Technical Data Sheet

Shell **Tellus Zinc Free** ***S3 MX 46***

- Zinc Free
- Long life and improved efficiency
- Outstanding wear protection

Premium Zinc Free Industrial Hydraulic Fluid

Shell Tellus Zinc Free S3 MX hydraulic fluids are premium lubricants that utilise zinc free technology to provide outstanding protection and performance on most manufacturing and many mobile equipment operations.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **Long fluid life - maintenance saving**

  Shell Tellus Zinc Free S3 MX 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 up to 7500 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 operating conditions.

- **Outstanding wear protection**

  Advanced zinc free anti-wear additives provide protection over a wide range of conditions, including heavy duty operations. This protection has been demonstrated in tough industry standard hydraulic pump tests such as the Bosch Rexroth RFT-APU-CL pump test (RDE 90245 for ISO 32,46,68), Parker Denison (T6H20C for ISO 32,46,68) and Danfoss Vickers E-FDGN-TB002-E (35VQ25 for 32,46,68).

- **Maintaining system efficiency**

  Wet and dry filterability coupled with excellent water separation, air release and anti-foam performance help ensure system cleanliness supporting hydraulic system efficiency.

  Shell Tellus Zinc Free S3 MX hydraulic fluids at point of filling meet the DIN 515124 specification and report a maximum value of 21/19/16 measure to ISO 4406 industry standard test method.

  Fluid cleanliness reduces the potential for filter blocking, providing enhanced filter life and improved equipment protection.

- **Low ecotoxicity**

  Shell Tellus Zinc Free S3 MX 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 Daphnia magna and US EPA OPPTS 850.1035 - Classified as "not harmful" to marine mysid shrimp.
  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**

  Suitable for a wide range of manufacturing and industrial applications where ISO HM type hydraulic fluids are recommended.

- **Marine and mobile hydraulic systems**

  Suitable for marine and mobile applications where ISO HM type hydraulic fluids are recommended.

- For applications that experience wide temperature variations we recommend an ISO HV type hydraulic fluid, the Shell Tellus "V" products.

Specifications, Approvals & Recommendations

- DIN 51524-2 (HLP oils)
- ISO 11158 (HM fluids)
- ASTM 6158 (HM mineral oils)
- GB 11118.1 L-HM (high pressure)
- Swedish Standard SS 15 54 34 AAM
- Bosch Rexroth Fluid Rating RDE 90245
- Parker Denison (HF-0, HF-1 and HF-2) ISO 32,46,68
- Danfoss Vickers E-FDGN-TB002-E

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

Compatibility & Miscibility

- **Compatibility**

  Suitable for use with most hydraulic pumps.

- **Fluid Compatibility**

  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**

  Compatible with seal materials and paints normally specified for use with mineral oils.

Typical Physical Characteristics

Properties			Method	Shell Tellus Zinc Free S3 MX 46
ISO Viscosity Grade			ISO 3448	46
ISO Fluid Type			ISO 6743-4	HM
Kinematic Viscosity	@0°C	mm^2/s	ASTM D445	541
Kinematic Viscosity	@40°C	mm^2/s	ASTM D445	45.7
Kinematic Viscosity	@100°C	mm^2/s	ASTM D445	6.9
Viscosity Index			ISO 2909	106
Density	@15°C	kg/m^3	ISO 12185	866
Flash Point (COC)		°C	ASTM D92	228
Pour Point		°C	ISO 3016	-36

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**

  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 fluid. 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 fluid 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.