

OPAL™

Hydraulic & Industrial Fluid

 Lubricants for a Healthier Planet™

OPAL Hydraulic & Industrial Fluid is an ashless, synthetic, high-performance lubricant for mobile and industrial applications that keeps your equipment operating longer, faster and harder. The High Viscosity Index controls viscosity changes at temperature extremes for improved volumetric and mechanical efficiency translating into lower energy consumption and increased productivity. **OPAL** is a reduced environmental impact fluid, non-toxic to fish and aquatic species, and is inherently biodegradable.

OPAL Hydraulic Fluid is designed for the following specifications and applications:

DIN 51524-2 HLP	Eaton E-FDGN-TB002-E	Parker Denison HF-0, HF-1, HF-2 (ISO 32, 46, 68)
DIN 51524-3 HVLP	Bosch Rexroth RE 90220	Komatsu KES 07.866 (ISO 46 equivalent)
ISO 11158 HM & HV	John Deere DTW 3488	Deere Hitachi (ISO 46 equivalent)
ASTM D6158-16 HV	Danfoss 520L0463	John Deere Hydrau (ISO 68 equivalent)

PRODUCT ATTRIBUTE	TEST METHOD	TYPICAL PROPERTIES					
ISO Grade	ASTM D2422	10	15	22	32	46	68
Kinematic Viscosity, cSt @ 40°C	ASTM D445	10.3	15.1	22	32	46	68
Kinematic Viscosity, cSt @ 100°C	ASTM D445	3.1	4.1	5.1	6.6	8.6	11.6
Viscosity Index No.	ASTM D2270	185	185	170	165	165	166
Density, g/mL @ 15.6°C	ASTM D1298	0.882	0.864	0.842	0.841	0.846	0.852
Density, lb/gal @ 60°F	ASTM D1298	7.36	7.21	7.02	7.02	7.06	7.11
Pour Point, °F (°C)	ASTM D97	-81 (-63)	-76 (-60)	-60 (-51)	-49 (-45)	-38 (-39)	-33 (-36)
Flash Point, °F (°C)	ASTM D92	392 (200)	406 (208)	428 (220)	464 (240)	486 (252)	502 (261)
Dynamic Viscosity, cP @ -20°C	ASTM D7042	150	325	550	1050	2050	3650
Dynamic Viscosity, cP @ -30°C	ASTM D7042	350	800	1600	3550	--	--
Dynamic Viscosity, cP @ -40°C	ASTM D7042	1100	2250	--	--	--	--
FZG Fail Stage, A/8.3/90	ASTM D5182	--	--	--	>12		
Shear Stability, % loss 20 hours	CEC L-45-A	--	6.0	5.4	4.5	6.1	9.8
Demulsibility, oil-water-emul (min)	ASTM D1401	40-40-0 (10)		40-40-0 (15)			
Dry Filterability Stage 1 & II	ISO 13357-2	Pass					
Wet Filterability Stage 1 & II	ISO 13357-1	Pass					
Vickers Vane Pump Test	DIN 51389-2	--	--	--	Pass		
Eaton 35VQ25A Pump Test	ASTM D6973	--	--	--	Pass		
Denison Phase I & II	T6H20C	--	--	--	Pass		
Oxidation Stability, Hours	ASTM D943	>5000	>6000				
Dielectric Breakdown Voltage	ASTM D877	>35kV					
Copper Corrosion	ASTM D130	1b					
Rust Test, Distilled Water	ASTM D665A	Pass					
Rust Test, Syn. Sea Water	ASTM D665B	Pass					

Foaming Test, Seq. I, II, and III	ASTM D892	0/0/0/0/0/0					
Air Release @ 50°C, min	ASTM D3427	2	2	2	3	3	5
Fluid Cleanliness	ISO 4406	16/14/11 or cleaner					
Color		Light yellow					

WARRANTY:

When properly stored and used in accordance with instructions, any material not satisfactory will be replaced with any product in our line on a dollar for dollar basis provided the account is paid in full when due and Hydrotex is notified in writing within 12 months of the date of the order by the customer.

Hydrotex® is a manufacturer and distributor of high performance lubricant and fuel improver solutions. As an employee owned company, we help our customers develop sustainable solutions designed to improve system reliability, save energy, limit pollution, extend fixed asset life, reduce maintenance costs and improve fuel efficiency. Our products and services leverage over 80 years of innovation resulting in superior lubrication solutions and high touch customer service.