Technical Data Sheet

Previous Name: **Shell Omala RL**

Shell Morlina *S4 B 320*

- *Extra Life and Protection*
- *Severe Applications*

Advanced Bearing & Circulating Oils

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

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Long oil life - maintenance saving**

  The use of highly stable synthetic base oils in conjunction with a robust rust and oxidation inhibitor package helps provide excellent oxidation and thermal stability. This provides Shell Morlina S4 B with extending maintenance capability compared to conventional oils.

  In addition it resists the formation of harmful products of oxidation at high operating temperatures, to help maintain system cleanliness and therefore reliability of the equipment.

- **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.

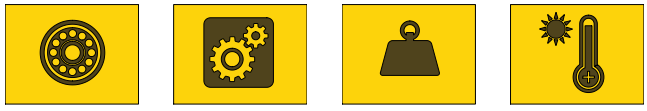
  In addition it also provides outstanding rust and corrosion protection of all metal surfaces.

- **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 change in viscosity with increase in 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 air release properties further enhance the efficiency of the lubrication system by helping maintain critical oil films between loaded components.

Main Applications



- **Severe operating conditions**

  Shell Morlina S4 B is recommended for systems incuding moderately loaded gearboxes, operating under severe conditions such as low or high temperatures or with wide temperature variations.

- **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**

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

Specifications, Approvals & Recommendations

- Alfa Laval Group D gearbox applications
- Aerzen Maschinenfabrik GmbH Blower Applications
- Baltimore Aircoil Gear Boxes
- Fives Cincinnati Various P applications
- David Brown Table H applications
- Emerson Power Transmission
- GEA Westfalia Separator GmbH
- Renold Gears (various applications)
- Sharpe E-series worm gear reducers
- Winsmith (Peerless-Winsmith Inc) worm gear reducer
- ISO 12925-1 Type CKS specification

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 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 optimse potential service life.

Typical physical characteristics

Properties			Method	S4 B 320
Viscosity Grade			ISO 3448	320
Kinematic Viscosity	@40°C	mm^2/s	ISO 3104	320
Kinematic Viscosity	@100°C	mm^2/s	ISO 3104	33.8
Viscosity Index (VI)			ISO 2909	148
Flash Point		°C	ISO 2592 (COC)	270
Pour Point		°C	ISO 3016	-45
Density	@15°C	kg/m^3	ISO 12185	853
Emulsion Test		mins	ASTM D1401	20
Foam Test, Seq II		ml foam '@0/10 mins	ASTM D892	0/0
FZG Load Carrying Test		failure load stage	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**

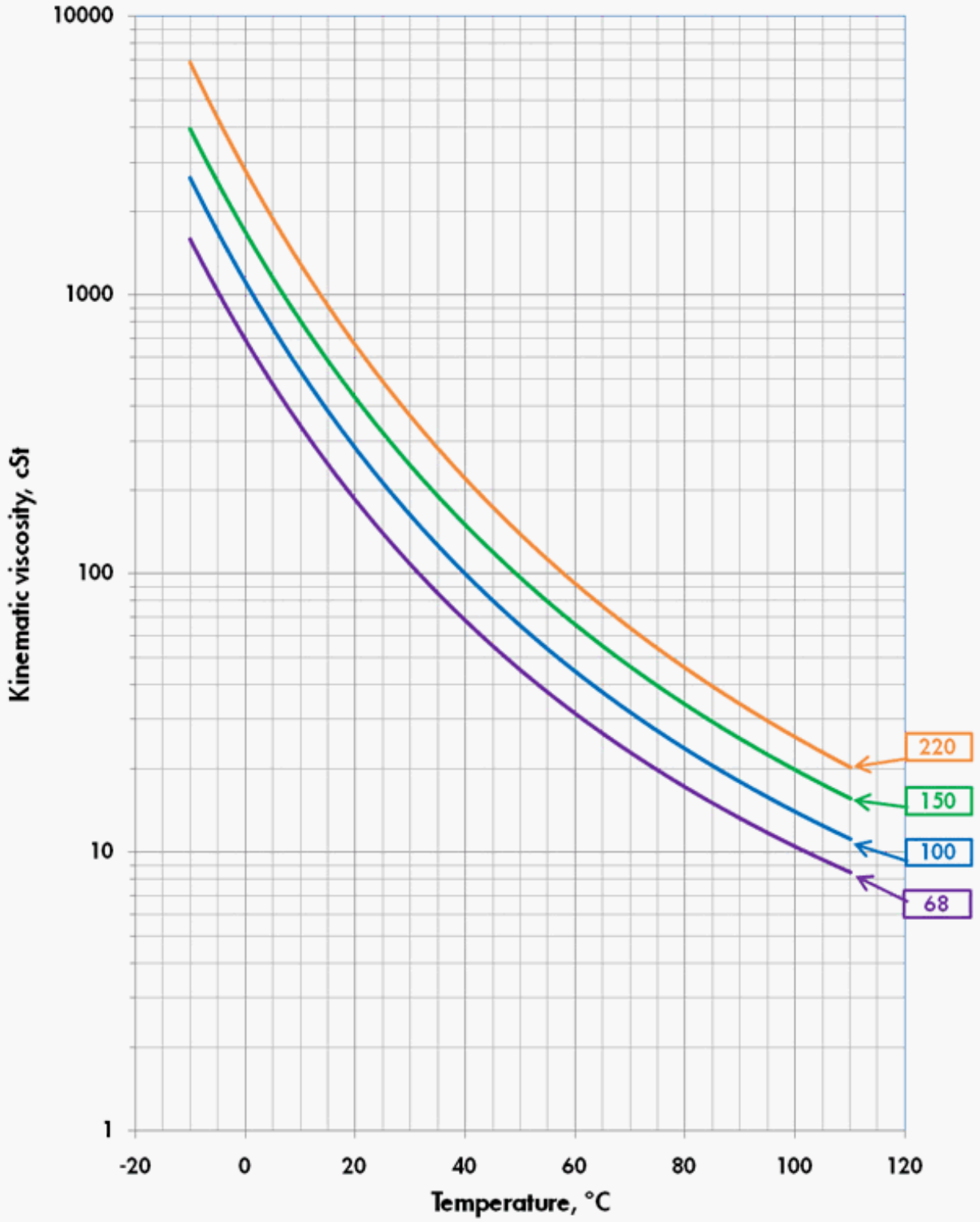
  Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

