PHILLIPS 66 LUBRICANTS

Syndustrial® Hydraulic Fluid

Phillips 66® Syndustrial Hydraulic Fluid is a premium quality, synthetic anti wear hydraulic fluid specifically developed for use in industrial and mobile equipment operating in environmentally sensitive areas. It is readily biodegradable for reduced environmental impact in case of leaks or spills. The product is certified by the FMRC as fire-resistant for use in areas subject to fire hazards, and two grades are approved by the MSHA for use in underground mining equipment.

Syndustrial Hydraulic Fluid is formulated with synthetic polyol ester (POE) base oil and select ashless additives to provide excellent lubrication and wear protection for hydraulic pumps and motors. It protects hydraulic system components against rust and corrosion, has outstanding oxidation resistance and thermal stability at high temperatures and excellent detergency to protect against sludge and varnish formation allowing for a long service life. It is readily biodegradable as determined by the OECD 301C test method. It passes the visual "no sheen" requirements of the US EPA Static Sheen Test.

Syndustrial Hydraulic fluid is recommended for use in equipment operating in areas subject to fire hazards, such as steel mills, surface mines, and foundries. All three grades are approved by Factory Mutual Research Corporation (FMRC) as less flammable hydraulic fluids. The ISO 68 & 100 viscosity grades also are approved by MSHA for use in underground mining equipment.

Syndustrial Hydraulic Fluid does not contain water, mineral oil, or phosphate ester. It may be used in hydraulic systems designed for conventional mineral oil-based hydraulic fluids without compromising overall hydraulic system integrity. However, it should not be mixed with other fluid types. When converting from water-glycol fluids, invert emulsions, or phosphate esters, the system should be flushed prior to conversion, and seal compatibility verified.[1]

[1] **Note:** *For information on fluid conversion or seal and elastomer compatibility, please call our Technical Support Hotline.*

Applications

- Mobile and stationary equipment operating in environmentally sensitive areas
- Hydraulic systems subject to fire hazards and/or extreme heat
- Steel mill, foundries, and manufacturing plants
- Underground mining equipment where a fire-resistant, MSHA-approved hydraulic fluid is required (ISO VG 68, 100)

Syndustrial Hydraulic Fluid meets the requirements of the following test:

- U.S. EPA/Coast Guard Static Sheen Test, Federal Register Vol. 58, No. 41

Syndustrial Hydraulic Fluid is approved as meeting the requirements of the following industry specification:

- Factory Mutual Group II, Type HFD-U (ISO 6743-4), Less Flammable Hydraulic Fluid

Readily Biodegradable

Synthetic Polyol Ester

Antiwear Hydraulic Fluid

FMRC Approved as Fire-Resistant

KEEPING THE WORLD RUNNING SMOOTHLY

PHILLIPS 66 LUBRICANTS

Features/Benefits

- Fire resistant, with high flash point, fire point, and auto-ignition temperature for reduced risk of fire/explosion
- Outstanding oxidation resistance and thermal stability at high temperatures
- Excellent wear protection for hydraulic pumps and motors
- Protects against rust and corrosion
- Good low-temperature fluidity
- Non-toxic, non-irritating, and contains no hazardous ingredients
- Readily biodegradable
- Fire resistance certified by Factory Mutual Research Corporation
- MSHA approved (Approval Number 35-A080004, ISO VG 68; Approval Number 30-20-3, ISO VG 100)

Syndustrial® Hydraulic Fluid

Typical Properties			
ISO Grade	**46**	**68**	**100**
Specific Gravity @ 60°F	0.920	0.920	0.922
Density, lbs/gal @ 60°F	7.66	7.66	7.68
Color, Visual	Lt Amber	Lt Amber	Lt Amber
Flash Point (COC), °C (°F)	278 (532)	276 (529)	300 (572)
Fire Point (COC), °C (°F)	360 (680)	360 (680)	340 (645)
Auto-ignition Temperature, DIN 51794, °C (°F)	>400 (>750)	>400 (>750)	>400 (>750)
Pour Point, °C (°F)	-53 (-63)	-36 (-33)	-39 (-38)
Viscosity			
cSt @ 40°C	48.2	64.8	109
cSt @ 100°C	9.5	11.7	20.4
SUS @ 100°F	244	328	549
SUS @ 210°F	58.2	66.3	102
Viscosity Index	186	178	213
Acid Number, ASTM D974, mg KOH/g	1.80	1.20	1.10
Copper Corrosion, ASTM D130, 48 hrs @ 80°C	1b	1b	1b
Foam Test, ASTM D892	Pass	Pass	Pass
Rust Test, ASTM D665 A	Pass	Pass	Pass
Biodegradability, OECD 301C, 28 days, %	>70	>70	>70

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via http://www.phillips66.com/SDS.

01-2019