Material Safety Data Sheet(MSDS)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1. Product Name : S-OIL GRASE MP 3

2. Advisable use and Restriction
   ○ Advisable use :grease
   ○ Restriction :Please avoid to mix with different oil

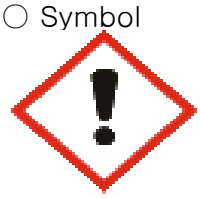
3. Manufacturer/Supplier information
   ○ Manufacturer : KOREA HOUGHTON CO., LTD. 20-31, Seobunam-ro 151beon-gil, Seonjang-myeon, Asan-si, Chungnam-do, S.KOREA(+82-2-3284-3353)
   ○ Supplier : S-OIL CORPORATION CO.,LTD, 192, Baekbeom-ro, Mapo-gu, Seoul 04196, Korea

   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 abliity	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	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	-	-	10.0~20.0
3) Substance2	-	-	5.0~15.0
4) Substance3	-	-	5.0~10.0
5) Substance4	-	-	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.
- Launder contaminated clothing and shoes before re-use. .
- 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 medial 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.

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

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 : 243℃/(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 ± 0.05(15/4°C)

15. Coefficient of Octanol/Water Distribution (Kow) : No reference

16. Autoignition Temperatures : No reference

17. Decomposition temperature : No reference

18. Viscosity : NLGI 3

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 : 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 : Not applicable / LD50 5000 mg/kg Rat
- Dermal : No reference / LD50 > 2000 mg/kg Rabbit
- Inhalation-Gases : No reference
- Inhalation-Vapours : No reference
- Inhalation-Dust/mist : Cetegory 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 / 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

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

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

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 :No reference

5) Substance4

○ 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

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

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

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

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

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

16. OTHER INFORMATION

1. Reference :
- CCR
- CCRIS
- ECOTOX
- EU CLP
- HSDB
- IARC
- IUCLID

- J Appl Toxicol, Vol 11(4), pp 297-302
- NITE
- Publication
- Study report
- 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