



Hydroclear® Ultra-Clean Spindle Oil

Conoco® Hydroclear Ultra-Clean Spindle Oil is a premium quality spindle oil specifically developed for use in high-speed CNC milling machines that require an ultra-clean spindle oil. It meets the performance requirements of all leading manufacturers of high-speed CNC milling machines.

Hydroclear Ultra-Clean Spindle Oil is formulated to provide outstanding wear protection, protection against rust and corrosion, and resistance to foaming. It has excellent oxidation resistance and thermal stability at high temperatures to minimize deposits and provide long service life. It has excellent water-separating properties to minimize the formation of emulsions, and is resistant to excessive foam buildup. It has the added advantage of fine filtration to a typical ISO Cleanliness Code of 17/15/11 for use in hydraulic systems with tight tolerances where particle contamination can cause operational problems.

Applications

- Horizontal, vertical, bed-type, knee-type and turret-type CNC milling machines, especially where particle contamination can cause operational problems
- High-speed needle and spindle bearings in industrial, agricultural and textile machinery

Features/Benefits

- Excellent oxidation resistance and thermal stability
- Long service life for reduced operating and maintenance costs
- Outstanding wear protection
- Excellent water-separating properties
- Excellent low-temperature performance
- Clear color
- Quick foam release
- Meets ISO Cleanliness Code rating of 17/15/11⁽¹⁾

⁽¹⁾ **Note:** Applies only to unopened packaged containers as delivered from ConocoPhillips manufacturing plants. Particle counts may vary from lab to lab.

Premium Spindle Oil; Meets ISO Cleanliness Code 17/15/11

Contact Information

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Typical Properties

ISO Grade	2	6	10	22
Specific Gravity @ 60°F	0.820	0.837	0.853	0.856
Density, lbs/gal @ 60°F	6.84	6.98	7.11	7.14
Color, ASTM D1500	0.5	0.5	0.5	0.5
Flash Point (COC), °C (°F)	96 (204)	149 (300)	171 (340)	168 (335)
Pour Point, °C (°F)	-40 (-40)	-40 (-40)	-37 (-35)	-37 (-35)
Viscosity,				
cSt @ 40°C	2.3	5.1	10.0	22.1
cSt @ 100°C	1.0	1.7	2.6	4.4
SUS @ 100°F	34	44	61	115
SUS @ 210°F	29	32	35	41
Acid Number, ASTM D974, mg KOH/g	0.04	0.04	0.03	0.03
Copper Corrosion, ASTM D130	1a	1a	1a	1a
Four-Ball Wear, ASTM D4172,				
Scar Diameter, mm	0.52	0.49	0.42	0.41
Rust Test, ASTM D665 A&B	Pass	Pass	Pass	Pass
Cleanliness Code, ISO 4406:1999	17/15/11	17/15/11	17/15/11	17/15/11

Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3.conocophillips.com/NetMSDS>.

Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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