Technical Data Sheet

Shell **Morlina** ***S4 B 220***

- *Wear Protection*
- *Extra Oil Life and Filterability*
- *Enhanced Energy Efficiency*
- *Intended for multi-purpose Applications*

New Generation - Advanced Bearing & Circulating Oils based on synthetic technology

Shell Morlina S4 B oils are high performance synthetic bearing and circulation lubricants, manufactured with high performance base fluids. They offer outstanding lubrication performance, including improved energy efficiency, filterability, and long service life even under challenging operating conditions.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Extra Long oil life - maintenance saving**

  The use of highly stable synthetic base oils in conjunction with robust rust and oxidation inhibitor additives help provide excellent oxidation and hydrolytic stability. This allows Shell Morlina S4 B to extend the maintenance capability of equipment compared to products based on conventional mineral oils. In addition, it resists the formation of harmful products from oxidation at high operating temperatures which helps maintain system cleanliness and the reliability of the equipment. The excellent filterability of this product will also reduce contamination and further maintain cleanliness of the oil.

- **Excellent wear and corrosion protection**

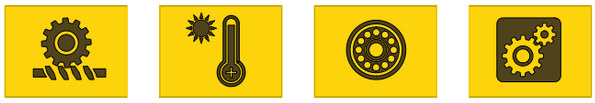
  Shell Morlina S4 B has been formulated to provide excellent
  anti-wear performance and provides high levels of wear protection for plain and rolling element bearings and moderately loaded gearboxes, compared to mineral oil-based products. This helps provide superior gear and bearing component life. In addition it also provides outstanding rust and corrosion protection of all metal surfaces.

- **Enhancing system efficiency**

  Shell Morlina S4 B can help improve the efficiency of lubrication in bearing and circulating systems. The superior low temperature performance and reduced variation in viscosity with increasing temperature, in comparison to mineral oil-based products, provides better lubrication at low start-up temperatures and the opportunity for energy savings through reduced pumping and flow losses during normal operating conditions.

  Rapid water shedding and efficient air release properties further enhance the efficiency of the lubrication system by helping maintain critical oil films between loaded components.

Main Applications



- **Applications involving moderate loads**

  Shell Morlina S4 B is recommended for systems that include moderately loaded gearboxes, worm gear drives, vacuum pumps, and gearboxes with internal backstops subjected extreme temperature variations. The enhanced energy efficiency of Shell Morlina S4 B will help reduce friction in operating equipment and potentially reduce energy consumption.

- **Lubricated for life systems**

  The long oil life of Shell Morlina S4 B makes is suitable for use in certain 'lubricated-for-life' systems.

- **Bearing and circulating oil systems**

  Shell Morlina S4 B is recommended for use in systems containing plain or rolling element bearings, including those with highly loaded bearings commonly found in cement or quarrying applications.
  Note: Where Bearing & Circulating oils with a lower viscosity is required (ISO VG 32 and 46), please use Shell Corena S4 R.

Specifications, Approvals & Recommendations

- ISO 12925-1 Type CKT specification
- ANSI/AGMA 9005-E02
- DIN 51517, Part 3 (CLP Oils)

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Expertos en lubricación industrial y automoción

Experts in industrial and automotive lubrication

- Siemens/VAI 'Morgan "Morgoil®" Lubricant Spec. New Oil (Rev. 1.1)'

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

Compatibility & Miscibility

- **Seal & Paint Compatibility**

  Shell Morlina S4 B is compatible with all seal materials and paints normally specified for use with mineral and most synthetic oils.

- **Change-over Procedure**

  Shell Morlina S4 B is compatible with petroleum mineral oils and no special change-over procedure is necessary. However, to realise the full benefits, it should not be mixed with other oils.

  It is also advisable to ensure that oil systems are clean and free from contamination to optimise potential service life.

Typical Physical Characteristics

Properties			Method	Shell Morlina S4 B
Viscosity Grade			ISO 3488	220
Kinematic Viscosity	@40°C	mm^2/s	ISO 3104	220
Kinematic Viscosity	@100°C	mm^2/s	ISO 3104	28
Viscosity Index (VI)			ISO 2909	164
Flash Point (COC)		°C	ISO 2592	275
Pour Point		°C	ISO 3016	-45
Density	@15°C	kg/m^3	ASTM D4052	852
Water Seperability	@82°C	minutes maximum	ASTM D1401	20
Foam Test, Seq II		ml foam '@0/10 mins	ASTM D892	10/0
Oxidation Control Test: RPVOT		minutes minimum	ASTM D2272	1750
Oxidation Control Test: TOST		hours	ASTM D943	10 000
FZG Load Carrying Test		failure load stage minimum	DIN 51354-2 A/8.3/90	12

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.

