SAFETY DATA SHEET

Section 1. Identification

Product name: Inhibited Transformer Oil
SDS #: 467544
Code: 467544-AU07 BE02

Relevant identified uses of the substance or mixture and uses advised against
Product use: Transformer fluid.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Supplier
Castrol Offshore
Division of BP Products North America
200 Westlake Blvd.
Houston, Texas 77079
Tel: 800-339-7157

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
Outside the US: +1 703-527-3887 (CHEMTREC)

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION:
1 (866) 4 BP - MSDS
(866-427-6737 Toll Free - North America)
email: bpcares@bp.com

Section 2. Hazards identification

OSHA/HCS status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
ASPIRATION HAZARD - Category 1

GHS label elements
Hazard pictograms

Signal word
Danger

Hazard statements
May be fatal if swallowed and enters airways.

Precautionary statements
Not applicable.
IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
Store locked up.
Dispose of contents and container in accordance with all local, regional, national and international regulations.
Section 2. Hazards identification

Hazards not otherwise classified
Defatting to the skin.
USED OILS FROM TRANSFORMERS AND SWITCHGEAR:
Because polychlorinated biphenyls (PCBs) were often used in older transformers and
switchgear equipment, there is a possibility that oil drained from older equipment may
have become contaminated with PCB.

Section 3. Composition/information on ingredients

Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives.

Substance/mixture Mixtures

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated, light naphthenic</td>
<td>64742-53-6</td>
<td>≥50 - &lt;75</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated, heavy paraffinic</td>
<td>64742-54-7</td>
<td>≥10 - &lt;25</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated light paraffinic</td>
<td>64742-55-8</td>
<td>≥10 - &lt;25</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.
There are no additional ingredients present which, within the current knowledge of the supplier and in the
concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in
this section.

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and
remove any contact lenses. Get medical attention.

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

Inhalation
If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion
Do not induce vomiting. Never give anything by mouth to an unconscious person. If
unconscious, place in recovery position and get medical attention immediately.

Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical
attention immediately.

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.

Most important symptoms/effects, acute and delayed
See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician
Treatment should in general be symptomatic and directed to relieving any effects.
Product can be aspirated on swallowing or following regurgitation of stomach contents,
and can cause severe and potentially fatal chemical pneumonitis, which will require
urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric
lavage should be avoided. Gastric lavage should be undertaken only after endotracheal
intubation. Monitor for cardiac dysrhythmias.

Specific treatments
No specific treatment.
Section 5. Fire-fighting measures

**Extinguishing media**
- Suitable extinguishing media: In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
- Unsuitable extinguishing media: Do not use water jet.

**Specific hazards arising from the chemical**
- Hazardous combustion products: In a fire or if heated, a pressure increase will occur and the container may burst. Combustion products may include the following: carbon dioxide, carbon monoxide.

**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 positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

**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. Avoid breathing vapor or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling. Contact emergency personnel.

- **For emergency responders**: Entry into a confined space or poorly ventilated area contaminated with vapor, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

**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).

**Methods and materials for containment and cleaning up**
- **Small spill**: Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

- **Large spill**: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

**Precautions for safe handling**
- **Protective measures**: Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth.
Section 7. Handling and storage

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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. Store locked up. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. 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.

Not suitable

Prolonged exposure to elevated temperature

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated, light naphthenic</td>
<td>ACGIH TLV (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 6/1993</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated, heavy paraffinic</td>
<td>ACGIH TLV (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 6/1993</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated light paraffinic</td>
<td>ACGIH TLV (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m³ 8 hours. Issued/Revised: 6/1993</td>
</tr>
</tbody>
</table>

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

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.

Individual protection measures
Section 8. Exposure controls/personal protection

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 glasses with side shields.

Skin protection
Hand protection
Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

Body protection
Use of protective clothing is good industrial practice. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required. 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
In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

Appearance
Physical state
Liquid.
Color
Yellow. [Light]
Odor
Odorless.
Odor threshold
Not available.
pH
Not available.
Melting point
-51°C (-59.8°F)
Boiling point
>250°C (>482°F)
Flash point
Closed cup: >140°C (>284°F) [Pensky-Martens.]
Evaporation rate
Not available.
Flammability (solid, gas)
Not applicable. Based on - Physical state
Lower and upper explosive (flammable) limits
Not available.
Vapor pressure
Not available.
Vapor density
Not available.
Density
Not available.
Solubility
Insoluble in water.
Partition coefficient: n-octanol/water
Not available.
Auto-ignition temperature
Not available.
Section 9. Physical and chemical properties

Decomposition temperature Not available.
Viscosity Kinematic: 9 mm²/s (9 cSt) at 40°C

Section 10. Stability and reactivity

Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

Chemical stability The product is stable.

