Technical Data Sheet (TDS)

PUMA GEAR OIL 80W-90 GL-5

Heavy Duty Gears & Final Drives

Puma Gear Oil 80W-90 GL-5 is an EP (Extreme Pressure) gear oil for very highly loaded gears in general. It can also be used in automotive applications including heavy duty axles, conventional gear-boxes and steering-boxes on cars and trucks, gear-boxes, final drives, power take-offs on farm and earth-moving machinery where API GL-5 is required. It can thus be used for lubricating all gears and all material types.

Designed to Perform

**Anti-wear Protection – Longer Equipment Life**
Proven Anti Wear Additive packages provide greater resistance to sliding wear thus ensuring efficiency and long life of all moving parts of final drive, transmissions systems. It contains special additives which ensure a strong oil film is formed and maintained even under high load conditions that occur with hypoid gears which are used in many automotive axles.

**Oxidation Resistance - Longer Oil Life**
It has extremely good oil life and lubricant stability even when subjected to unusually high thermal stresses and chemical break down; this property minimizes sludge and deposit formation. Maintenance costs are therefore reduced and the useful service life of the oil is extended.

**Non-corrosiveness**
Towards materials employed for the construction of machinery and especially those used for gaskets and seals, as well as metals such as steel, cast iron, copper and bronze.

**Toxicity**
The product is non-toxic since it contains no lead compounds; it can thus be used in oil-mist lubrication systems.

**Anti-corrosion & Anti-rust properties**
These inhibit the oxidation of internal surfaces of industrial gear systems and therefore prevent operating difficulties and breakdown of the oil caused by metallic oxides that would otherwise form within the machinery.

**Anti-foam Performance**
It has anti-foam qualities which minimize the formation of air bubbles which could adversely affect lubricant film continuity and hence cause wear.

Frictional Performance
Highly consistent and reliable friction performance when used with the advanced metallic and non-metallic materials found in modern systems. Minimal clutch slippage, smooth and quiet brake operation, and trouble-free transmission operation.

Compatibility & Miscibility
Puma Gear Oils are compatible with various seal materials to help prevent premature failure of seals and thus avoid leakage.

**Puma Gear Oil 80W-90 GL-5**
Meets the requirements of the following specifications:

- API : GL-5
- MAN : 342 Type M2
Technical Data Sheet (TDS)

Typical Physical Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Temp</th>
<th>Units</th>
<th>Test Methods</th>
<th>SAE 80W-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO Viscosity Grade</td>
<td></td>
<td></td>
<td>ISO 3448</td>
<td>80W-90</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>@ 40°C</td>
<td>cSt</td>
<td>ASTM D445</td>
<td>145</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>@ 100°C</td>
<td>cSt</td>
<td>ASTM D445</td>
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<td>Viscosity Index</td>
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<td></td>
<td>ASTM D4292</td>
<td>105</td>
</tr>
<tr>
<td>Flash Point (COC)</td>
<td></td>
<td>°C</td>
<td>ASTM D92</td>
<td>200</td>
</tr>
<tr>
<td>Pour Point</td>
<td></td>
<td>°C</td>
<td>ASTM D97</td>
<td>-30</td>
</tr>
<tr>
<td>Density</td>
<td>@ 15 °C</td>
<td>kg/m³</td>
<td>ASTM 4052</td>
<td>0.900</td>
</tr>
</tbody>
</table>

These characteristics are typical of current product methods whilst future production will conform to Puma Lubricants specifications, variations in these physical characteristics may occur.

Health & Safety Environment

- This product is unlikely to present any significant health and safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.
- Avoid contact with eyes and skin, use proper impervious gloves with used oil. After skin contact, wash immediately with soap and water. Guidance on health and safety is available on the appropriate Material Safety Data Sheet (MSDS) which can be obtained from lubricants@pumaenergy.com

Protect the Environment

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

Additional Information

- Technical advice on any applications not covered here may be obtained from your Puma Energy Representative.