Technical Data Sheet

Previous Name: **Shell Omala HD**

Shell **Omala** *S4 GX 680*

- *Extra Life and Protection*
- *Special Applications*

Advanced Synthetic Industrial Gear Oil

Shell Omala S4 GX is an advanced synthetic heavy duty industrial gear oil offering outstanding lubrication performance under severe operating conditions, including reduced friction, long service life and high resistance to micro-pitting for optimal gear protection.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Long oil life - maintenance saving**

  Shell Omala S4 GX is formulated using an advanced additive system in combination with specially selected synthetic base fluids to provide outstanding resistance to breakdown over long duration and/or high temperature operation.

  Shell Omala S4 GX can operate successfully at bulk temperatures up to 120^{0}C.

  Shell Omala S4 GX offers the potential to significantly extend service intervals compared to conventional industrial gear oils.

- **Excellent wear and corrosion protection**

  Shell Omala S4 GX is formulated to have excellent load carrying capacity and micro-pitting performance providing long component life even under shock loading conditions. These features provide benefits over mineral oil-based products in terms of gear and bearing component life.

  Shell Omala S4 GX also has excellent corrosion protection, even in the presence of contamination by water and solids.

- **Maintaining system efficiency**

  Shell Omala S4 GX can help maintain or enhance the efficiency of industrial gear systems through improved low temperature performance and lower friction in comparison to mineral oil-based products. This provides better lubrication at low start-up temperatures.

Main Applications

- **Wind turbines and other inaccessible installations**

  Shell Omala S4 GX is particularly recommended for certain systems where extra long life is required, maintenance is infrequent or systems are inaccessible.

- **Enclosed industrial gear systems**

  Recommended for industrial reduction gear systems operating under severe operating conditions, such as high load, very low or elevated temperatures and wide temperature variations.

- **Other applications**

  Shell Omala S4 GX oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

  For geared systems, or other applications that employ a filtration unit finer than 5 microns, please consult your Shell Local Technical Advisor and Product Application Specialist before using Shell Omala S4 GX.

  For highly loaded worm drives the Shell Omala “W” series oils are recommended. For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

Specifications, Approvals & Recommendations

- David Brown S1.53.106, except ISO 1000
- Approved for wind turbine gearboxes by: Gamesa, Dongfang Wind Turbines, Dalian Heavy Industries and Sinovel
- ISO 12925-1 Type CKD, except ISO 1000
- ANSI/AGMA 9005-E02 (EP), except ISO 1000
- US Steel 224, except ISO 1000
- DIN 51517-3 (CLP), except ISO 1000

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

Typical Physical Characteristics

Properties			Method	Shell Omala S4 GX 680
Viscosity Grade			ISO 3448	680
Kinematic Viscosity	@40°C	mm^2/s	ISO 3104	670.4
Kinematic Viscosity	@100°C	mm^2/s	ISO 3104	64.9
Viscosity Index			ISO 2909	169
Flash Point (COC)		°C	ISO 2592	256
Pour Point		°C	ISO 3016	-33
Density	@15°C	kg/m^3	ISO 12185	881
FZG Load Carrying Test			DIN 51354-2	-
FZG Load Carrying Test		failure load stage	A/8,3/90	>14
FZG Load Carrying Test		failure load stage	A/16,6/90	>14
Timken OK Load		lbs	ASTM D2782	>85

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 and Safety**

  Omala S4 GX 680 is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

  Avoid contact with skin. Use 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, 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

- **Change over procedure**

  Omala S4 GX is based on synthesized hydrocarbon fluids and is compatible with petroleum mineral oil-based industrial gear lubricants - no special change-over procedure is necessary. However, to achieve the complete benefit of Omala S4 GX they should not be mixed with other oils.