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

Conditions to avoid Avoid all possible sources of ignition (spark or flame).

Incompatible materials Reactive or incompatible with the following materials: oxidizing materials.

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

Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated, light naphthenic</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated, heavy paraffinic</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated light paraffinic</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

Information on the likely routes of exposure

Potential acute health effects

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.</td>
</tr>
</tbody>
</table>

Symptoms related to the physical, chemical and toxicological characteristics

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>Adverse symptoms may include the following:</td>
</tr>
<tr>
<td></td>
<td>irritation</td>
</tr>
<tr>
<td></td>
<td>dryness</td>
</tr>
<tr>
<td></td>
<td>cracking</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May be harmful by inhalation if exposure to vapor, mists or fumes resulting from thermal decomposition products occurs.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Adverse symptoms may include the following:</td>
</tr>
<tr>
<td></td>
<td>nausea or vomiting</td>
</tr>
</tbody>
</table>

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.

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Section 11. Toxicological information

Long term exposure
Potential immediate effects
Potential delayed effects
Not available.

Potential chronic health effects
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.

Numerical measures of toxicity
Acute toxicity estimates
Not available.

Section 12. Ecological information

Toxicity
No testing has been performed by the manufacturer.

Persistence and degradability
Not expected to be rapidly degradable.

Bioaccumulative potential
This product is not expected to bioaccumulate through food chains in the environment.

Mobility in soil
Soil/water partition coefficient (Koc)
Not available.

Mobility
Spillages may penetrate the soil causing ground water contamination.

Other adverse effects
No known significant effects or critical hazards.

Other ecological information
Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal considerations

Disposal methods
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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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.

USED OILS FROM TRANSFORMERS AND SWITCHGEAR:
Used oil contaminated with PCBs requires expert handling and disposal to avoid serious pollution. If it is suspected that oil is contaminated with PCBs it should be kept separate.
Section 13. Disposal considerations

from, and never mixed with other waste oils. Contact the Local Authority for disposal advice.

Section 14. Transport information

<table>
<thead>
<tr>
<th></th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Additional information</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Special precautions for user Not available.

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

Section 15. Regulatory information

U.S. Federal regulations
United States inventory (TSCA 8b)
SARA 302/304
Composition/Information on ingredients
No products were found.

SARA 311/312
Classification
SARA 313
Form R - Reporting requirements
Supplier notification
Not applicable.

This product does not contain any hazardous ingredients at or above regulated thresholds.

State regulations
Massachusetts
The following components are listed: MINERAL OIL, PETROLEUM DISTILLATES, HYDROTREATED LIGHT NAPHTHENIC; MINERAL OIL, PETROLEUM DISTILLATES, HYDROTREATED LIGHT PARAFFINIC

New Jersey
The following components are listed: MINERAL OIL (UNTREATED and MILDLY TREATED); MINERAL OIL (UNTREATED and MILDLY TREATED); MINERAL OIL (UNTREATED and MILDLY TREATED)

Pennsylvania
None of the components are listed.

California Prop. 65
No products were found.

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<table>
<thead>
<tr>
<th>Country/Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia inventory (AIICS)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Canada inventory (TC)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>China inventory (IECSC)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Japan inventory (ENCIS)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Korea inventory (KECI)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Philippines inventory (PICCS)</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Taiwan inventory (CSNN)</td>
<td>Not determined.</td>
</tr>
<tr>
<td>REACH Status</td>
<td>The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.</td>
</tr>
</tbody>
</table>

Section 16. Other information

**Hazardous Material Information System (U.S.A.)**

- **Health:** 1
- **Flammability:** 1
- **Physical hazards:** 0
- **Personal protection:** X

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

**National Fire Protection Association (U.S.A.)**

- **Flammability:** 1
- **Instability/Reactivity:** 0
- **Special:** 1

**History**

- **Date of issue/Date of revision:** 04/23/2015.
- **Date of previous issue:** No previous validation.

**Key to abbreviations**

- ACGIH = American Conference of Industrial Hygienists
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- CAS Number = Chemical Abstracts Service Registry Number
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- OEL = Occupational Exposure Limit
- SDS = Safety Data Sheet
- STEL = Short term exposure limit
- TWA = Time weighted average
- UN = United Nations
- UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

[¶] Indicates information that has changed from previously issued version.

**Notice to reader**
Section 16. Other information

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.