

Material Safety Data Sheet(MSDS)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1. Product Name : S-OIL GREASE EP 1

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)

2. HAZARD IDENTIFICATION

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	1	0
7. Substance6	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	-	-	1.0~5.0
6) Substance5	-	-	0.1~1.0
7) Substance6	-	-	0.01~1.0

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

- Call 911 or emergency medical service.
- 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.
- 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. .

5. FIRE FIGHTING MEASURES

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.

6. ACCIDENTAL RELEASE MEASURES

- 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.

7. HANDLING AND STORAGE

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

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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
- biologique standard : No reference

7) Substance6

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

9. PHYSICAL AND CHEMICAL PROPERTIES

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 : 244°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 : No reference
15. Coefficient of Octanol/Water Distribution (Kow) : No reference
16. Autoignition Temperatures : No reference
17. Decomposition temperature : No reference
18. Viscosity : NLGI No.1
19. Molecular Weight : No reference

10. STABILITY AND REACTIVITY

- 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.

11. TOXICOLOGICAL INFORMATION

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 : 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 : 3
 - OSHA : No reference
 - ACGIH : No reference
 - NTP : No reference
 - EU CLP : No reference
- GERM CELL MUTAGENICITY : Not applicable / Negative Salmonella typhimurium
- 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 : 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 sensitizing 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 Mouse
- REPRODUCTIVE TOXICITY : Not applicable / Reproductive performance was not adversely affected at any dose level evaluated. Also there were no neonatal toxicity observed. Rat
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE : Not applicable / No clinical signs of toxicity not observed. Rat
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE : Not applicable / Exposed 0, 50, 220 or 1000 mg/m³ for 4weeks to rat(Sprague–Dawley), no systemic effects were observed.
- ASPIRATION HAZARD : No reference

5) Substance4

- 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

6) Substance5

- 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 : 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

7) Substance6

- 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

12. ECOLOGICAL INFORMATION

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

7) Substance6

- 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 : N/A

3) Substance2

- n-octanol water partition coefficient : No reference

4) Substance3

- n-octanol water partition coefficient : No reference

5) Substance4

- n-octanol water partition coefficient : log Kow 12.46

6) Substance5

- n-octanol water partition coefficient : No reference

7) Substance6

- n-octanol water partition coefficient : No reference

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

7) Substance6

- 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

7) Substance6

- 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

7) Substance6

- No reference

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- No reference

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

- No reference

14. TRANSPORT INFORMATION

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

15. REGULATORY INFORMATION

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

7) Substance6

- 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

6) Substance5

- Existing Chemical Substance, Pollutant Release and Transfer Registers

7) Substance6

- 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 :
 - EU Classification (CLASSIFICATION) : Carc.Cat.2; R45
 - EU Classification (Risk Phrases) : R45
 - EU Classification (Safety Phrases) : S:53-45

5) Substance4

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

6) Substance5

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

7) Substance6

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

16. OTHER INFORMATION

1. Reference :

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

2. Prepare date : 2011-05-13

3. Revised date : 1th revised edition - 2011. 5.18
2th revised edition - 2012. 8.29
3th revised edition - 2013. 6. 6

4. Other : following revised GHS