Technical Data Sheet

Omala Oil F 220

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 sulfur-phosphorus additive to provide an extreme pressure performance significantly better than that provided by leaded gear oils.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Excellent load carrying and anti-friction Characteristics**
  Reduces gear tooth and bearing wear on both steel and bronze components
- **Outstanding 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^{0}C in certain applications
- **Effective corrosion inhibition**
  Protects both steel and bronze components, even in the presence of contamination by water and solids
- **Lead-free**
  Operator acceptability. Reduced health risk.
- **Wide range of viscosities**
  Caters for the most varied and harsh Industrial Applications
- **Resistant to micro-pitting**
  Standard setting anti micro-pitting performance to reduce the risk of premature failure through surface distress
- **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).
- **Load Carrying Capacity**
  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 D 2782
  OK Load lbs = 60 mins
- **Four Ball Extreme Pressure Test**
  Initial siezure 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
- **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 applications including hypoid gears. The appropriate Shell Spirax Oil should be used for this purpose.

Specifications, Approvals & Recommendations

- Sufficient oxidation stability for a lifetime of 10,000 hours or two years at 80°C
- A load stage 12 pass in the FZG double speed test (DIN 51354 Part 2)
- A pass in the FVA-54/II micro pitting (grey staining) test at load stage 10 at 90°C
- Flender Foam Test

For additional questions regarding equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

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 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. The minimum amount of Shell Omala F oil necessary to maintain circulation should be pumped around the system, for as long as practicable, to flush out all pipe work and inaccessible points. Use warm oil, if possible. Discard the flushing charge and, provided a careful inspection shows the lubrication system, including filters, drains and sumps to be free of contamination, refill with the appropriate viscosity Shell Omala F oil. If the examination is not satisfactory, repeat the procedure.

For newer charges of leaded gear oil, an inspection as detailed should be carried out. If the system is found to be reasonably clean, top-up the existing oil with Shell Omala F oil may be carried out observing the following safeguards:

Make top up by adding frequent small quantities, rather than occasional large charges.

Inspect the system regularly for an initial period of three months, particularly with regard to the cleanliness of filters. The inspection frequency may be extended gradually to normal manufacturers' recommended periods as long as conditions are satisfactory.

- **Seal and Paint Compatibility**

Shell Omala F Oils are compatible with internal gearbox paints; also solid and liquid seals.

Typical physical characteristics

Properties			Method	Omala F 220
Viscosity Grade			ISO 3448	220
Kinematic Viscosity	@40°C	cSt	IP 71	220
Kinematic Viscosity	@100°C	cSt	IP 71	19.4
Viscosity Index			IP 226	100
density	@15°C	kg/l	IP 365	0.899
Flash Point (PMCC)		°C	IP 34	199
Pour Point		°C	IP 15	-18

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

Heath, Safety & Environment

- 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 authorized collection point. Do not discharge into drains, soil or water.

Additional Information

- **Advice**

  Product recommendations for applications not covered here may be obtained from your Shell representative.