

# Material Safety Data Sheet

This document is prepared under article 41 of occupational safety and health regulation

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- 1). Product Name : HCGO(Hydrocracker gas oil)
- 2) Advisable use and Restriction
  - Advisable use : Fuel oil
  - Restriction : Observe the law and regulation.
- 3) Manufacturer/Supplier/Distributor information
  - Manufacturer : Hyundai oilbank, 640-6, Daejuk-ri, Daesan-eup, Seosan-si, Chungcheongnam-do 356-713, Korea
  - Supplier/distributor : Same as manufacturer
  - Emergency response number : (041) 660-5401,5407
  - Division : Environment & safety team

## 2. HAZARD IDENTIFICATION

- 1) Hazard classification
  - Flammable liquid : Cat 3
  - Carcinogenicity Cat 2
  - Aspiration hazard: Cat 1

- 2) Allocation label elements
  - A. Symbol



- B. Signal word : danger
- C. Hazard statements :
  - H226 Flammable liquid and vapour
  - H304 May be fatal if swallowed and enters airways
  - H351 Suspected of causing cancer
- D. Precautionary statements
  - Prevention
    - P201 Obtain special instructions before use.
    - P202 Do not handle until all safety precautions have been read and understood.
    - P210 Keep away from heat/sparks/open flames/hot surfaces.– No smoking.
    - P233 Keep container tightly closed.
    - P240 Ground/Bond container and receiving equipment
    - P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.
    - P242 Use only non-sparking tools.
    - P243 Take precautionary measures against static discharge.
    - P280 Wear protective gloves/eye protection/face protection

- P281 Use personal protective equipment as required.
- Response
    - P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/
    - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
    - P308+P313 IF exposed or concerned: Get medical advice/attention.
    - P331 Do not induce vomiting.
    - P370+P378 In case of fire: Use ... for extinction.
  - Storage
    - P403+P235 Store in a well-ventilated place. Keep cool.
    - P405 Store locked up.
  - Disposal
    - P501 Dispose of contents/container to (in accordance with local/regional / national/international regulations.)

E. Other hazard information not included in hazard classification :

chemical name	NFPA code	Health	Flammability	Reactivity
HCGO	(0~4)	1	2	0

### 3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT (WT)(%)
HCGO		Unconfirmed list	100

### 4. FIRST AID MEASURES

A. Eye contact :

- Flush eyes with plenty of running water for at least 20 minutes.
- If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

B. Skin contact :

- Remove contaminated clothing and shoes immediately wash affected area with soap and plenty of water at least 20 minutes
- Get immediate medical attention if irritation, pain or other side effects occur.
- Launder and dry contaminated clothing and shoes thoroughly before reuse.

C. Inhalation :

- Remove to fresh air.
- Please observe respiratory pain
- Check for the respiratory infection, bronchitis, pneumonia, if cough or dyspnoea
- If auxiliary ventilation is needed, supply to fresh air

D. Ingestion :

- Provide 2-4 cups of water or milk immediately, if conscious
- Do not feed, if there is no conscious
- Do not induce vomiting
- If not breathe, administer artificial respiration

- Get immediate medical attention

E. Acute/chronic effects and symptoms :

- The most serious toxic effect by ingestion is aspiration pneumonia and temporary aspiration of hydrocarbon cause CNS depression or excitation. Secondary effect could be hypoxia, infection, formation of pneumatocele, chronic pulmonary function impairment. Usually low viscosity( $\leq 100$  S.U.S) hydrocarbon has high hazard and toxic of aspiration.
- May cause heart rhythm disorder, respiratory arrest by aspiration and toxic to CNS.
- Cardiovascular, neurotoxicity is highly related to inhalation of hydrocarbon, inhalation of high concentration of hydrocarbon vapor cause accidentally in confined environment.
- May cause eye and skin irritation or burn by inhalation or contact.
- In fire, may form irritating, corrosive and toxic gas.
- May cause dizziness or asphyxia by vapor

F. Advice to physician :

- If swallowed, consider gastric lavage

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## 5. FIRE FIGHTING MEASURES

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A. Extinguishing media

- O Proper extinguishing media :
  - Dry chemicals , CO<sub>2</sub>, water, regulatory foam
- O Improper extinguishing media :
  - N/A
- O Large fire
  - Fight fire using regulatory foam or finely water fog.
  - Do not use straight stream

B. Hazards from chemical product(Ex: hazardous combustion products)

- O Heat decomposition product:
  - CO<sub>2</sub>, toxic carbon mixture.
- O Hazard for fire and explosion :
  - Moderate fire hazard
  - Vapor is heavier than air
  - Vapor may be moved to ignition source and ignited
  - May have explosiveness at over flash point.
  - Mixtures of vapor/air have explosiveness
  - May be assembled in low and confined place

C. Protective clothing and fire fighting :

- Move containers from fire area If you can Do it without risk
- Cool containers with flooding quantities of water until well after fire is out
- Do not approach to the ends of tank  
If fires in storage area or shipment
- Keep unnecessary personnel away and isolate dangerous area.
- Water spray from safety zone.
- If firefighting is impossible, withdraw from area and let fire burn.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. consider initial evacuation for 800 meters (1/2 mile) in all

directions.

