Hydrocracker Bottoms

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: Hydrocracker Bottoms
Material uses: Intermediate refinery stream
Index number: 649-453-00-1
EC number: 265-077-7
CAS number: 64741-76-0

1.2 Relevant identified uses of the substance or mixture and uses advised against
Not applicable.

1.3 Details of the supplier of the safety data sheet
Manufacturer / Distributor: Kuwait Petroleum Corporation
P.O. Box 26565 Safat
13126 Safat
Kuwait
Tel. +965 1858585, Fax 2423371/2467159/246
SDSinfo@Q8.com, communication preferably in English only.

1.4 Emergency telephone number
Middle East: +44 (0) 1235 239 671
Global (English only): +44 (0) 1865 407 333

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition: Mono-constituent substance
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Asp. Tox. 1, H304
Ingredients of unknown toxicity: None.
Ingredients of unknown ecotoxicity: None.
Classification according to Directive 67/548/EEC [DSD]
Not classified.
See Section 16 for the full text of the R phrases or H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements
Hazard pictograms:

Signal word: Danger
Hazard statements: H304 May be fatal if swallowed and enters airways.
Precautionary statements:
P281 - Use personal protective equipment as required.

Date of issue/Date of revision: 1/10/2012.
**SECTION 2: Hazards identification**

**Response**  
P310 - Immediately call a POISON CENTER or physician.  
P331 - Do NOT induce vomiting.

**Storage**  
P405 - Store locked up.

**Disposal**  
P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplemental label elements**  
Not applicable.

**2.3 Other hazards**  
Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII:  
P: Not available. B: Not available. T: No.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII:  
Not applicable.

Other hazards which do not result in classification:  
Defatting to the skin.

**SECTION 3: Composition/information on ingredients**

**Substance/mixture**: Mono-constituent substance

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
</table>
| Distillates (petroleum), heavy hydrocracked | EC: 265-077-7  
CAS: 64741-76-0  
Index: 649-453-00-1 | 100 | Not classified. | Asp. Tox. 1, H304  
See Section 16 for the full text of the H statements declared above. |

The mineral oils in the product contain < 3% DMSO extract (IP 346).

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

**Type**  
[A] Constituent  
[B] Impurity  
[C] Stabilizing additive

Occupational exposure limits, if available, are listed in Section 8.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

**Eye contact**:  
Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

**Inhalation**:  
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact**:  
Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

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Hydrocracker Bottoms

SECTION 4: First aid measures

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : Defatting to the skin. May cause skin dryness and irritation.
Ingestion : May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
  - irritation
  - dryness
  - cracking
Ingestion : Adverse symptoms may include the following:
  - nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : No specific fire or explosion hazard.
Hazardous thermal decomposition products : No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Date of issue/Date of revision : 1/10/2012.
SECTION 5: Firefighting measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up
Small spill: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

6.4 Reference to other sections: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)
Recommendations: Not available.
Industrial sector specific solutions: Not available.

Date of issue/Date of revision: 1/10/2012.
SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels

No DELs available.

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

Appropriate engineering controls

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance
- Physical state: Solid. [Waxy solid.]
- Appearance: Opaque.
- Color: Yellow. [Light]
- Odor: Characteristic.
- Odor threshold: Not available.
- pH: Not applicable.
- Melting point/freezing point: 27°C
- Initial boiling point and boiling range: >250°C
- Flash point: Closed cup: >170°C [ASTM D93.]
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.
- Upper/lower flammability or explosive limits: Not available.
- Vapor pressure: <0.01 kPa [20°C]
- Vapor density: Not available.
- Relative density: 0.83
- Solubility(ies): Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water: >3
- Auto-ignition temperature: >300°C
- Decomposition temperature: Not available.
- Viscosity (40°C): 19 cSt
- Explosive properties: Not applicable.
- Oxidizing properties: Not applicable.

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity: No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability: The product is stable.

10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid: No specific data.

10.5 Incompatible materials: Reactive or incompatible with the following materials:
- Strong oxidizing materials

10.6 Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Date of issue/Date of revision: 1/10/2012.
11.1 Information on toxicological effects

**Acute toxicity**

**Conclusion/Summary**: Not toxic.

**Irritation/Corrosion**

**Conclusion/Summary**
- **Skin**: Non-irritant to skin.
- **Eyes**: Non-irritating to the eyes.
- **Respiratory**: Non-irritant to lungs.

