WHITE PAPER

SHELL TELLUS S4 VE ADVANCED, GAS-TO-LIQUIDS (GTL) TECHNOLOGY, SYNTHETIC HYDRAULIC FLUID

Shell Tellus S4 VE fluid enables customers to realize potential cost savings through longer equipment service life and lower maintenance costs. Our new GTL-based **Shell Tellus S4 VE can help to deliver total cost of ownership savings with up to a 6% hydraulic productivity improvement compared with a mineral oil.[3]**

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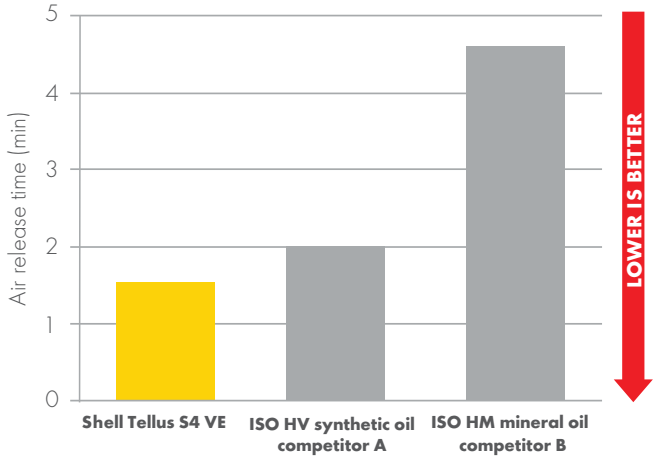
Energy Efficiency and Productivity

As the hydraulic oil moves under pressure through the lines, valves, and other hydraulic system components, energy can be lost. Shell Tellus S4 VE fluid can reduce the energy losses from hydraulic pumps by up to 21% compared with a mineral-oil-based fluid.[1]

Modern hydraulic systems with smaller reservoirs and sumps are susceptible to fluid aeration. Air in the fluid can lead to undesirable consequences such as reduced efficiency and responsiveness, and increased susceptibility to cavitation and other harmful system malfunctions, which can cause unplanned downtime and increased maintenance costs.



Air release test ASTM D3427[2]

Extended Oil Life

Shell Tellus S4 VE fluid is an advanced-performance, shearstable hydraulic fluid with strong thermal and oxidative stability. Shell Tellus S4 VE offers extended oil-drain intervals in mobile and stationary equipment, up to 8,000+ hours, and up to 40,000 hours in plastic injection molding machines.

Shell Tellus S4 VE can help to deliver total cost of ownership savings with up to

6%

hydraulic productivity improvement compared with a mineral oil.[3]

Shell Tellus S4 VE fluid can reduce the energy losses from hydraulic pumps by up to

21%

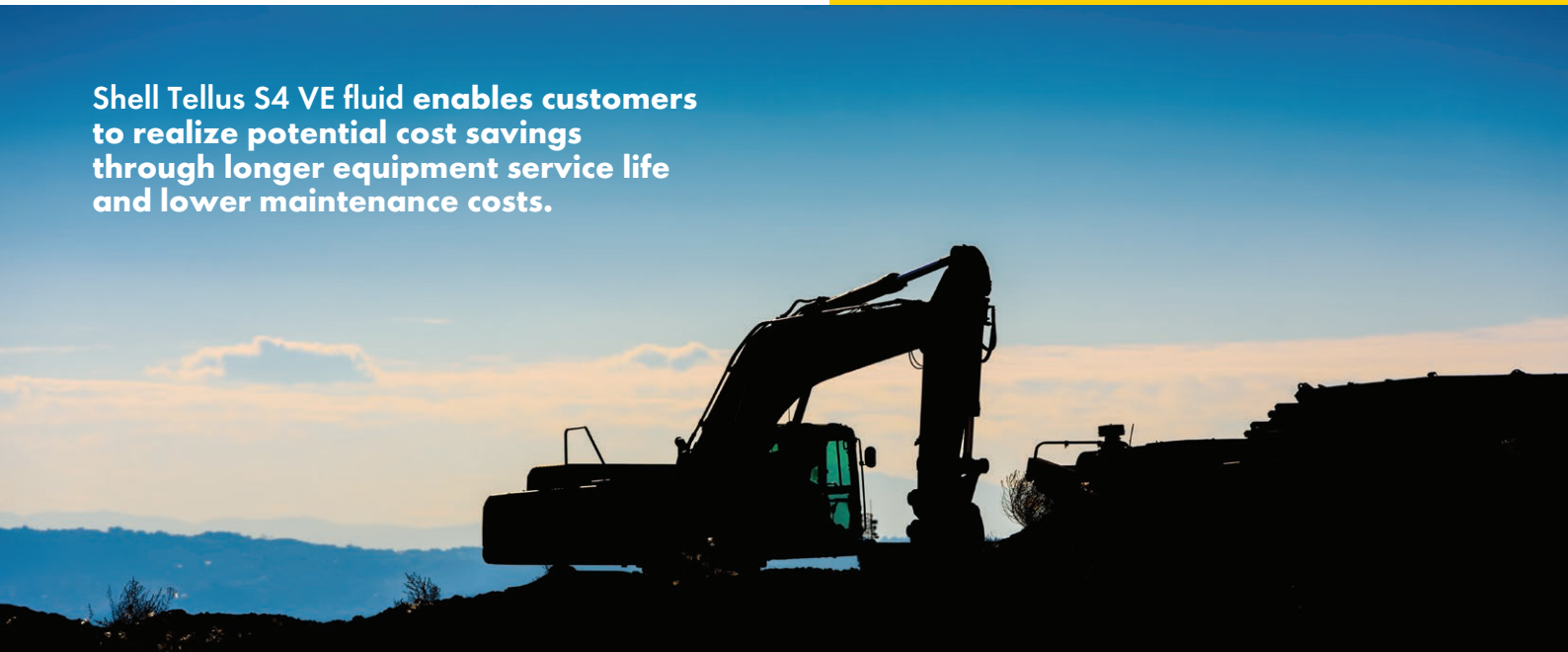
Compared with a mineral oil based fluid.[1]

