Technical Data Sheet

Formerly Known As: **Shell Tellus Oils**

- Extra Protection
- Industrial Applications

Shell **Tellus** *S2 M 46*

Industrial Hydraulic Fluid

Shell Tellus S2 M fluids are high performance hydraulic fluids that provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress and help prevent damaging deposit formation that can decrease the efficiency of your hydraulic power system.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Long fluid life – maintenance saving**

  Shell Tellus S2 M fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

  Shell Tellus S2 M fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

- **Outstanding wear protection**

  Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 M fluids can help system components last longer.

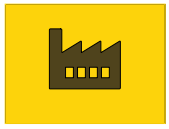
- **Maintaining system efficiency**

  Superior cleanliness, excellent filterability and high performance water separation, air release and antifoam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

  The unique additive system in Shell Tellus S2 M, in combination with superior cleanliness (meeting the requirements of ISO 4406 21/19/16 class or better ex Shell plant filling lines as recognised by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could effect the cleanliness level), helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

  Shell Tellus S2 M fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation induced oxidation that can shorten fluid life.

Main Applications



- **Industrial hydraulic systems**

  With an extensive range of equipment maker approvals and recommendations, Shell Tellus S2 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

- **Mobile hydraulic fluid power transmission systems**

  Shell Tellus S2 M fluids can be used effectively in mobile hydraulic power applications such as excavators and cranes, except where significant ambient temperature variations are encountered. For these applications we recommend the Shell Tellus “V” series.

- **Marine hydraulic systems**

  Suitable for marine applications where ISO HM category hydraulic fluids are recommended.

Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Fives Cincinnati P-70 (ISO 46)
- Eaton Vickers (Brochure 694)
- ISO 11158 (HM fluids)
- ASTM D6158-05 (HM fluids)
- DIN 51524 Part 2 HLP type
- Swedish Standard SS 15 54 34 AM
- GB 111181-1-94 (HM fluids)

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

Compatibility & Miscibility

- **Compatibility**

  Shell Tellus S2 M fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.

- **Fluid Compatibility**

  Shell Tellus S2 M fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).

- **Seal & Paint Compatibility**

  Shell Tellus S2 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

Typical Physical Characteristics

Properties			Method	Tellus S2 M 46
ISO Viscosity Grade			ISO 3448	46
ISO Fluid Type				HM
Kinematic Viscosity	@0°C	cSt	ASTM D445	580
Kinematic Viscosity	@40°C	cSt	ASTM D445	46
Kinematic Viscosity	@100°C	cSt	ASTM D445	6.7
Viscosity Index			ISO 2909	98
Density	@15°C	kg/m^3	ISO 12185	879
Flash Point (COC)		°C	ISO 2592	230
Pour Point		°C	ISO 3016	-30

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**

  Shell Tellus S2 M hydraulic fluid 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 Safety Data Sheet, which can be obtained from https://www.epc.shell.com/

