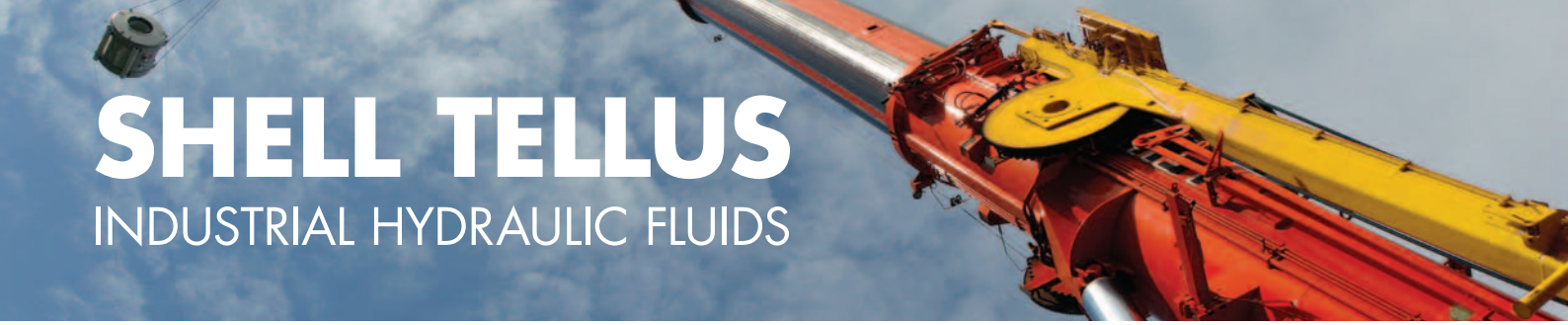


SHELL TELLUS
INDUSTRIAL HYDRAULIC FLUIDS

The Shell Tellus range of hydraulic fluids is designed to help make it easy for equipment operators to select the Shell lubricant that will best deliver value to their operations through enhanced wear protection, long oil life and high system efficiency.

THE SHELL TELLUS "M" RANGE Industrial, manufacturing and machine use.	THE SHELL TELLUS "V" RANGE Extended temperature operation for manufacturing and mobile machine use.

INCREASINGLY EFFICIENT PROTECTION

ADVANCED TIER 4

Shell Tellus S4 ME

SYNTHETIC
- Extra long life
- Energy saving

Formulated for longer oil life, lower wear and better energy efficiency.

PREMIUM TIER 3

Shell Tellus S3 M

- Long life and improved protection
- Industrial applications

Formulated for longer oil life and better protection.

MAIN LINE TIER 2

Shell Tellus S2 M

- Extra protection
- Industrial applications

Formulated for better protection, longer oil life and better system efficiency.

Shell Tellus S2 V

- Extra protection
- Versatile applications

ENTRY TIER 1

PRODUCT-NAME SUFFIX KEY

E	=	Energy saving, high efficiency
M	=	Manufacturing/machine: factory applications
V	=	Versatile applications

APPLICATION ICON KEY

- Factory/machine applications
- Long life
- High load
- Mobile equipment/exterior use

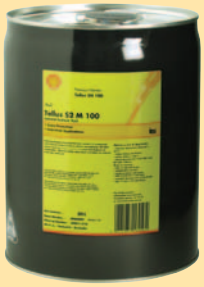
These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

SHELL TELLUS S2 M

INDUSTRIAL HYDRAULIC FLUID

PREVIOUSLY SHELL TELLUS

DESIGNED TO MEET CHALLENGES



Shell Tellus S2 M fluids are high performance hydraulic fluids that use Shell's unique patented technology to provide outstanding protection and performance.

PERFORMANCE FEATURES

LONG FLUID LIFE-MAINTENANCE SAVING

- Thermally stable in modern hydraulic systems working in extreme conditions of load and temperature. Shell Tellus S2 M are highly resistant to degradation and sludge formation therefore improving system reliability and cleanliness.
- Resist oxidation in the presence of air, water and copper. Turbine Oil Stability Test (TOST) results show outstanding performance for Shell Tellus S2 M; low acidity, low sludge formation, low copper loss; therefore helping to extend oil drain interval life and reduce maintenance costs.
- Shell Tellus S2 M have good chemical stability in the presence of moisture, which ensures long oil life and helps to reduce the risk of corrosion and rusting.

OUTSTANDING WEAR PROTECTION

- Proven anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low 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.