Shell Tellus S4 VE hydraulic fluid has a

27%

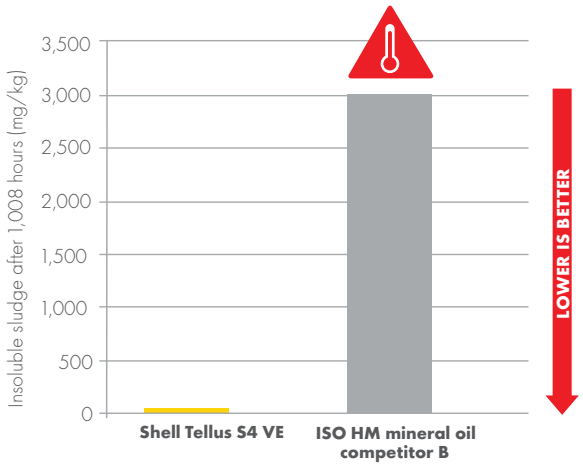
lower air release time when compared with a competitor's mineral-oil-based fluid, as shown in the ASTM D3427 air release test.[2]

Shell Tellus S4 VE fluid enables customers to realize potential cost savings through longer equipment service life and lower maintenance costs.



Sludge Control

Equipment operating conditions such as high temperatures or contaminants can increase the likelihood of sludge formation that may affect overall hydraulic system efficiency and lead to blocked filters and increased unplanned maintenance. Extreme temperature highs worldwide, especially during the summer, can lead to more frequent changes of lubricant, reduced equipment use or increased maintenance and costs for managing sludge and its associated problems. In the ASTM D7873 dry TOST, Shell Tellus S4 VE demonstrated up to 10 times less sludge in extreme heat compared with a competitor's mineral-oil-based fluid.[3]



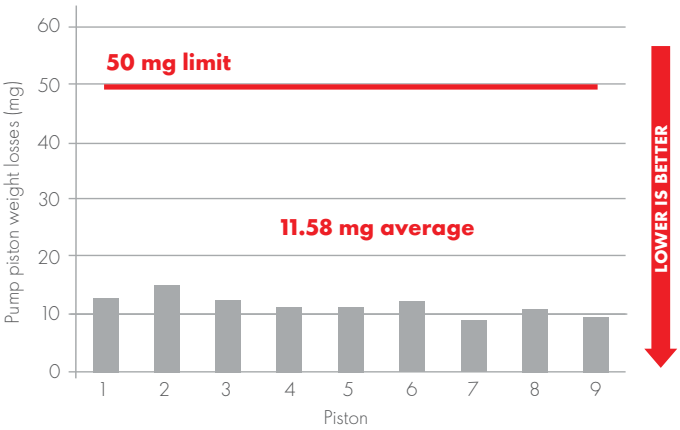
[2]Measured using industry-standard, third-party and internal competitor benchmarking tests. Actual effects and benefits may vary. No guarantees provided.

ASTM D7873 dry TOST[2]

Wear Protection

With the increasing demands on hydraulic systems, a modern hydraulic fluid must work hard to protect the machine and minimize unplanned maintenance. Shell's internal calculations show that the new Bosch Rexroth test stresses the fluid 13 times more than a previous industry standard wear test to help ensure that the hydraulic fluid protects your hydraulic system.[4] Shell Tellus S4 VE shows four times less wear compared with the stringent Bosch Rexroth limit based on the pump piston weight loss.

Shell Tellus S4 VE also demonstrates low oil shearing, which could otherwise accelerate component wear and increase the total cost of ownership.



Bosch Rexroth RFT-APU-CL rig test

Wide Temperature Range

With a viscosity index of 160, in combination with robust shear stability and excellent low-temperature fluidity, Shell Tellus S4 VE is a year-round fluid that can protect from cavitation during cold start-ups and provides durability at higher operating temperatures. By protecting a machine over a wide temperature operating range, the fluid can help to increase hydraulic efficiency.

Specifications and Approvals

ASTM 6158-05 (HV Fluids); Bosch Rexroth RDE 90245; Danfoss; Denison Hydraulics (HF-0, HF-1, HF-2); DIN 51524 (HVLP oils); Eaton E-FDGN-TB002-E; GB 11118.1- 2011 L-HV, GB 11118.1-2011 L-HS Ultra Low and GB/T 33540.4-2017; ISO 11158 (HV fluids); and JCMAS P041:2004 normal temperature and low temperature.

Full Product and Service Portfolio

Whatever your needs or application, Shell can provide a full range of oils and greases, including synthetic, highperformance products and additional services.

Sources:

1. Milwaukee School of Engineering Fluid Power Institute. The energy loss relates to the hydraulic pump losses for a formulation of Shell Tellus S4 VE when compared with a conventional mineral oil fluid in standard hydraulic bench testing under controlled conditions. Results may vary based on operating conditions and equipment.
2. Measured using industry-standard, third-party and internal competitor benchmarking tests. Actual effects and benefits may vary. No guarantees provided.
3. Based on Shell's technical experience with finished lubricants, additive chemistry and base oils together with field and laboratory testing.
4. Compared with Eaton Vickers 35VQ25 vane pump test ATS373.

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For more information, please contact your Shell Lubricant Solutions Representative.

Or visit: www.shell.us/tellus