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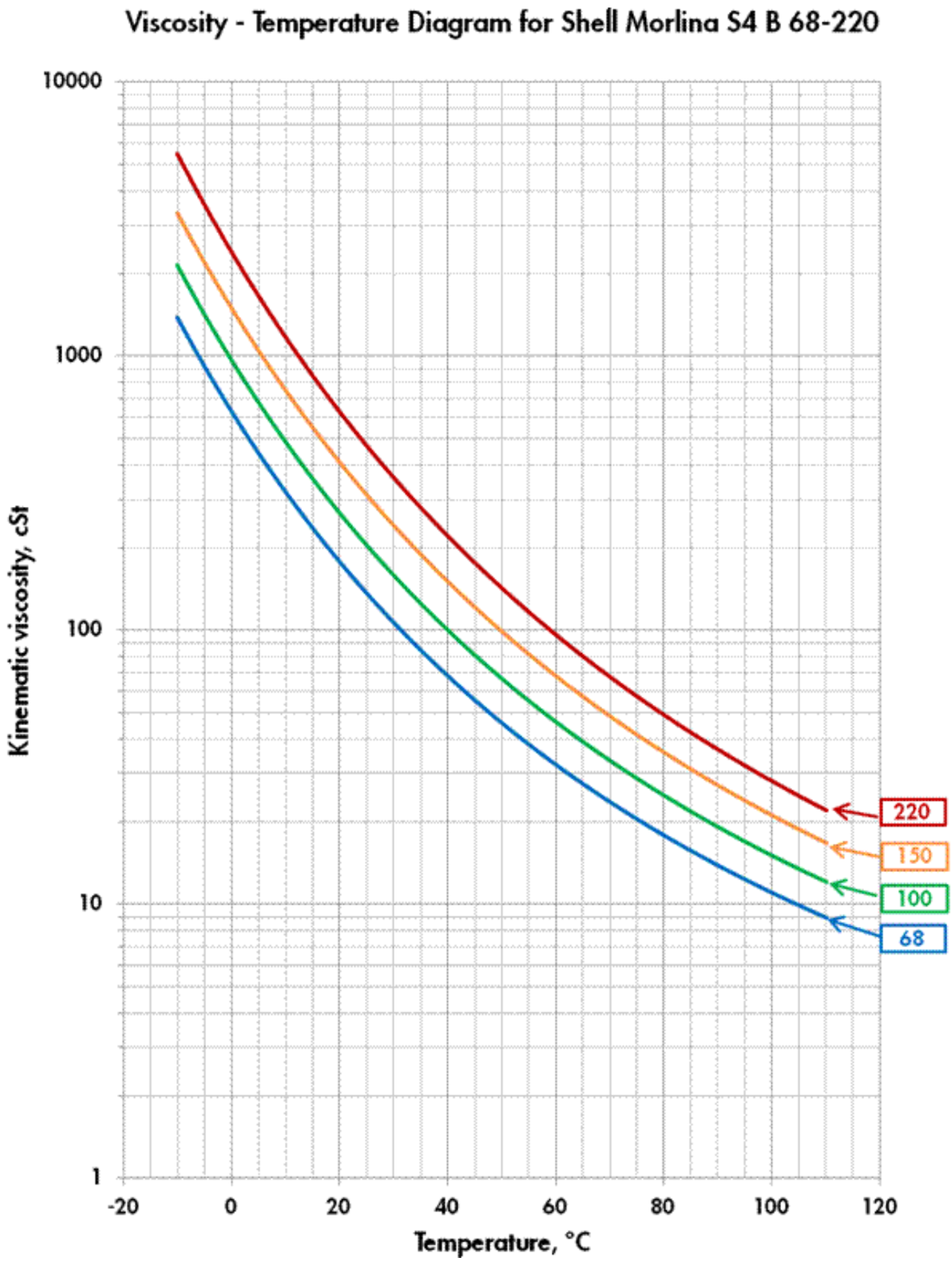

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