Material Safety Data Sheet

According to Directive (EG) No. 1907/2006

1.1 Identification of the Product

Trade Name: High performance Hydraulic Oil HLP 46 (Hochleistungs-Hydrauliköl HLP 46)

Main use of the products: Hydraulic Oil

Used in all Hydraulic Jacks manufactured by JUNG Hebe-und Transporttechnik,

1.2 Identification of the Manufacturer

Company
EMKA Schmiertechnik GmbH
Schmalbachstr. 19
74626 Bretzfeld-Schwabbach
Germany
Telephone: +49 (0) 7946/94470-0
Teletax: +49 (0) 7946/94470-70

Emergency call of the company
Telephone: +49 (0) 7946/94470-33 (Hr. Christian Kithau) ; E-Mail: info@emka-oil.de

2. Composition / Information on Ingredients

General Description:
Additives
Mineral Oil, refined

Composition is not categorized as hazardous.
3. Hazardous Identification

3.1 Health Hazards
See also Items 11 und 15.
Preparation is not categorised as hazardous in terms of directive 1999/45/EC.

3.2 Environmental Hazards
See Item 12.
Product can build up a film on the water surface which can inhibit the oxygen exchange.

4. First Aid Measures

4.1 Inhalation
Provide affected person with fresh air and depending on symptomatic get medical attention.

4.2 Eye contact
Immediately flush eyes with large amounts of water, if necessary get medical attention.
Carry along Data Sheet.

4.3 Skin contact
Flush with large amounts of water and soap, remove grossly contaminated clothing, in case of skin irritation (redness etc.) get medical attention.

4.4 If swallowed
Do not induce vomiting, get prompt medical attention.
Danger of aspiration.

5. Fire Fighting Measures

5.1 Suitable extinguishing media
Carbon dioxide
Foam
Dry fire-extinguishing media
Water spray jet
Cool containers at risk with water.

5.2 Extinguishing media which must not be used for safety reasons
Full water jet

5.3 Special exposure hazards arising from the substance or preparation itself, combustion products or resulting gases
Substances potentially set free in case of fire:
Smoke
Carbon oxides
Sulphur oxides
Phosphorus oxides, nitrogen oxides
Hydrocarbons
Aldehydes
Hydrogen sulfide
Zinc oxides
Hot product may produce flammable vapours.

5.4 Special protective equipment for fire fighting
Use breathing apparatus with independent air supply.
According to fire magnitude full protective clothing if necessary.

5.5 Additional information
Dispose contaminated fire fighting water according to official directives.
6. Accidental release measures

See item 13 as well as personal protective equipment see item 8.

6.1 Personal precautions
Ensure adequate ventilation.
Keep away sources of ignition, do not smoke
Avoid eye and skin contact as well as inhalation.
Do not leave clothes saturated with the product in trouser pockets.
Attention, risk of slipping.

6.2 Environmental precautions
Contain spillage.
Do not allow to enter drains.
Avoid to enter surface waters or groundwater as well as into soil.

6.3 Methods for cleaning up
Pick up with absorbent material (e.g. Oil Dri Standard), treat recovered material as prescribed in item 13.

7. Handling and Storage

7.1 Handling
Hints for safe handling
See item 6.1
Avoid eye and skin contact.
Avoid formation of oil sprays.
Keep away from sources of ignition - refrain from smoking.
Wash hands before breaks and on finishing work.
Apply the general hygienic measures for handling of chemicals.
Pay regard to the indications on the label and from the instructions for use.
Do not heat up to temperatures near flashpoint (T > 180°C).
Possibly take precautionary measures against electrostatic loading.
Possibly take precautionary measures against risk of explosion.
Fire class: B

7.2 Storage
Requirements for storage rooms and vessels:
Do not store product in alley ways and staircases.
Store only in original container and keep locked up.
Do not store together with fire promoting or spontaneously combustible substances.
Further information on storage conditions:
See item 10.2
Keep locked up and avoid humidity.
Store in a cool place.
Store at temperatures not exceeding 50°C.

8. Exposure limitation and personal protective equipment

Ensure sufficient aeration. This can be achieved by local exhaust ventilation or general exhaust air.
If this is not sufficient to keep concentrations below MAK values suitable respiratory protection apparatus has to be worn.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>% Area</th>
<th>MAK, TRK value</th>
<th>BAT value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral oil mist</td>
<td></td>
<td>5 mg/m³ (TLV-ACGIH)</td>
<td></td>
</tr>
</tbody>
</table>
8.1 Respiratory protection:
In case of mineral oil mist formation
In case of vapour formation:
Filter A - P2 (EN 141)
8.2 Hand protection:
Protecting gloves made of PVC (EN 374)
or:
Protecting gloves made of Nitrile (EN 374)
Skin care cream recommendable.
8.3 Eye protection:
If there is a risk of eye contact:
Eye glasses with side protection (EN 166).
8.4 Protective clothing:
According to working process.
Apron
Boots (EN 347)

