



TECHNICAL DATA

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#275SW DILEX SUPREME HYDRAULIC FLUID WITH DYNAVIS® ISO 15

Dilex Supreme Hydraulic Fluid with **DYNAVIS®** is a premium, para-synthetic, multi-grade, anti-wear hydraulic fluid designed for year round use in high pressure hydraulic systems of mobile equipment. These systems require an MIL-H-5606 type hydraulic fluid that can operate over a wide range of ambient temperatures. Dilex Supreme Hydraulic Fluid with **DYNAVIS®** is recommended in hydraulic applications where protection against the formation of varnish deposits on close clearance servo-valves and other system components is critical and in applications that require the use of a high dielectric strength oil. Typical applications include:

- Outdoor utility vehicles operating at very low to high ambient temperatures.
- Cherry pickers and other equipment used to install and service electrical utility lines.
- Surface mining and construction equipment operations at very low to high ambient temperatures.
- Off-road forestry equipment.

Dilex Supreme Hydraulic Fluid with **DYNAVIS®** has a minimum dielectric strength of 35 kilovolts. This high dielectric strength rating exceeds the OSHA minimum requirement of 30 kilovolts for use in the hydraulic systems of mobile equipment used for repair and service of electrical lines.

Dilex Supreme Hydraulic Fluid with **DYNAVIS®** is blended from the finest quality polyalphaolefin (PAO), synthetic base fluids and petroleum base fluids available to provide the following advantages:

1. **Excellent Low Temperature Properties**
2. **Excellent Oxidation and Thermal Stability.**
3. **Excellent Resistance to Thermal Degradation**
4. **Compatibility With All Types of Seals and Coatings**

Blended into this unique combination of (PAO) and petroleum base oil is a carefully balanced, premium antiwear additive package, **VarniShield™**, and an extremely shear stable viscosity index improver, **DYNAVIS®**. **VarniShield™** is patented hydraulic fluid additive technology designed to prevent the formation and build-up of varnish deposits, while providing exceptional anti-wear performance, outstanding thermal and oxidation stability, rust and corrosion protection and rapid water separation. The **VarniShield™** additive system provides Dilex Supreme Hydraulic Fluid with **DYNAVIS®** with a high degree of thermal and oxidative stability thus minimizing the formation of sludge and varnish. If any varnish particles do form, the dispersancy of the **VarniShield™** additive will keep these particles suspended to prevent them from depositing on critical internal components. This helps eliminate the replacement of components such as filters and valves and the costs associated with these activities.

In addition to protecting against the formation of varnish deposits and keeping the system clean and operating longer, the **VarniShield™** additive technology will provide the following performance benefits:

1. Exceptional and long lasting anti-wear protection to protect system components
2. Extended pump and bearing life.
3. Enhanced thermal and oxidative stability.
4. Superior hydrolytic stability with excellent demulsibility characteristics so water separates quickly.
5. Excellent rust and corrosion protection that extends component life and protects multi-metallurgy components.
6. Excellent anti-foaming and air release properties.
7. Reduced sludge, varnish and deposit formation and reduced filter blockage and excellent filterability.
8. Improved durability of non-ferrous parts.
9. Enhanced compatibility with existing fluids.
10. Excellent fluid quality reserve to maintain performance features under severe service conditions and extended drain intervals.
11. Enhanced fluid and seal life which results in reduced system maintenance.

DYNAVIS® additive technology provides multi-grade functionality and wide temperature performance. In addition, **DYNAVIS®** will increase the performance of the hydraulic system by increasing the hydraulic efficiency of the system and reducing energy and fuel consumption. **DYNAVIS®** will also enhance the productivity of the equipment. The extremely shear stable polymer viscosity index improver provides Dilex Supreme Hydraulic Fluid with **DYNAVIS®** with a viscosity index of **227**. This extremely high viscosity index provides the proper viscometric properties that are needed for maximum efficiency over a wide range of operating temperatures and pressures. By maintaining its viscometric properties in the optimum viscosity range for the hydraulic pump, Dilex Supreme Hydraulic Fluid with **DYNAVIS®** will provide the following performance benefits:

1. **Improved viscometric properties over a wide range of temperatures.**
2. **Less warm-up time and improved start-up during low temperature operation.**
3. **Faster and smoother response of the hydraulic system at low temperatures.**
4. **Less power required and consumed at cold start-up than conventional fluids.**
5. **Reduced risk of pump cavitation and lubricant starvation at low operating temperatures.**
6. **Improved volumetric and hydro-mechanical efficiency.**
7. **Less internal pump leakage at high operating temperatures**
8. **Excellent resistance to recirculation resulting in a reduction in heat build-up and an increase in hydraulic system responsiveness.**
9. **Less hydraulic system fade.**
10. **Stable pump performance, especially during high operating temperatures**
11. **Excellent protection from wear during periods of high operating temperatures and high pressures**
12. **Higher flow rate at peak operating temperature.**
13. **Stress on the overall system is kept in check.**
14. **Significantly less wear and tear on hydraulic system components (pumps, hoses, seals, etc.)**
15. **An increased Temperature Operating Window (TOW) that allows the fluid to perform consistently and reliably with in a wide range of temperatures from cold to hot.**
16. **Ability to exhibit lower viscosity at cold temperatures and delivery of stay-in-grade viscosity at high operating temperatures.**
17. **Minimization of friction and wear and reduced fuel consumption over a wide temperature range.**
18. **Elimination of seasonal changes.**
19. **Increased hydraulic power.**
20. **Enhanced energy efficiency with lower energy consumption for the same amount of work.**
21. **Improved productivity (more work can be done in the same amount of time).**
22. **Reduced Greenhouse gas emissions**
23. **Lower operating temperatures which reduces the risk of overheating and equipment shutdown.**
24. **Potential fuel savings and reduced emissions.**
25. **Reduced operating and maintenance costs**

