

Shell EcoSafe S3 DU

Fire-resistant hydraulic fluids

**SHELL
LUBRICANT SOLUTIONS**



DESCRIPTION

Shell EcoSafe S3 DU, formerly EcoSafe FR, fluids are fully synthetic, nonaqueous hydraulic fluids that are FM Approved industrial fluids. They can be used in industrial, marine and mobile equipment, including high-pressure systems, systems with servo valves and all robotics.

Shell EcoSafe S3 DU fluids are inherently fire-resistant, synthetic hydraulic fluids. Based on very high viscosity index polyalkylene glycol (PAG) base stocks coupled with a proven ashless additive package, Shell EcoSafe S3 DU fluids have been designed to minimize fluid degradation under even the most severe operating conditions. They deliver the performance properties demanded by today's high-performance hydraulic systems.

Shell EcoSafe S3 DU fluids have been developed to provide high resistance against varnish and sludge formation, thus ensuring long-term system cleanliness while extending maintenance intervals and service life. The fluids offer excellent lubricity for outstanding pump life under the most severe conditions and meet or exceed the pump performance of premium, antiwear mineral oils at high operating pressures. Shell EcoSafe S3 DU will not break down and react with water, thus minimizing fluid degradation and the acid formation that can damage and eventually destroy hydraulic pumps.

A high viscosity index, in combination with excellent low-temperature fluidity, provides a year-round fluid that protects machines from cavitation during cold startups and provides durability at higher operating temperatures. All Shell EcoSafe S3 DU grades achieved a 13-stage rating in the FZG gear test, thereby demonstrating a high level of protection against wear and scuffing.

Although the Shell EcoSafe S3 DU range is compatible with many different types of fluids, to ensure proper system performance, thorough cleaning and flushing of hydraulic systems during conversions are recommended.



SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

Shell EcoSafe S3 DU fluids are classified as FM Approved industrial fluids by FM Approvals and meet or surpass Bosch-Rexroth, Sauer-Danfoss, Denison, Parker, Oilgear and Eaton (formerly Vickers) specifications. ISO viscosity grades 46 and 68 are classified as readily biodegradable.



TYPICAL PHYSICAL CHARACTERISTICS

PROPERTIES				
	Method	Shell EcoSafe S3 DU 46	Shell EcoSafe S3 DU 68	Shell EcoSafe S3 DU 100
ISO viscosity grade	ISO 3448	46	68	100
Kinematic viscosity at 40°C, mm ² /s	ISO 3104/ASTM D445	50.0	68.0	100.0
Kinematic viscosity at 100°C, mm ² /s	ISO 3104/ASTM D445	9.5	12.3	17.0
Viscosity index	ISO 2909/ASTM D2270	178	181	189
Density at 15°C, g/cm ³	ASTM D1298	0.992	0.993	0.993
Flash point (Cleveland open cup), °C	ISO 2592/ASTM D92	279	281	281
Fire point (Cleveland open cup), °C	ISO 2592/ASTM D92	315	319	319
Autoignition temperature, °C	ASTM E659	388	394	-
Air release at 50°C, min	ASTM D3427	3	5.5	-
Air release at 75°C, min	ASTM D3427	-	-	4.0
Pour point, °C	ISO 3016/ASTM D97	-45	-42	-39
FZG scuffing (A/8.3/90), failure load stage	ISO 14635-1	13	13	13

CONTACT US

For more information, please contact your Shell Lubricant Solutions representative or visit shell.us/ecosafe.

The information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by Shell or others is not to be inferred from any statement contained herein.