) Substance3

– No reference

5) Substance4

– No reference

6) Substance5

– No reference

5. Other adverse effects

1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC  
(DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

– No reference

2) Substance1

– No reference

3) Substance2

– No reference

4) Substance3

– No reference

5) Substance4

– No reference

6) Substance5

– No reference

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## 13. DISPOSAL CONSIDERATIONS

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1) Disposal methods

– No reference

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

– No reference

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## 14. TRANSPORT INFORMATION

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1. UN No. : No reference

2. Proper shipping name : No reference
3. Class or division : No reference
4. Packing group : No reference
5. Marine pollutant : No reference
6. Special safety response for transportation or transportation measure :
  - Classification to Fire : Not classified
  - Classification to oil spillage : Not classified
7. AIR (IATA) : Not Regulated for Air Transport

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## 15. REGULATORY INFORMATION

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### 가. Occupational safety and health act

#### 1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC (DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

- No reference

#### 2) Substance1

- No reference

#### 3) Substance2

- No reference

#### 4) Substance3

- No reference

#### 5) Substance4

- No reference

#### 6) Substance5

- No reference

### 나. Toxic chemical control act

#### 1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC (DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

- Existing Chemical Substance

#### 2) Substance1

- Existing Chemical Substance

#### 3) Substance2

- Existing Chemical Substance

#### 4) Substance3

- Existing Chemical Substance

#### 5) Substance4

- Existing Chemical Substance, Pollutant Release and Transfer Registers

#### 6) Substance5

- Existing Chemical Substance

3. Safety Control gefährlicher Stoffe wirken in Korea  
Not classified

4. Abfälle Control Act in Korea  
06-01-06, other

5. Sonstige Vorschriften in Korea und im Ausland Vorschriften

#### 1) DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC (DISTILLATES, PETROLEUM, HYDROTREATED HEAVY PARAFFINIC)

- Other regulation (Domestic) : No reference
- National regulations :
  - EU Classification (CLASSIFICATION) : Carc.Cat.2; R45
  - EU Classification (Risk Phrases) : R45
  - EU Classification (Safety Phrases) : S:53-45

#### 2) Substance1

- Other regulation (Domestic) : No reference
- National regulations : No reference

#### 3) Substance2

- Other regulation (Domestic) : No reference
- National regulations : No reference

#### 4) Substance3

- Other regulation (Domestic) : No reference
- National regulations : No reference

#### 5) Substance4

- Other regulation (Domestic) : No reference
- National regulations : No reference

#### 6) Substance5

- Other regulation (Domestic) : No reference
- National regulations : No reference

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## 16. OTHER INFORMATION

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1. Reference :

- CCR
- CCRIS
- ECOTOX
- EPISUITE
- EU CLP
- HSDB
- IARC
- IUCLID
- J Appl Toxicol, Vol 11(4), pp 297-302
- NITE
- Publication
- Study report

2. Prepare date : 2011-05-13

3. Revised date : 2th revised edition - 2012. 8.29  
3th revised edition - 2013. 6. 6

4. Other : following revised GHS