- Stop the leak first, extinguish to fire
- Water spray spilled chemicals to protect scattering.
- Do not inhale chemicals or combustion products.
- Up wind and evacuate from lower places.

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## **6. ACCIDENTAL RELEASE MEASURES**

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### A. Health considerations and protective equipment :

- Do not contact with heat, sparks and other sources of ignition.
- Stop spill if you can Do it without risk.
- Water spray may reduce vapor.
- Keep unnecessary personnel away and isolate dangerous area.
- Wear mask for organic chemicals and other protective equipment, clothing, gloves.
- Do not contact with skin.
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Use non-sparking tools to collect absorbed material.

### B. Environmental considerations :

- If small spill, absorb the spill material using sand or other noncombustible.
- If large spill, make ditch far from spilled liquid
- Collect in suitable container for spilled material disposal
- Store away from water way and sewer.

### C. Spill clean-up procedures :

- Small spill  
Absorb the spill material using sand or other noncombustible and put chemical waste container  
Collect in suitable container for spilled material disposal
- Large spill  
Dike far ahead of liquid spill for later disposal.  
Remove all ignition source  
Keep unnecessary personnel away and isolate dangerous area.  
Notify the central government and local body if the material released over the limited value.  
Use waste water treatment system like oil skimming, absorption for waste water disposal

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## **7. HANDLING AND STORAGE**

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### A. Handling :

- Store and handle with Hazardous chemical safety management regulation. and highly flammable; caution of fire
- Empty container may be dangerous, so be careful
- Ground metal container and tank car, truck more than 5 gallon when moving material

### B. Storage :

- Store in a cool inside and tightly closed container
- Store outside or isolated space and caution high temperature
- Need to ground/bond

- Do not contact with incompatible and flammable material.

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### A. Exposure limits value

- O Korea regulation: TWA : N/A  
STEL : N/A
- O ACGIH regulation : TWA : 100 mg/m<sup>3</sup> (vapor or aerosol) (skin)  
STEL : N/A
- O Biological exposure limit : N/A

### B. Engineering controls :

- Provide local exhaust ventilation in a work-station location
- Equip explosion proof equipment.
- Check the suitability of exposure limits.

### C. Personal protection :

- O Respiratory protection :
  - Respiratory protection should be qualified of "Safety" mark by KOSHA (Korea occupational safety and health agency).
  - Respiratory protections were required in case of highly frequency in use or highly exposure.  
Respiratory protection classified from high concentration to low concentration and consider property before use
    - Mask(for organic gas)
    - Mask(organic gas respirator cartridge and full face piece)
    - Air filter mask(organic gas respirator cartridge and full face piece)
- If unknown concentration or emergency, following respirator needs
  - Air-line mask ( combination air-line mask)
  - Air-mask(SCBA) (full face-piece)
- O Eye protection :
  - Further eye protection such as chemical splash goggles and/or face shield must be worn when the possibility exists for eye contact due to splashing or spraying liquid.
  - An eye wash unit and safety shower station should be available nearby working place.
- O Skin protection :
  - Wear proper chemical resistant gloves.
- O Body protection :
  - Wear proper chemical resistant clothing.
  - Do not contact with skin or inhale mist.
  - Immediately take off contaminated cloth with chemicals.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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- 1) Appearance : liquid, light blue or green
- 2) Odor : mild petroleum odor
- 3) Threshold of odor : N/A

- 4) pH : N/A
- 5) M.P/B.P : -40 °C ~ -2.5 °C
- 6) Initial boiling point or range : 150~375 °C
- 7) Flash point :  $\geq 70$  °C (C.C.)
- 8) Evaporation rate : N/A
- 9) Flammability (solids, gas) : N/A
- 10) Upper/lower flammability/explosive limit : 7.5 vol % / 0.6 vol %
- 11) Vapor pressure : 2.6 mmHg, 50°C
- 12) Solubility : insoluble in water
- 13) Vapor density :  $>1$  (air=1)
- 14) Specific gravity :  $\leq 0.855$
- 15) n-octanol/water partition coefficient: : N/A
- 16) Auto ignition temperature : 257 °C
- 17) Viscosity : 1.7~5.5 mm<sup>2</sup>/s, 40°C
- 18) Degradation temperature : N/A
- 19) M.W : N/A

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## **10. STABILITY AND REACTIVITY**

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### A. Stability :

- Stable under normal conditions

### B. Conditions to avoid :

- Do not occur polymerization

### C. Conditions to avoid :

- Avoid heat, sparks, open flames, or other sources of ignition.
- Container may rupture or explosive by heat
- Store away from water way and sewer.
- May accumulated dangerous gas in closed space.