MAINTAINING SYSTEM EFFICIENCY

- Shell Tellus S2 M are suitable for ultra-fine filtration, an essential requirement in today's hydraulic systems. Unaffected by the usual products of contamination, such as water and calcium, which are known to cause blockage of fine filters. Customers can use finer filters, therefore achieving all the benefits of having in use cleaner fluids.
- Shell Tellus S2 M possess high lubrication properties and excellent low friction characteristics in hydraulic systems operating at low or high speed. Helps prevent stick-slip problems in critical applications enabling very fine control of machinery.
- Careful use of additives to ensure quick air release without excessive foaming. Quick air release helps minimise cavitation and slow oxidation, maintaining system and fluid performance.
- Good water separation properties (demulsibility). Helps resist the formation of water-in-oil emulsions, to help avoid consequent hydraulic system and pump damage.
- Shell Tellus S2 M are suitable for a range of other industrial applications.

APPLICATIONS

- Industrial hydraulic systems.
- Mobile hydraulic fluid power transmission systems.
- Marine hydraulic systems.

COMPATIBILITY AND MISCIBILITY

COMPATIBILITY

Shell Tellus S2 M are compatible with most pumps. However, please consult your Shell representative before using in pumps containing silver plated components.

SEAL AND PAINT COMPATIBILITY

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

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVAL OF:

- Cincinnati Machine: P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Dension Hydraulics: (HF-0, HF-1, HF-2)
- Eaton Vickers: M-2950 S
- DIN 51524 Part 2 HLP type.

MEETS THE REQUIREMENTS OF:

- ISO: 11158 (HM fluids)
- GM: LS/2
- AFNOR: NF-E 48-603
- Mannesman Rexroth (RE): 90 220-1
- Swedish Standard (SS): 15 54 34 AM.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	22	32	46	68	100
ISO Oil Type	HM	HM	HM	HM	HM
Kinematic Viscosity (ASTM D 445)					
@ 0°C mm^2/s	180	338	580	1040	1790
@ 40°C mm^2/s	22	32	46	68	100
@ 100°C mm^2/s	4.3	5.4	6.7	8.6	11.1
Viscosity Index (ISO 2909)	100	99	98	97	96
Density @ 15°C kg/m^3	866	875	879	886	891
Flash Point °C (COC)	210	218	230	235	250
Pour Point °C	–30	–30	–30	–24	–24

These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

SHELL TELLUS S2 V

INDUSTRIAL HYDRAULIC FLUID FOR WIDE TEMPERATURE RANGE

PREVIOUSLY SHELL TELLUS T

DESIGNED TO MEET CHALLENGES

Shell Tellus S2 V fluids are high performance hydraulic fluids that use Shell's unique patented technology with excellent viscosity control under both severe mechanical stress and across a wide range of temperatures. They provide outstanding protection and performance in most mobile equipment and other applications subjected to wider ranges of ambient or operating temperatures.

PERFORMANCE FEATURES

LONG FLUID LIFE – MAINTENANCE SAVING

- Shell Tellus S2 V fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimises sludge formation and provides excellent performance in the industry standard ASTM D 943 Turbine Oil Stability Test (TOST).
- Shell Tellus S2 V 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.
- Highly shear stable viscosity modifiers help minimise variations in the fluid properties throughout the fluid drain interval.

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 V fluids can help system components last longer.

MAINTAINING SYSTEM EFFICIENCY

- The extended temperature range capability of Shell Tellus S2 V allows efficient operation of mobile equipment from cold start to normal operating conditions.
- Superior cleanliness, excellent filterability and high performance water separation, air release and anti-foam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.
- The unique additive system in Shell Tellus S2 V, in combination with superior cleanliness (meeting the requirements of max ISO 4406 21/19/16 class, ex Shell filling lines. As recognised by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could affect 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 V 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.

APPLICATIONS

MOBILE/EXTERIOR HYDRAULIC APPLICATIONS

- Hydraulic and fluid power transmission systems in exposed environments can be subject to wide variations in temperature. The high viscosity index of Shell Tellus S2 V helps deliver responsive performance from cold start conditions to full load, severe duty operation.

PRECISION HYDRAULIC SYSTEMS

- Precision hydraulic systems require excellent control of fluid viscosity over the operating cycle. Shell Tellus S2 V provides greater temperature viscosity stability compared to ISO HM fluids that can help improve the performance of such systems.
- For more severe operating conditions, longer fluid life and enhanced efficiency, the Shell Tellus 'S3' and 'S4' ranges offer additional performance benefits.

