1 – Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Transformer oil POWEROIL® TO 1020 60 H
Product description: Insulating oil
Product type: Oils

1.2 Identified uses

Distribution of substance: Industrial
Formulation & (re)packing of substances and mixtures: Industrial
Manufacture of substance: Industrial
Functional Fluids: Industrial

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer: Apar Industries Limited
18 T.T.C., M.I.D.C. Industrial Area, Thane Belapur Road, Rabale, Navi Mumbai – 400701. India.
+91 22 61110444 (Office hours 9.30am to 17.00pm)
www.apar.com
hse@apar.com

1.4 Emergency telephone number

+91 9833811132

2 – Hazards Identification

2.1 Classification of the substance or mixture

Product definition: Mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Asp. Tox. 1, H304
The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.
See Section 16 for the full text of the H statements declared above.

2.2 Label elements

Hazard pictograms

Signal word: Danger
Hazard statements: H 304 : May be fatal if swallowed and enters airways.
Precautionary statements:
Prevention: Not applicable
Response: P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
Storage: P405 - Store locked up.
Disposal: P501 - Dispose of contents/container in accordance with all local, regional, national and international regulations. Not applicable

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

2.3 Other hazards

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

3 – Composition / Information on Ingredients

3.2 Mixtures

Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
</table>
5.1 Extinguishing media

Suitable extinguishing media
Dry chemicals. Foam. Carbon dioxide (CO₂). Water spray or foam.

Unsuitable extinguishing media
Do not use direct water jets on the burning product; they could cause splattering and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture
In a fire or if heated, a pressure increase will occur and the container may burst. This substance will float and can be reignited on surface water.

Hazardous thermal decomposition products
Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H₂S, SOₓ (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.
5.3 Advice for firefighters
- Special precautions for firefighters: 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 firefighters: 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.

6 - Accidental release Measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Avoid breathing vapour or mist. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Stop leak if safe to do so. Avoid direct contact with the product. Stay upwind/keep distance from source. In case of large spillages, alert occupants in downwind areas. Eliminate all ignition sources if safe to do so. Spillages of limited amounts of product, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which will presumably limit the exposure to dangerous concentrations. Note: recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

For emergency responders: Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and thermal resistant material should be used. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note: gloves made of PVA are not water-resistant, and are not suitable for emergency use. Safety helmet, antistatic non-slip safety shoes or boots. Goggles and/or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection: A half or full-face respirator with filter(s) for organic vapours (and when applicable for H2S) a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA’s should be used.

6.2 Environmental precautions

Prevent product from entering sewers, rivers or other bodies of water. If necessary dike the product with dry earth, sand or similar non-combustible materials. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities.

6.3 Methods and material for containment and cleaning up

Small spill: Stop leak if without risk. Absorb spilled product with suitable non-combustible materials. Large spill: Large spillages may be cautiously covered with foam, if available, to limit vapour cloud formation. Do not use water jet. When inside buildings or confined spaces, ensure adequate ventilation. Transfer collected product and other contaminated materials to suitable containers for recovery or safe 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.

7 - Handling and Storage

7.1 Advice on general occupational hygiene Storage: Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash hands thoroughly after handling. Change contaminated clothes at the end of working shift. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities: Storage area layout, tank design, equipment and operating procedures must comply with the relevant regional, national or local legislation. Storage installations should be designed with adequate bunds in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.
7 - Handling and Storage

7.2 Conditions for safe storage, including any incompatibilities

Store separately from oxidising agents. Recommended materials for containers, or container linings use mild steel, stainless steel. Not suitable: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

Keep only in the original container or in a suitable container for this kind of product. Keep container tightly closed and sealed until ready for use. Do not store in unlabelled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Empty containers may contain harmful, flammable/combustible or explosive residue or vapours. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Store locked up. Protect from sunlight.

7.3 Specific end use(s)

Recommendations

Not available

Industrial sector specific solutions

Not available

8 - Exposure Controls / Personal Protection

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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limits values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil mist</td>
<td>[Air contaminant]</td>
</tr>
<tr>
<td></td>
<td>TWA: 1 mg/m³ 8 hours. Form: mist and fume</td>
</tr>
<tr>
<td></td>
<td>STEL: 3 mg/m³ 15 minutes. Form: mist and fume</td>
</tr>
</tbody>
</table>

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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure Control

Appropriate engineering controls

Mechanical ventilation and local exhaust will reduce exposure via the air. Use oil resistant material in construction of handling equipment. Store under recommended conditions and if heated, temperature control equipment should be used to avoid overheating.

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. Ensure that eyewash stations and safety showers are close to the workstation location. Wash contaminated clothing before reuse.

Eye/face protection

Recommended: Safety glasses with side shields.

Skin protection

Hand protection

4 - 8 hours (breakthrough time): nitrile rubber

Body protection

Wear protective clothing if there is a risk of skin contact. Change contaminated clothes at the end of working shift.

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

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. Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.