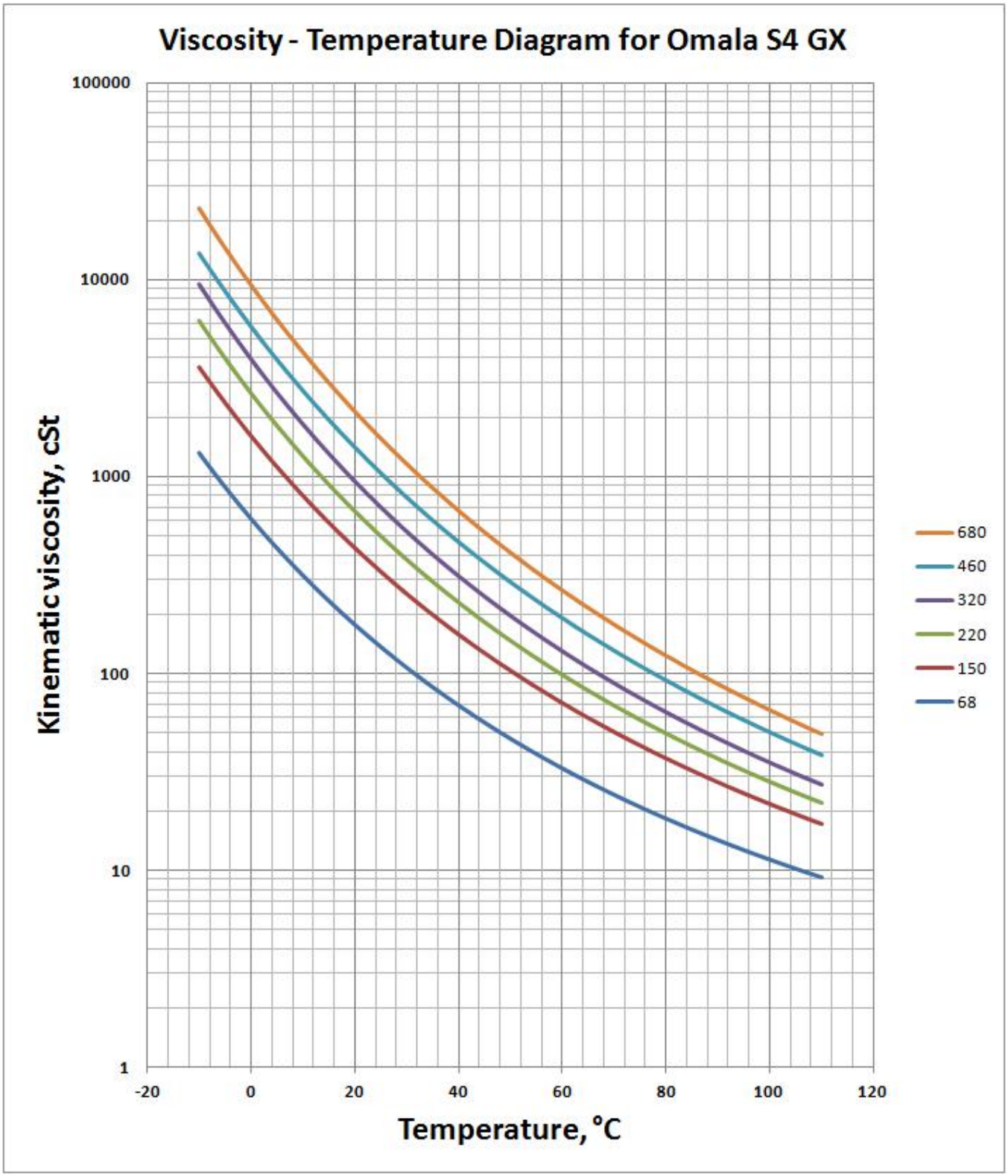
  It is also advisable to ensure that oil systems are clean and free from contamination.

- **Advice**

  Check compatibility with other products before use. Advice on applications not covered here may be obtained from your Shell representative.

- **Storage**

  Protect against the cold.


Viscosity - Temperature Diagram for Omala S4 GX
100000
10000
1000
100
10
1
Kinematic viscosity, cSt
-20
0
20
40
60
80
100
120
Temperature, °C
680
460
320
220
150
68