Shell Omala Oil F 320

**Premium quality industrial gear oils**

Shell Omala F Oils are premium quality, lead-free, extreme-pressure oils designed, primarily, for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears and other industrial applications. They are formulated using high viscosity index, solvent refined, base oils and incorporate a special sulphur-phosphorus additive to provide an extreme pressure performance significantly better than that provided by leaded gear oils.

**Performance, Features & Benefits**

- **Excellent load carrying and anti-friction characteristics**
  Reduces gear tooth and bearing wear on both steel and bronze components. The load carrying capacity of Shell Omala F Oils, as determined in laboratory tests, is significantly better than that of leaded gear oils. Gear tooth wear is reduced, particularly under conditions of high load.

- **Typical test results for Shell Omala F 220 are:**
  - **Extreme Pressure Properties**
    - **Timken Wear & Lubricant Testing Machine:** IP 240 / ASTM D2782
      OK Load lbs = 60 mins
  - **Four Ball Extreme Pressure Test**
    Initial seizure load kg IP 239/79 = 250 kg
  - **Load Carrying Capacity**
    FZG Gear Machine: IP 334
    A/8.3/90 and A/16.6/90 Failure Load Stage = >12
  - **Oxidation and thermal stability**
    Withstands high thermal loading and resists the formation of sludge and other harmful products of oxidation.
    Extended oil life, even with bulk oil temperatures up to 100°C in certain applications.
  - **Effective corrosion inhibition**
    Protects both steel and bronze components, even in the presence of contamination by water and solids.
  - **Resistant to micro-pitting**
    Standard setting anti micro-pitting performance to reduce the risk of premature failure through surface distress.
  - **Wide range of viscosities**
    Caters for the most varied and arduous industrial applications.
  - **Lead-free**
    Operator acceptability. Reduced health risk.
  - **Water shedding properties**
    Shell Omala F Oils have excellent water separation properties. Excess water can be drained easily from lubrication systems. (Water can greatly accelerate surface fatigue on gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should be avoided or removed as quickly as possible after the occurrence).
  - **Heater Capacity**
    The capacity of heaters, used to raise bulk oil temperatures, should not exceed 11.5 KJ/m² (7.5 W/in²).

**Main Applications**

- Steel gear transmissions.
- Industrial gear drives where a full EP performance is required.
- Bearings.
- Circulating and splash lubricated systems.
- Shell Omala F should not be used for automotive hypoid gears. The appropriate Shell Spirax Oil should be used for this purpose.
- Shell do not recommend/support use in systems with fine filtration (<10 microns) because sustained foam control performance is not assured. Please consult your Shell Local Technical Advisor and Product Application Specialist.

**Specifications, Approvals & Recommendations**

- Sufficient oxidation stability for a lifetime of 10,000 hours or two years at 80°C
- Flender Foam Test
Typical Physical Characteristics

- A pass in the FVA-54/II micro pitting (grey staining) test at load stage 10 at 90°C
- A load stage 12 pass in the FZG double speed test (DIN 51354 Part 2)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

Compatibility & Miscibility

Change-over Procedures

The following procedures and precautions are recommended when changing oils - including leaded grades:

As a general principle, oil that has been in use for some time should be renewed completely. For complete benefit, Shell Omala F should be not be mixed with other oils.

Gearboxes

Drain the gearbox completely and inspect internally. Remove any sludge deposits manually. Flush the gearbox with new oil. Drain and refill with the appropriate viscosity Shell Omala F oil.

Gear systems

Drain off the old oil.

Compatibility & Miscibility

Change-over Procedures

The following procedures and precautions are recommended when changing oils - including leaded grades:

As a general principle, oil that has been in use for some time should be renewed completely. For complete benefit, Shell Omala F should be not be mixed with other oils.

Gearboxes

Drain the gearbox completely and inspect internally. Remove any sludge deposits manually. Flush the gearbox with new oil. Drain and refill with the appropriate viscosity Shell Omala F oil.

Gear systems

Drain off the old oil.

Typical Physical Characteristics

<table>
<thead>
<tr>
<th>Properties</th>
<th>Method</th>
<th>Omala F 320</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity Grade</td>
<td>ISO 3448</td>
<td>320</td>
</tr>
<tr>
<td>Kinematic Viscosity @40°C</td>
<td>cSt IP 71</td>
<td>320</td>
</tr>
<tr>
<td>Kinematic Viscosity @100°C</td>
<td>cSt IP 71</td>
<td>25</td>
</tr>
<tr>
<td>Viscosity Index</td>
<td>IP 226</td>
<td>100</td>
</tr>
<tr>
<td>Density @15°C</td>
<td>kg/l IP 365</td>
<td>0.903</td>
</tr>
<tr>
<td>Flash Point (PMCC) @20°C</td>
<td>IP 34</td>
<td>202</td>
</tr>
<tr>
<td>Pour Point</td>
<td>IP 15</td>
<td>-18</td>
</tr>
</tbody>
</table>

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

Health, Safety & Environment

Health & Safety

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from http://www.epc.shell.com/

Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Additional Information

Advice

Advice on applications not covered here may be obtained from your Shell representative.