



Ultra-Clean Turbine Oil

Phillips 66® Ultra-Clean Turbine Oil is a very high quality, rust and oxidation (R&O)-inhibited circulating oil developed for use in industrial gas turbines, steam turbines and other industrial applications. It provides the same performance as Phillips 66 Turbine Oil with the added benefit of filtration to a typical ISO Cleanliness Code of 18/16/13 for use in circulating systems with tight tolerances.

Ultra-Clean Turbine Oil is formulated with premium hydrocracked base oils and a proprietary additive system to provide excellent protection against rust, corrosion and deposit formation. It has excellent oxidation resistance and thermal stability at high temperatures to minimize sludge and varnish formation providing long service life. It protects system components against rust and corrosion and has excellent water-separating properties to minimize the formation of emulsions providing superior resistance to foam buildup that can interfere with proper lubrication.

Applications

- Direct-drive steam turbines and hydroelectric turbines
- Air tools and other pneumatic equipment lubricated through air line lubricators
- Centrifugal and rotary air compressors
- Lightly loaded enclosed gear drives where the OEM specifies a R&O type oil (ISO VG 68)
- Electric motor bearings, fan bearings, and blower bearings
- Vacuum pumps, deep-well water pumps, and machine tools

Ultra-Clean Turbine Oil meets the requirements of the following industry and OEM specifications:

- ABB G12106
- Alstom Power HTGD 90 117, for turbines without gear drives
- Ansaldo Energia AE94.3A & AE94.2 without gear drives (ISO VG 46)
- ANSI/AGMA Standard 9005-E02, R&O Inhibited Oils
- ASTM D4304-06a, Type I Turbine Oil
- British Standard 489
- China National Standard GB 11120-2011 L-TSA (ISO VG 32 & 68) (approved)
- Denison Hydraulics HF-1
- DIN 51515 Part 1, Lubricating Oils, Type L-TD
- DIN 51517 Part 2, Lubricating Oils, Type CL
- DIN 51524 Part 1, Hydraulic Oils, Type HL
- General Electric GEK 46506e, GEK 32568k, GEK 27070 (obsolete), GEK 28143b (obsolete), GEK 120498 (obsolete)
- Siemens Power Generation TLV 9013 04, TLV 9013 05
- U.S. Military MIL-PRF-17672D, Symbol 2075 T-H (ISO VG 32), 2110 T-H (ISO VG 46), 2135 T-H (ISO VG 68)
- U.S. Steel 126

Long-Life

Rust & Oxidation-Inhibited

Meets ISO Cleanliness Code 18/16/13

**KEEPING THE
WORLD
RUNNING
SMOOTHLY.**





Features/Benefits

- Excellent oxidation resistance and thermal stability for long service life
- Protects against sludge and varnish formation
- Protects against rust and corrosion
- Excellent water-separating properties
- Low carbon-forming tendency for use in air compressors
- Good foam resistance
- Meets ISO Cleanliness Code rating of 18/16/13⁽¹⁾

⁽¹⁾Note: Applies only to bulk product as delivered from Phillips 66® manufacturing plants. Particle counts may vary from lab to lab.

Ultra-Clean Turbine Oil

Typical Properties				
ISO Grade		32	46	68
Specific Gravity @ 60°F		0.862	0.868	0.871
Density, lbs/gal @ 60°F		7.18	7.23	7.25
Color	ASTM D1500	0.5	0.5	0.5
Flash Point (COC), °C (°F)	ASTM D92	220 (428)	232 (450)	243 (469)
Pour Point, °C (°F)	ASTM D97	-40 (-40)	-40 (-40)	-34 (-29)
Viscosity	ASTM D445			
cSt @ 40°C		31.8	46.0	68.0
cSt @ 100°C		5.4	6.7	8.8
Viscosity Index	ASTM D2270	106	102	100
Acid Number, mg KOH/g	ASTM D974	0.04	0.04	0.04
Air Release, minutes	ASTM D3427	3.0	3.0	4.0
Copper Corrosion, 3 hrs @ 100°C	ASTM D130	1a	1a	1a
Demulsibility, minutes to pass	ASTM D1401	20	20	20
Foam Test, Seq. I, mL	ASTM D892	0/0	0/0	0/0
Oxidation Stability				
TOST, hours	ASTM D943-04a	>10,000	>10,000	>10,000
RPVOT, minutes	ASTM D2272	>1,500	>1,500	>1,000
Rust Test	ASTM D665 A&B	Pass	Pass	Pass
Cleanliness Code	ISO 4406:1999	18/16/13	18/16/13	18/16/13

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>.