Technical Data Sheet

- Long life and improved efficiency
- Industrial applications

# Shell **Tellus** *S3 M 46*

***Premium Zinc-Free Industrial Hydraulic Fluid***

Shell Tellus S3 M hydraulic fluids are high performance lubricants that use exclusive zinc-free technology to provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress, helping to prevent damaging deposits that can decrease the efficiency of your hydraulic system.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

- **Long fluid life - maintenance saving**

  Shell Tellus S3 M fluids offer an improved capability to extend fluid maintenance intervals and hence reduce equipment downtime through:

  - An extended ASTM D943 TOST lifetime, with an oxidative stability that is designed for a minimum 5000 hours TOST life.

  - Excellent resistance to breakdown in the presence of water and heat.

- These features provide extended maintenance capability without compromising protection or performance, even under severe or extended temperature range applications.
- **Outstanding wear protection**

  Advanced zinc-free anti-wear additives provide protection over a wide range of conditions, including low and severe duty, and high load operation. This protection has been demonstrated in tough industry standard hydraulic pump tests such as the Denison T6H and Eaton Vickers 35VQ25 tests.

- **Maintaining system efficiency**

  Superior cleanliness and filterability; coupled with excellent water separation, air release and anti-foam characteristics, all help to maintain or enhance hydraulic system efficiency. The filterability of Shell Tellus S3 M is maintained even when the fluid is contaminated with water.

- Shell Tellus S3 M fluids have a ISO 4406 cleanliness of 21/19/16 or better ex Shell filling lines. As recognized by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could effect the cleanliness level

- **Low ecotoxicity**

  Shell Tellus S3 M is proven to demonstrate a low ecotoxicity towards aquatic invertebrates, offering a lower environmental impact in comparison to many hydraulic fluids without low ecotoxicity test results.
  Low ecotoxicity performance of our finished fluid has been assessed across OECD and EPA methods: OECD 202 – Classified as “not harmful” to aquatic invertebrates and US EPA OPPTS 850.1035 - Classified as not harmful to marine invertebrates.
  When an Environmentally Acceptable Lubricant is required, in accordance with US EPA, ISO 15380 or EEL (EU Ecolabel), we recommend our Shell PANOLIN range.

### Main Applications




- **Manufacturing and industrial hydraulic systems**

  Shell Tellus S3 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

- **Severe duty hydraulic service**

  The long-life characteristics of Shell Tellus S3 M fluids can make them particularly suitable for severe duty (e.g. load, temperature) applications or where extended life is required (e.g. Remote or inaccessible locations).

- **Marine and mobile hydraulic systems**

  Shell Tellus S3 M fluids are suitable for marine and mobile applications where ISO HM type hydraulic fluids are recommended.

- For applications that experience wide temperature variations we recommend the Shell Tellus “V” series of hydraulic fluids.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1 and HF-2)
- Eaton Vickers (Brochure 694)
- Fives Cincinnati P-70 (ISO 46)
- ISO 11158 (HM fluids)
- DIN 51524-2 (HLP oils)
- ASTM 6158 (HM mineral oils)
- SS 15 54 34 M

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

## Compatibility & Miscibility

- **Compatibility**

  Shell Tellus S3 M fluids are suitable for use with most hydraulic pumps.

- **Fluid Compatibility**

  Shell Tellus S3 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 S3 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical Physical Characteristics

| Properties | | | Method | Tellus S3 M 46 |
|---|---|---|---|---|
| **ISO Fluid Type** | | | ISO 6743-4 | HM |
| **ISO Viscosity Grade** | | | ISO 3448 | 46 |
| **Kinematic Viscosity** | @0°C | cSt | ASTM D445 | 565 |
| **Kinematic Viscosity** | @40°C | cSt | ASTM D445 | 46 |
| **Kinematic Viscosity** | @100°C | cSt | ASTM D445 | 6.8 |
| **Viscosity Index** | | | ISO 2909 | 105 |
| **Density** | @15°C | kg/m$^3$ | ISO 12185 | 865 |
| **Flash Point (COC)** | | °C | ASTM D92 | 220 |
| **Pour Point** | | °C | ISO 3016 | -33 |