The trend by hydraulic pump manufacturers to employ higher speeds, higher pressures, reduced cycling times and smaller systems along with the fact that in many applications the equipment may be operating beyond its design capacity can result in thin film lubrication conditions. These thin film lubrication conditions can result in increased wear conditions and rates, which can lead to a loss in system efficiency, reduced equipment life and potentially catastrophic system failure.

Dilex Supreme Hydraulic Fluid with **DYNAVIS®** also contains Micron Moly®, a liquid soluble type of moly that plates itself to the sliding, rolling and rubbing metal surfaces of the hydraulic and compressor systems. This plating action forms a long lasting solid lubricant film on these rubbing, rolling and sliding surfaces. This moly film will withstand pressures up to 500,000 pounds per square inch. Once plated to the sliding, rolling and rubbing metal surfaces the Micron Moly® not only produces a smooth finish surface, but also reduces friction between the moving parts. This results in less heat being generated, which in turn not only reduces operating temperatures, but also downtime.

Dilex Supreme Hydraulic Fluid with **DYNAVIS®** meets and exceeds the following specifications and manufacturers requirements: Denison HF-O, Vickers M-2950-S and I-286-S, Eaton Char-Lynn, Haldex Barnes, Husky, FMC, Rexnord, Commercial Shearing HD 2/900, Commercial Hydraulics, DIN 51524 Part 3, ISO 6743/4 Type HV, ISO 11158:2009 HV, Bosch Rexroth, Saur Sundstrand, Saur Danfoss, AF Nor E 48-603, MIL-H-5606, MIL-H-5606A, Altec, Pittman and MTI.

TYPICAL PROPERTIES

ISO Grade	15
Specific Gravity 60°F	0.88
Viscosity SUS @ 100°F (ASTM D-2161)	80.2
Viscosity Cst 40°C (ASTM D-445)	14.6 – 16.5
Viscosity Cst 100°C (ASTM D-445)	4.00 – 4.75
Viscosity Index (ASTM D-2270)	227
Brookfield Viscosity (ASTM D-2983)	
cP 0°F/-18°C	117
cP -22°F/-30°C	< 500
cP -40°F/-40°C	562
Flash Point °F/°C (ASTM D 92)	390°/198.89°
Pour Point F/C (ASTM D-97)	-76°/-60°
Total Acid Number (ASTM D-664)	0.91
Rust Test (ASTM D-665)	
Procedure A (Distilled Water)	Pass
Procedure B (Salt Water)	Pass
Conradson Carbon Residue (ASTM D-189) % Residue	0.01
Copper Strip Corrosion Test	
3 hours (ASTM D-130)	1a
Four Ball Wear Test (ASTM D-4172)	
1hr/40kg/130°F	
Mean Scar Diameter, mm	.45
Four Ball EP Test (ASTM D-2783)	
Weld Point, kg	160
Falex Continuous Load (ASTM D-3233)	
Failure Load, lbs.	1250
FZG Gear Test (ASTM D-5182)	
Load Stage Pass	12
Foam Test (ASTM D-892)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
Hydrolytic Stability (ASTM D-2619)	
Copper Wt. Loss, mg/cm ²	0.00566
Acidity of Water, mg/KOH	0
Demulsibility (ASTM D-1401)	
Oil-Water-Emulsion	40-40-0
Time, min.	15
Denison Filterability Test TP-02100	
Filtration Time, without water (seconds)	146
Filtration Time with 2% water (seconds)	163
Oxidation Stability Test (ASTM D-943)	
Hours to TAN of 2	5000+
Sludge Tendencies (ASTM D-4310)	
Neutralization number after 1000 hours	0.34
Insoluble Sludge mg	39.4
Total Copper, mg	0.1
Thermal Stability Test (ASTM D-2070)	
168 hr/135°C, copper/steel Catalyst	
Sludge (mg/100 ml)	1.8
Copper weight loss, mg/100ml	0.2
Condition of copper rod	1
Air Release (ASTM D-3427)	
Time, (min @ 122°F)	6.2
Denison T6H20C Hybrid Pump Test	
Phase 1 1700 rpm 230°F/110°C weight loss	5.1
Phase 2 1700 rpm 176°F/80°C + 1% water	5.8
Vickers 35VQ25 Pump Test	
Total Wt. Loss Vane, mg	5
Total Wt. Loss Ring, mg	11
Total Wt. Loss, mg	16
Dielectric Strength (ASTM D-877)	35KV