COMPATIBILITY

- Shell Tellus S2 V 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 V 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 AND PAINT COMPATIBILITY

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

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVAL OF:

- Denison Hydraulics: (HF-0, HF-1, HF-2)
- Cincinnati Machine: P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers: M-2950 S, I-286 S.

MEETS OR EXCEEDS THE REQUIREMENTS OF:

- Swedish Standard (SS): 15 54 34 AM
- ISO: 11158 (HV fluids)
- AFNOR: NF-E 48-603
- ASTM: 6158-05 (HV fluids)
- DIN: 51524 Part 3 HVLP type
- GB: 111181-1-94 (HV fluids).

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

TYPICAL PHYSICAL CHARACTERISTICS

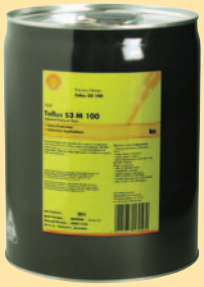
CHARACTERISTICS	15	32	46	68	100
ISO Oil Type	HV	HV	HV	HV	HV
Kinematic Viscosity (ASTM D 445)					
@ –20°C mm^2/s	350	1300	2350		
@ 40°C mm^2/s	15	32	46	68	100
@ 100°C mm^2/s	3.8	6.1	7.9	10.5	14.0
Viscosity Index (ISO 2909)	142	143	143	142	142
Density @ 15°C kg/m^3 (ISO 12185)	872	872	872	877	880
Flash Point °C (COC) (ISO 2592)	170	210	225	225	225
Pour Point °C (ISO 3016)	–42	–39	–36	–30	–30

These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

SHELL TELLUS S3 M

PREMIUM ZINC-FREE INDUSTRIAL HYDRAULIC FLUID

RECOMMENDED REPLACEMENT FOR SHELL TELLUS S



DESIGNED TO MEET CHALLENGES

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.

PERFORMANCE FEATURES

LONG FLUID LIFE – MAINTENANCE SAVING

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

- An extended ASTM D 943 TOST lifetime, with an oxidative stability that is up to three times longer than the industry minimum.
- 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 T6C (dry and wet versions), Denison P46 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 an ISO 4406 cleanliness of 21/19/16 or better ex Shell 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.

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.

ENVIRONMENTAL IMPACT

- Shell Tellus S3 M has a reduced environmental impact in the event of a leak or accidental spillage compared to conventional zinc-based hydraulic fluids. This is achieved through the use of zinc-free anti-wear technology and low sulphur base oils.

For further reductions in environmental impact, we offer the Shell Naturelle range of environmentally considerate lubricants.

For applications that experience wide temperature variations we recommend the Shell Tellus 'S2' series of hydraulic fluids.

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 AND PAINT COMPATIBILITY

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

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVAL OF:

- Denison Hydraulics: (HF-0, HF-1, HF-2)
- Eaton Vickers (Brochure 694)
- MAG (Cincinnati Machine) P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)

MEETS THE REQUIREMENTS OF:

- ISO 11158 (HM fluids)
- DIN 51524-2 (HLP oils)
- ASTM 6158 (HM mineral oils)
- SS 15 54 34.

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

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	22	32	46	68	100
ISO Oil Type	HM	HM	HM	HM	HM
Kinematic Viscosity (ASTM D 445)					
@ 0°C mm^2/s	180	324	565	700	1750
@ 40°C mm^2/s	22	32	46	68	100
@ 100°C mm^2/s	4.3	5.5	6.8	10.2	11.4
Viscosity Index (ISO 2909)	100	105	105	135	100
Density @ 15°C kg/m^3 (ISO 12185) kg/m^3	875	855	865	835	875
Flash Point °C (PMCC) (IP 34)	204 (COC)	215 (COC)	220	250	250 (COC)
Pour Point °C (ISO 3016)	–30	–33	–33	–51	–33

These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

SHELL TELLUS S4 ME

ADVANCED SYNTHETIC INDUSTRIAL HYDRAULIC FLUID

PREVIOUSLY SHELL TELLUS EE

DESIGNED TO MEET CHALLENGES

Shell Tellus S4 ME hydraulic fluids are designed to help users improve the energy efficiency of their hydraulic systems without compromising the protection of the system or maintenance procedures of their equipment and operations. Shell Tellus S4 ME has been found to improve energy efficiency in applications such as plastic injection moulding and metal pressing compared to Shell Tellus S2 M. In addition, Shell Tellus S4 ME also uses an advanced ashless additive system designed to help equipment service life and lower maintenance costs through providing outstanding wear protection and long oil life capability.