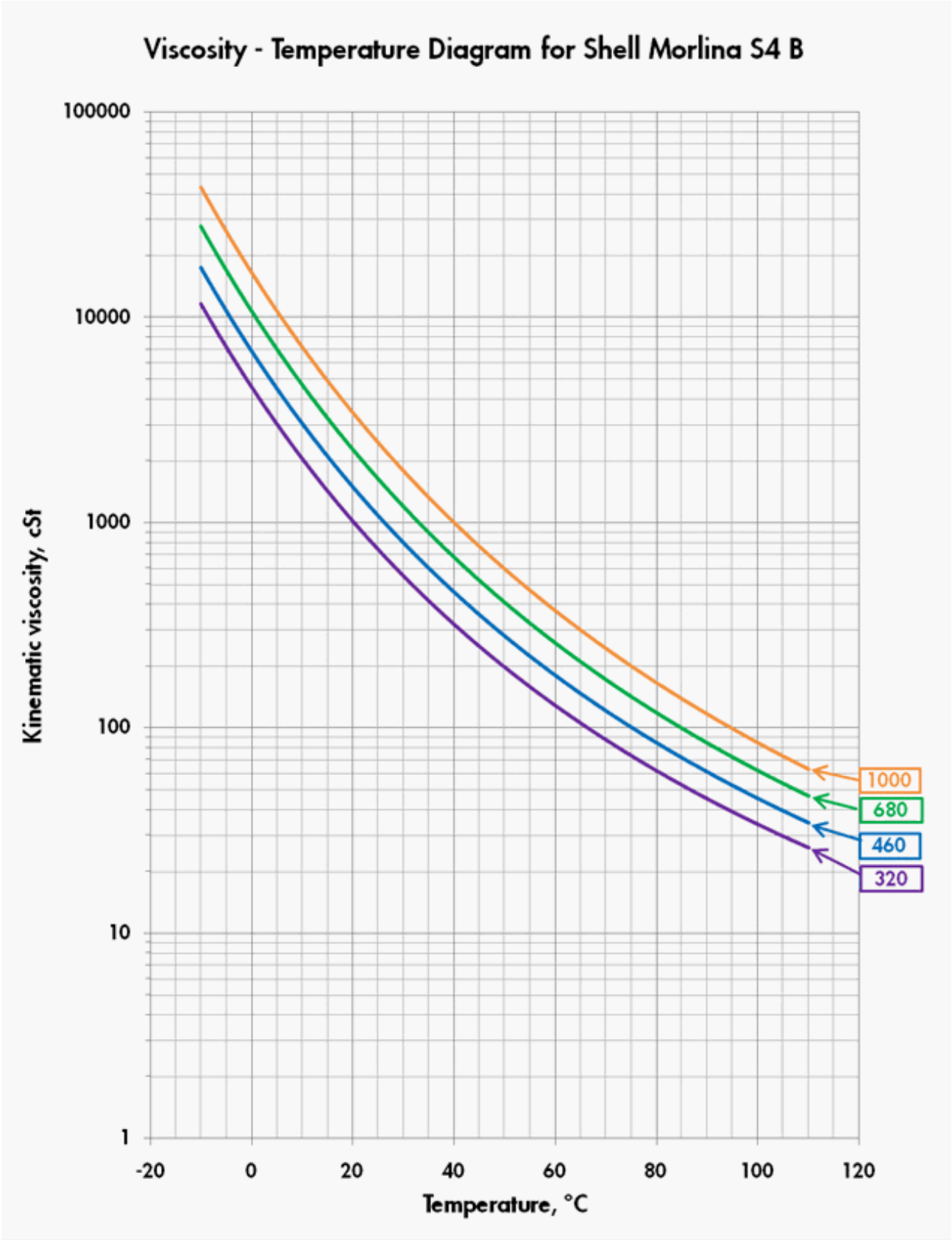
Additional Information

- **Advice**

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

Viscosity - Temperature Diagram for Shell Morlina S4 B




Viscosity - Temperature Diagram for Shell Morlina S4 B
Kinematic viscosity, cSt
100000
10000
1000
100
10
1
-20
0
20
40
60
80
100
120
Temperature, °C
1000
680
460
320