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.
9 - Physical and Chemical Properties

Appearance
- Liquid
Color
- Colorless to Light yellow
Odor
- Odorless
Odour threshold
- Not available
pH
- Not applicable
Melting point/Pour point
- < -40°C (ASTM D-97)
Flash point
- > 140°C Open cup (ASTM D 92)
Evaporation rate
- Not available
Flammability (solid, gas)
- Not available
Flammability limits in air, lower, % by volume
- Not available
Flammability limits in air, upper, % by volume
- Not available
Vapour pressure
- Not available
Density
- 0.825 to 0.845 at 15°C
Solubility (les)
- Insoluble in water
Partition coefficient (n-octanol/water)
- Not available
Decomposition temperature
- No Data
Auto-ignition temperature
- > 250°C
Viscosity, Kinematic at 40°C (104°F)
- 0.08 cm²/s to 0.11 cm²/s (8.00 to 11.00 cSt)
Explosive properties
- No Data
Oxidising properties
- No Data
DMSO extractable compounds for base oil substance(s) according to IP346
- < 3%

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
- Stable under normal conditions
10.3 Possibility of hazardous Reactions
- Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid
- Oxidising agent.
10.5 Incompatible materials
- Keep away from extreme heat and oxidizing agents.
10.6 Hazardous decomposition products
- Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H2S, SOx (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

11 - Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillate (petroleum),hydrotreated light paraffinic</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;5.53 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

| Skin | No known significant effects or critical hazards. |
| Eye | No known significant effects or critical hazards. |
| Respiratory | No known significant effects or critical hazards. |

Sensitisation

| Skin | No known significant effects or critical hazards. |
| Respiratory | No known significant effects or critical hazards. |

Mutagenicity

| No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
11 - Toxicological Information

Carcinogenicity
The base oil(s) in this product is based on an severely hydrotreated distillate. The product should not be regarded as a carcinogen.

Reproductive toxicity
Contains no ingredient listed as toxic to reproduction.

Specific target organ toxicity
- single exposure
Not classified

Specific target organ toxicity
- repeated exposure
Not classified

Aspiration hazard
Aspiration hazard - Category 1

Information on likely routes of exposure
Not available.

Potential acute health effects

Eye contact
Eye contact may cause redness and transient pain.

Inhalation
Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.

Skin contact
No known significant effects or critical hazards.

Ingestion
May be fatal if swallowed and enters airways.

Potential chronic health effects

General
No known significant effects or critical hazards.

Carcinogenicity
The base oil(s) in this product is based on an severely hydrotreated distillate. The product should not be regarded as a carcinogen.

Mutagenicity
No known significant effects or critical hazards.

Teratogenicity
No known significant effects or critical hazards.

Product/ingredient name
No known significant effects or critical hazards.

Fertility effects
No known significant effects or critical hazards.

Other information
Not available.

Specific hazard
Not available.

12 - Ecological Information

12.1 Toxicity
Not expected to be harmful to aquatic organisms.

12.2 Persistence and degradability
Not inherently biodegradable.

12.3 Bioaccumulative potential
Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

12.4 Mobility in soil
Not considered mobile.

12.5 Results of PBT & vPvB Assessment
Not applicable.

12.6 Other adverse effects
Insoluble in water. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

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

Methods of disposal
Where possible (e.g. in the absence of relevant contamination), recycling of used substance is feasible and recommended. This substance can be burned or incinerated, subject to national/local authorizations, relevant contamination limits, safety regulations and air quality legislation. Contaminated or waste substance (not directly recyclable): Disposal can be carried out directly, or by delivery to qualified waste handlers. National legislation may identify a specific organization, and/or prescribe composition limits and methods for recovery or disposal.

Hazardous waste
Yes
13 - Disposal Considerations

European waste catalogue (EWC)

<table>
<thead>
<tr>
<th>Waste code</th>
<th>Waste designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 03 07*</td>
<td>mineral-based non-chlorinated insulating and heat transmission oils</td>
</tr>
</tbody>
</table>

Packaging

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

14 - Transport Information

International transport regulations

<table>
<thead>
<tr>
<th>ADR/ RID</th>
<th>ADN</th>
<th>IMO/IMDG Classification</th>
<th>ICAO/IATA Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

14.6 Special precautions for User

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex I of MARPOL 73/78 and the IBC Code

Oils

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
Annex XIV
None of the components are listed.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Not applicable.

Other EU regulations
Seveso Directive
This product is not controlled under the Seveso Directive.

International Lists

<table>
<thead>
<tr>
<th>National Inventory</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Inventory of Existing and New Chemical Substances (ENCSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

15.2 Chemical Safety Assessment
16 - Other Information

Revision comments
Not available.

Legend to abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>European agreement concerning the international carriage of dangerous good by road.</td>
</tr>
<tr>
<td>RID</td>
<td>Regulations agreement concerning the international carriage of dangerous good by rail.</td>
</tr>
<tr>
<td>IMDG – CODE</td>
<td>International maritime dangerous goods code.</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization.</td>
</tr>
<tr>
<td>IATA</td>
<td>International air transport association.</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System of Classification and Labeling of Chemicals.</td>
</tr>
<tr>
<td>CLP</td>
<td>Classification, Labelling and Packaging Regulation [Regulation (EC) No.1272/2008].</td>
</tr>
<tr>
<td>SCBA</td>
<td>Self-Contained Breathing Apparatus.</td>
</tr>
<tr>
<td>LC 50</td>
<td>Median lethal concentration.</td>
</tr>
<tr>
<td>LD 50</td>
<td>Median lethal dose.</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic.</td>
</tr>
</tbody>
</table>

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>Calculation method</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.

Date of issue/Date of revision
January 2018.

Date of previous issue
December 2016.

Version
08

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.