PERFORMANCE FEATURES *(COMPARED TO SHELL TELLUS 2M)*

ENERGY EFFICIENCY

- With the help of sophisticated system modelling, Shell Tellus S4 ME has been designed to improve the energy efficiency of hydraulic systems through a specially developed formulation that balances the flow, frictional and power transmission characteristics of the fluid. Field evaluation has shown energy efficiency* improvements in such applications.

REDUCE MAINTENANCE COSTS

- Shell Tellus S4 ME offers outstanding performance in all the properties relevant to a hydraulic fluid such as hydraulic pump wear and resistance to breakdown in contact with water or other contaminants.
- Together with an oil life that exceeds the 10,000 hours maximum duration that can be measured in the industry Turbine Oil Stability Test (TOST), Shell Tellus S4 ME offers you the capability to significantly extend oil change intervals, which can help reduce overall maintenance costs.

GREATER EQUIPMENT PROTECTION

- In addition to meeting standard industry and OEM specification requirement, Shell Tellus S4 ME is formulated to provide an exceptional level of additional protection. For instance, Shell Tellus S4 ME results in up to 68% less wear in the Vickers V104C pump wear test than the 50 mg pass/fail limits for many OEMs such as Cincinnati Machine (P-specification), Bosch-Rexroth (RD 90220-1) and Eaton Vickers. Superior cleanliness (meeting the requirements of ISO 4406 21/19/16 class or better ex Shell filling plants. As recognised by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could affect the cleanliness level). Together with outstanding protection against sludge build-up, valve sticking and corrosion, it can help prolong the life of your hydraulic equipment.

APPLICATIONS

INDUSTRIAL HYDRAULIC SYSTEMS

- Particularly suitable for those systems with high intensity hydraulic power usage such as injection moulding and high pressure metal pressing operations and where resistance to high temperatures or long oil life is required.

MOBILE HYDRAULIC SYSTEMS

- Shell Tellus S4 ME is also suitable for use in certain mobile hydraulic fluid power transmission systems and in marine applications and provides superior low temperature fluidity compared to most conventional ISO HM type fluids.

* Actual energy savings may vary depending on application, current oil used, maintenance procedures, condition of equipment, operating conditions and intensity of hydraulic power usage.

ENVIRONMENTAL IMPACT

- Shell Tellus S4 ME oils use an advanced zinc-free (ashless) additive system to help provide reduced environmental impact in the case of leakage or accidental spillage compared to conventional zinc-based hydraulic fluids through the use of ashless anti-wear.

COMPATIBILITY

- Suitable for use with most hydraulic pumps.
- 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).
- With seal materials and paints normally specified for use with mineral oils.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVALS OF:

- Denison Hydraulics: (HF-0, HF-1, HF-2)
- Cincinnati Machine: P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers: M-2950 S, I-286 S
- BoschRexroth
- Arburg: Injection moulding applications.

MEETS OR EXCEEDS THE REQUIREMENTS OF:

- ASTM: D 6158 (HM fluids)
- ISO: 11158 (HM fluids)
- DIN: 51524 Part 2 HLP type
- Swedish Standard (SS): 15 54 34 AM
- AFNOR: NF-E 48-60
- Krauss Maffei.

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

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	46	68
ISO Fluid Type	HM	HM
Kinematic Viscosity (IP 71) @ 0°C mm²/s @ 40°C mm²/s @ 100°C mm²/s	 576 46 6.8	 1038 68 8.7
Viscosity Index (ISO 226)	98	97
Density @ 15°C kg/m³ (ISO 12185)	0.832	0.835
Flash Point °C (COC) (ISO 2592)	250	250
Pour Point °C (ISO 3016)	–51	–51

These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

LOOKING FOR ENHANCED EFFICIENCY?

Shell **Tellus** ***S4*** *ME*

ADVANCED SYNTHETIC HYDRAULIC FLUID

- Proven to enhance energy efficiency*
- Up to four times longer oil life*
- Helps prolongs equipment life

Part of the Shell Tellus hydraulic fluid range – designed to help you make the right choice

DESIGNED TO MEET CHALLENGES

*Compared to Shell Tellus S3 M a mineral oil.