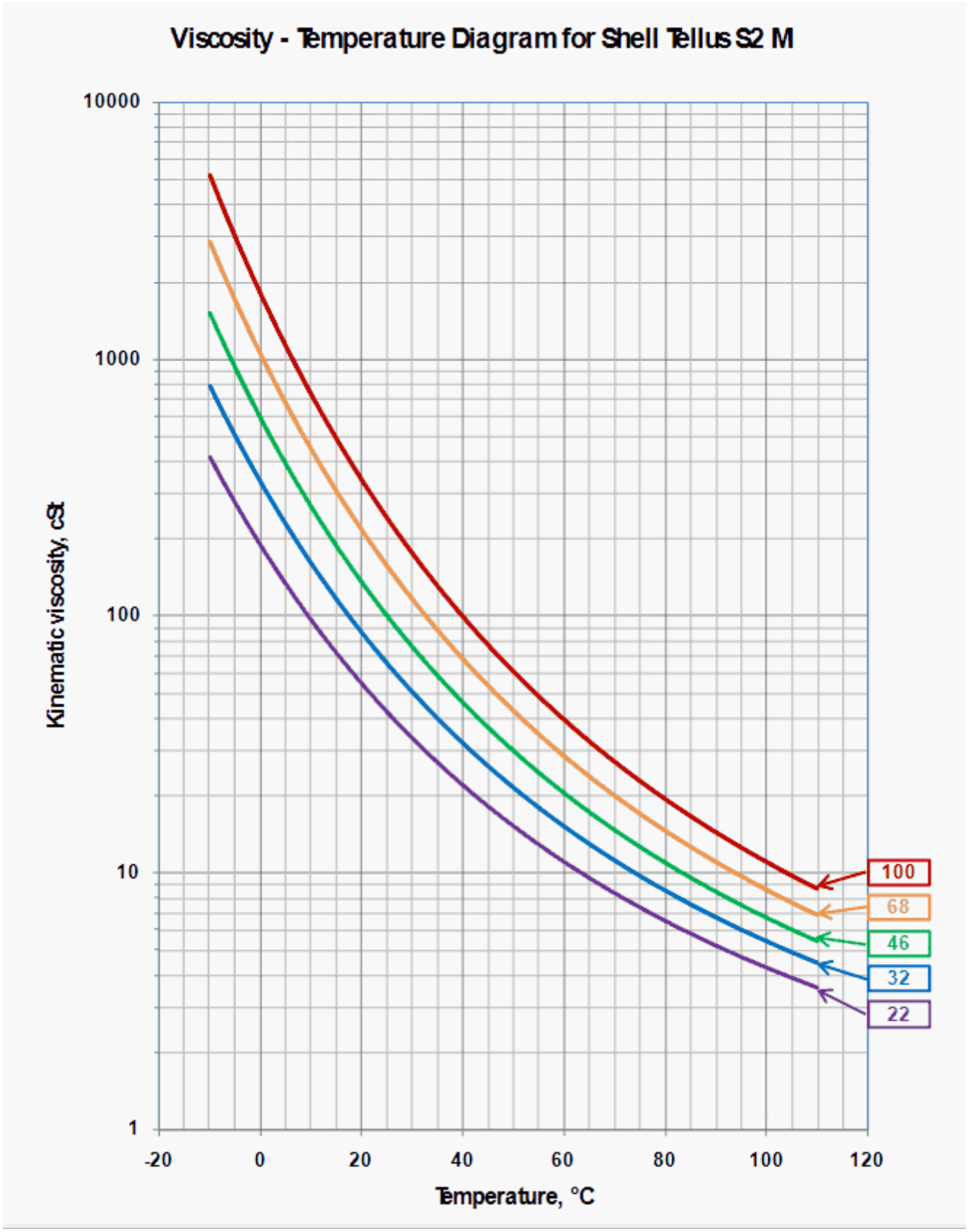
- **Protect the Environment**

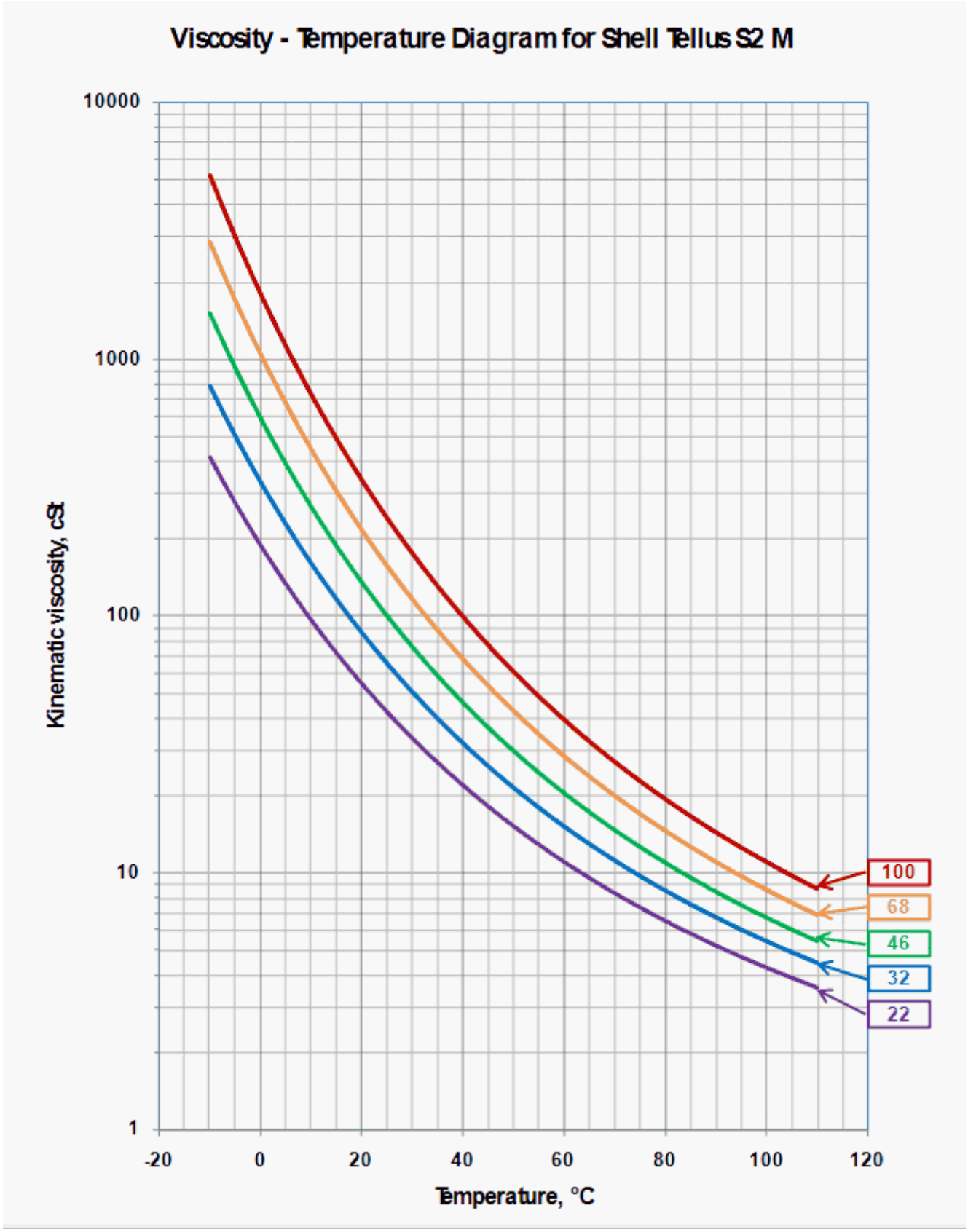
  Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Additional Information

- **Advice**

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


Viscosity - Temperature Diagram for Shell Tellus S2 M
Kinematic viscosity, cSt
10000
1000
100
10
1
-20
0
20
40
60
80
100
120
Temperature, °C
100
68
46
32
22


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