Additional information with regard to the hand protection - No tests have not been carried out.
The choices for the preparations have been selected to the best of one’s knowledge and and by the
information about the ingredients. The choices for substances have been derived from the specifications
of the glove manufacturers. The final selection of the glove material has to take into account the breakthrough
times, the permeation rates and the degradation.
The selection of a suitable glove is not only depending on the material, but also on quality characteristics and
can differ from manufacturer to manufacturer.
The durability of glove materials can not be pre-estimated for preparations and therefore has to be verified
before use. The exact breakthrough time of the glove material can be received from the manufacturer and has
to be observed.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Yellow, brown</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Boiling point / Boiling range:</td>
<td>&gt;= 360 °C</td>
</tr>
<tr>
<td>Flashpoint:</td>
<td>&gt; 180 °C DIN ISO 2592</td>
</tr>
<tr>
<td>Ignition Temperature:</td>
<td>&gt; 250 °C ASTM E 659</td>
</tr>
<tr>
<td>Lower explosion limit:</td>
<td>In case of formation of oil sprays, ~ 0.6 Vol%</td>
</tr>
<tr>
<td>Upper explosion limit:</td>
<td>In case of formation of oil sprays, ~ 6.5 Vol%</td>
</tr>
<tr>
<td>Vapour pressure:</td>
<td>1013 mbar@360 °C</td>
</tr>
<tr>
<td>Relative Density (kg/m³):</td>
<td>878 by 15 °C DIN 51757</td>
</tr>
<tr>
<td>Water solubility (g/l):</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water (log P ow):</td>
<td>n.d.a</td>
</tr>
<tr>
<td>Vapour density (air = 1):</td>
<td>Vapours, heavier than air</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>46 mm²/s by 40 °C DIN 51552</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

10.1 Conditions to avoid
See Item 7.
If product is stored and handled as prescribed not to be expected (stable).
Decomposition: >= ~ 200 °C
> 180 °C: Formation of ignitable vapour/air mixtures possible.

10.2 Materials to avoid
See also Item 7.
Avoid contact with strong oxidizing agents.

10.3 Hazardous decomposition products
See Item 5.3
11. Toxicological information

11.1 Acute toxicity and immediately occurring effects
11.1.1 Ingestion, LD50 rat oral (mg/kg): n.d.a.
11.1.2 Inhalating, LC50 rat inhalative (mg/l/4h): n.d.a.
11.1.3 Skin contact, LD50 rat dermal (mg/kg): n.d.a.
11.1.4 Eye contact: n.d.a.
11.2 Delayed occurring and chronical effects
11.2.1 Sensitizing effects: n.d.a.
11.2.2 Carcinogenic effects: n.d.a.
11.2.3 Mutagenic effects: n.d.a.
11.2.4 Reproductive effects: n.d.a.
11.2.5 Narcotic effects: n.d.a.
11.3 Other information
It can occur:
Eye irritation
In case of prolonged exposure:
Skin dehydration
Skin irritation
Dermatitis

12. Ecological information

Water hazard class (WGK): 1
Self classification: Yes (VvVwS)

13. Disposal considerations

13.1 For the substance / preparation / remaining quantities
Saturated contaminated cloth, paper or other organic material pose a fire danger and have to be collected and disposed controlled.
Waste code EC:
The named waste codes are proposals because of the likely use of this product.
Due to specific use and disposal circumstances at the user other waste codes may be suitable.
13.01 10 - mineral-based non-chlorinated hydraulic oils
Recommendation:
Send to a facility for oil re-refining in compliance with official regulations (EC-Directive 75/439/EEC).
Observe official regulations.
13.2 For contaminated packages
See item 13.1
Observe official regulations.
Non-contaminated packages can be reused.
Packages that cannot be cleaned have to be disposed like the product.

14. Transport information

General information
UN-No.: n.a.
Road / rail transport (GGVSE/ADR/RID)
Class / packing group: n.a.
Classification code: n.a.
LCQ: n.a.
Marine transport
GGVSee / IMDG-Code: n.a.
EmS-No.: n.a. (class / packing group)
Marine Pollutant: n.a.

Air transport
IATA: n.a. (class / tributary danger / packing group)

Further information
No hazardous material as defined by the above mentioned transport regulations.

15. Regulatory information

Labelling according to Gefahrstoff-V incl. EC-Directives (67/548/EEC und 1999/45/EC)
Hazardous symbols: n.a.
Hazardous indications: ---
R-phrases:

S-phrases:
Voluntary:
S13 Keep away from food, drink and animal feeding stuffs.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Additions: n.a.
Observe restrictions: n.a.

16. Other information

These information refer to the product in delivery condition.
Storage class acc. to VCI: 10
Revised particulars: 7.
Legend

n.a. = not applicable / n.a.v. = not available / n.p. = not proven / n.d.a. = no data available
MAK = Maximale Arbeitsplatzkonzentration / TRK = Technische Richtkonzentration /
BAT = Biologische Arbeitsplatztoleranz
VbF = Verordnung über brennbare Flüssigkeiten / TRbF = Technische Regeln brennbare Flüssigkeiten
Water hazard class (WGK):
WGK3 = extremely water hazardous, WGK2 = water hazardous, WGK1 = slightly water hazardous
VOC-CH = Volatile organic compounds
AOX = adsorbable organic halogen compounds

The information herein are to describe the product with regard to the required safety precautions, they do not intend to assure certain properties and are based upon today’s standard of knowledge. Liability excluded.