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**

  This product 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

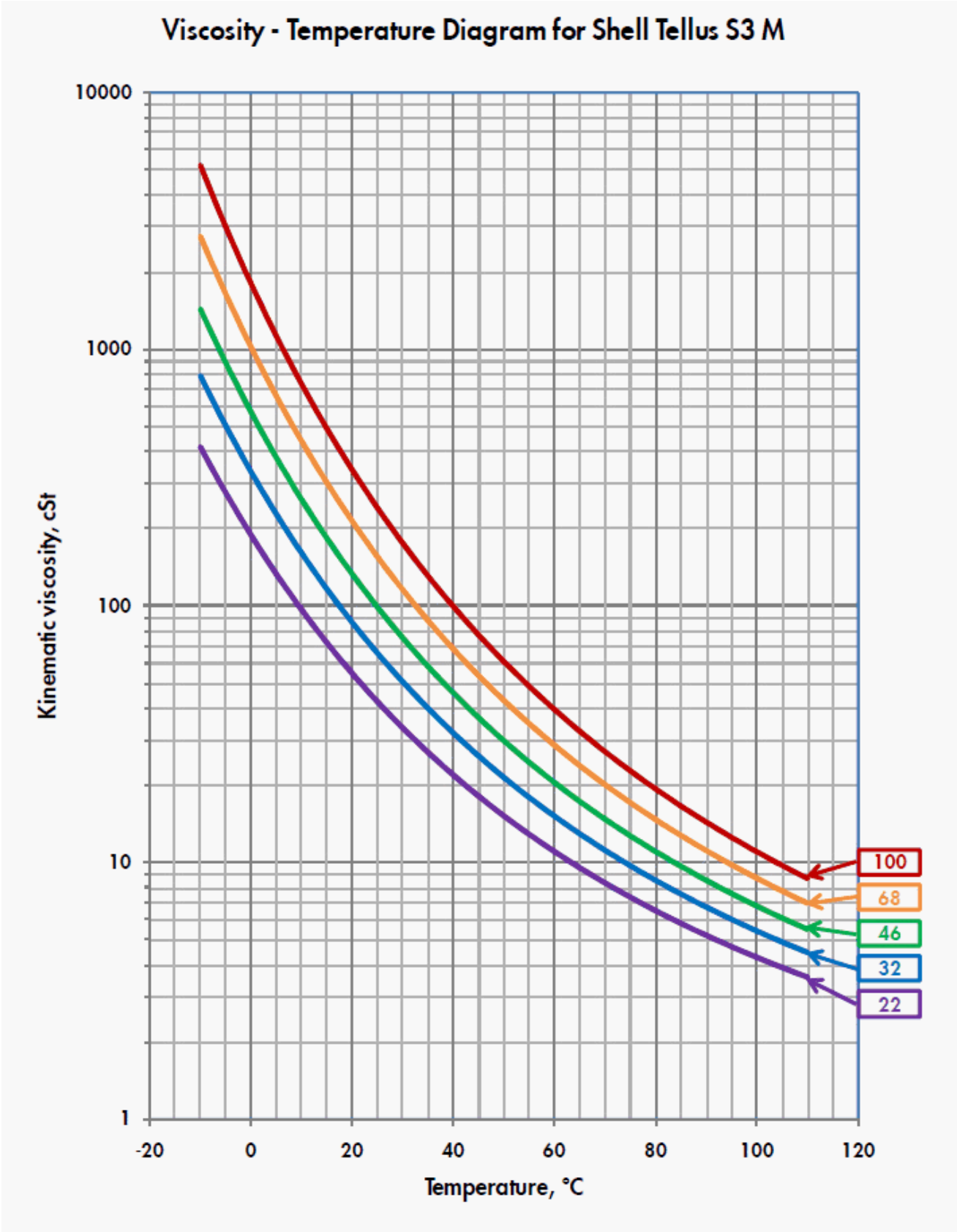
- **Protect the Environment**

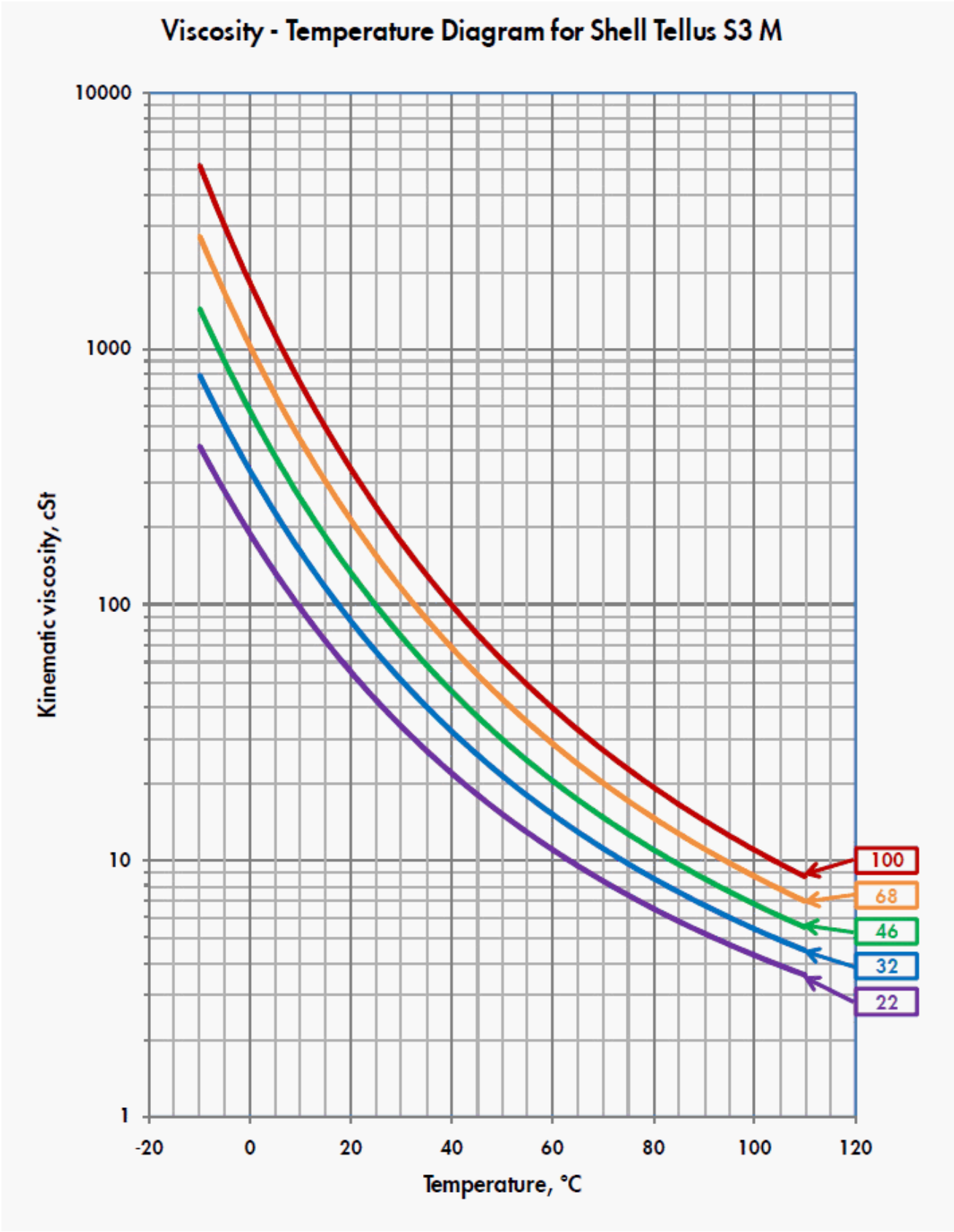
  Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Advice**

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




Viscosity - Temperature Diagram for Shell Tellus S3 M
10000
1000
100
10
1
Kinematic viscosity, cSt
-20
0
20
40
60
80
100
120
Temperature, °C
100
68
46
32
22