**Sensitization**

**Conclusion/Summary**
- **Skin**: Not sensitizing.
- **Respiratory**: Not classified for respiratory sensitisation.

**Mutagenicity**

**Conclusion/Summary**: No mutagenic effect.

**Carcinogenicity**

**Conclusion/Summary**: No carcinogenic effect.

**Reproductive toxicity**

**Conclusion/Summary**: No known significant effects or critical hazards.

**Teratogenicity**

**Conclusion/Summary**: No known significant effects or critical hazards.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), heavy hydrocracked</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

**Information on the likely routes of exposure**

Not available.

**Potential acute health effects**

- **Eye contact**: No known significant effects or critical hazards.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: Defatting to the skin. May cause skin dryness and irritation.
- **Ingestion**: May be fatal if swallowed and enters airways.

**Symptoms related to the physical, chemical and toxicological characteristics**

- **Eye contact**: No specific data.
- **Inhalation**: No specific data.
- **Skin contact**: Adverse symptoms may include the following: irritation, dryness, cracking.
- **Ingestion**: Adverse symptoms may include the following: nausea or vomiting.

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**

- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

**Long term exposure**

Date of issue/Date of revision: 1/10/2012.
SECTION 11: Toxicological information

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects
Not available.

Conclusion/Summary : Not toxic.

General : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity
Conclusion/Summary : Not available.

12.2 Persistence and degradability
Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), heavy hydrocracked</td>
<td>&gt;3</td>
<td>-</td>
<td>high</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil
Soil/water partition coefficient (KOC) : Not available.
Mobility : Not available.

12.5 Results of PBT and vPvB assessment
PBT : No.
P: Not available. B: Not available. T: No.
vPvB : Not available.
vP: Not available. vB: Not available.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product
Hydrocracker Bottoms

SECTION 13: Disposal considerations

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste: Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

European waste catalogue (EWC)

<table>
<thead>
<tr>
<th>Waste code</th>
<th>Waste designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 08 00</td>
<td>oil wastes not otherwise specified</td>
</tr>
</tbody>
</table>

Packaging

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>ADN/ADNR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Additional information</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Substances of very high concern

None of the components are listed.

Date of issue/Date of revision: 1/10/2012.
Hydrocracker Bottoms

SECTION 15: Regulatory information

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Other EU regulations

National Inventory List

- Australia inventory (AICS): This material is listed or exempted.
- China inventory (IECSC): This material is listed or exempted.
- Japan inventory: Not determined.
- Korea inventory: This material is listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
- Philippines inventory (PICCS): Not determined.
- United States inventory (TSCA 8b): This material is listed or exempted.
- Europe inventory: This material is listed or exempted.
- Canada inventory: This material is listed or exempted.

Black List Chemicals: Not listed

Priority List Chemicals: Not listed

Integrated pollution prevention and control list (IPPC) - Air: Not listed

Integrated pollution prevention and control list (IPPC) - Water: Not listed

International regulations

- Chemical Weapons Convention List Schedule I Chemicals: Not listed
- Chemical Weapons Convention List Schedule II Chemicals: Not listed
- Chemical Weapons Convention List Schedule III Chemicals: Not listed

15.2 Chemical Safety Assessment: Not available.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asp. Tox. 1, H304</td>
<td>On basis of test data</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements: H304 May be fatal if swallowed and enters airways.

Full text of classifications [CLP/GHS]: Asp. Tox. 1, H304 ASPIRATION HAZARD - Category 1

Full text of abbreviated R phrases: Not applicable.

Date of issue/Date of revision: 1/10/2012.
Hydrocracker Bottoms

SECTION 16: Other information

Full text of classifications [DSD/DPD] : Not applicable.

Date of printing : 1/10/2012.
Date of issue/Date of revision : 1/10/2012.
Date of previous issue : No previous validation.
Version : 1
Prepared by : Kuwait Petroleum Research & Technology B.V., The Netherlands

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.