### D. Incompatibility :

- Oxidizing agents (ex: nitric acid)

### E. Hazardous decomposition products :

- Carbon oxides, Sulfur oxides

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## 11. TOXICOLOGICAL INFORMATION

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### 1) Exposure route information

- Inhalation: vomiting, drowsiness, dizziness, irritation, inebriant symptoms, coma
- Oral : vomiting, diarrhea, disturbance gastrointestinal, headache, dizziness, aspiration hazard
- Skin: irritation
- Eye : irritation

### 2) Acute and chronic effects by short term or long term exposure

- Acute toxicity
  - Oral : LD50=14500 mg/kg (rat)
  - Dermal : N/A
  - Inhalation(mist) : N/A
- Skin corrosion/irritation : N/A
- Serious eye damage/ eye irritation : N/A
- Respiratory sensitization : N/A
- Skin sensitization : N/A
- Carcinogenicity: : Cat 2 (IARC-A3, EU-Cat.3)
- Germ cell mutagenicity : N/A
- Reproductive toxicity : Not available
- Specific target organ toxicity single exposure : Not applicable
- Specific target organ toxicity repeated exposure : Not applicable
- Aspiration hazard : Cat 1

### 3) Standard of numeric value of toxicity : N/A

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## 12. ECOLOGICAL INFORMATION

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### 1) Aquatic/terrestrial toxicity :

- If spilled to lake or river without proper treatment, may cause effect to aquatic organism by blocking of oxygen.
- Fish : N/A
- Crustacea : N/A
- Algae : N/A

### 2) Persistence and biodegradation :

- Persistence : N/A
- Biodegradation : N/A

### 3) Bioaccumulation :

- Biodegradation : N/A
- Bioaccumulation : N/A

### 4) Mobility in soil : N/A

### 5) Other hazardous information : N/A

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## 13. DISPOSAL CONSIDERATIONS

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1) Disposal :

- A mop, sand and earth containing oil more than 5% are specified waste; these should be disposed under article 12 of waste management regulation and regulations relative to the application 6, addendum 4 of a waste management law
- If oil was entered to water, separate and purifying in waste water plant.

2) Precaution :

- Should be dispose with authorized waste disposal company.
- Do not dispose or incinerate without warning.
- Check the direction, if this material was involved in waste management regulation.

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## 14. TRANSPORT INFORMATION

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1) UN No : N/A

2) Proper shipping name : N/A

3) Class or division : III

4) Packing group : 3

5) Marine pollutant : N/A

6) Special safety response for transportation or transportation measure

- Fire schedule EmS No : F-E
- Spillage schedule EmS No : S-E

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## 15. REGULATORY INFORMATION

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1) Korea occupational safety and health regulation in Korea

Working environment measurement chemicals : Not listed

Hazardous chemicals for management : Not listed

Exposure limit establishment chemicals : Not listed

2) Hazardous chemical management regulation in Korea :

Not available

3) Hazardous chemical safety management regulation in Korea : Class 4 3rd petroleum

4) Waste management regulation in Korea

Handle under article 12, regulations relative to the application 6, addendum 4 of a waste management law

5) Other in KOREA and except KOREA regulation :

- Persistent organic. pollutants management regulation : Not listed
- EU classification



- Classification : Carcinogenicity (Cat 3)
- Risk phrases : Limited evidence of a carcinogenic effect
- Safety phrases :
  - Keep out of the reach of children
  - Wear suitable protective clothing and gloves
- O U.S.A. management information
  - OSHA regulation(29CFR1910.119) : Not listed
  - States regulation
    - California Prop. 65: Not listed
- O Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade :Not listed
- O Stockholm Convention on Persistent Organic Pollutants (POPs) : Not listed
- O Mont- real Protocol on Substances that Delete the Ozone Layer : Not listed

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## 16. OTHER INFORMATION

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### 1) REFERENCES :

- KOSHA CODE W-05-2007 [Guideline for MSDS preparation, 2007. 11]
- Globally harmonized system of classification and labeling of chemicals.  
[The joint committee with government of GHS : registration No. 11-1410119-000032-01]
- Revised notification of classification, labeling and MSDS of chemicals.  
[The ministry of labor notification No.2008-1]
- MSDS offered by KOSHA KISCO-NET
- Other: chemical analysis database

2) Prepare date : 2011. 3.16

3) Revised date :

### 4) Other

- This MSDS should be delivered to all users after reading the direction thoroughly.
- This information was prepared for safety handling of user, buyer or another person.
- Do not understand as only limiting warranty for specific property and suitability or quality of product.