



Synkool® HD

Synkool HD is a premium quality, water-soluble, synthetic coolant developed for medium- to heavy-duty turning, milling and grinding of ferrous metals, as well as grinding and light-duty machining of copper and copper alloys. It contains a biocide and mixes easily with soft or hard water to form a high-quality synthetic metalworking fluid that provides excellent cooling properties and lubricity for maximum tool life and high-quality surface finishes on the machined parts.

Synkool HD is formulated to provide an optimum balance of lubricity and detergency for high-quality finishes on machined parts and for overall machine cleanliness. It is ideal for use in machine sumps, as well as in once-through applications because it is highly resistant to microbial and bacterial degradation that causes rancid odors. It forms a clear, amber-colored solution that permits easy observation of the machining operation. It has high lubricity to help minimize tool wear and prevent particle agglomeration. Special inhibitors help protect metal surfaces against rust and corrosion.

Synkool HD does not contain active sulfur, nitrites, phenols or diethanolamine (DEA).

Applications

Synkool HD is recommended for medium- to heavy-duty machining of ferrous metals and metal alloys, and with water hardness greater than 350 ppm. Typical applications include:

- Broaching (light-duty)
- Drilling
- Grinding
- Milling
- Reaming
- Sawing
- Tapping
- Turning

Synkool HD also is recommended for light-duty grinding and machining of copper and copper alloys. It is not recommended for machining aluminum or aluminum alloys, as it can cause staining of some aluminum alloys.

Features/Benefits

- Excellent cooling and lubricating properties
- Helps extend cutting tool life
- Reduces grinding wheel wear
- Good surface finish
- Excellent rust protection
- Noncorrosive to non-ferrous metals

**Premium
Synthetic Coolant
For Metalworking**

CONTACT INFORMATION

**Phillips66
Lubricants.com**

U.S. Customer
Service:
1-800-368-7128

Technical Hotline:
1-877-445-9198

International
Customer Service:
1-832-765-2500

E-mail address:
**lubricants@
p66.com**



- Resists bacterial degradation
- Transparent for good visibility of the machining operation
- Mixes easily with water⁽¹⁾

⁽¹⁾ **Note:** When mixing, always add Synkool HD to water; **never** add water to Synkool HD. Typical concentrations (Synkool HD in water) range from 3% to 6% depending on the machining operation, type of metal, and water hardness. Coolant concentration may be monitored with a refractometer.

Synkool® HD

Typical Properties

Specific Gravity @ 60°F	1.05
Density, lbs/gal @ 60°F	8.74
Color, ASTM D1500	3.5
Boiling Point, °C (°F)	100 (212)
Flash Point (COC), °C (°F)	N/A ⁽²⁾
Freezing Point, °C (°F)	0 (32)
pH, 5% (1:20) dilution	9.0
Water, wt %	60
Chlorine ⁽³⁾ , wt %	0.07
Fatty Oil, wt %	Nil
Sodium, wt %	0.20
Sulfur, Total, wt %	Nil
Sulfur, Active, wt %	Nil

⁽²⁾ **Note:** This product does not support combustion.

⁽³⁾ From the biocide.

Recommended Concentrations, Synkool® HD in Water (Volume %)

Carbon Steels,

Operation	Cast Iron	High Alloy Steels	Tool Steel
Drilling, Milling, Turning	4	5	5
Light-Duty Broaching, Form Milling, Reaming, Sawing, Tapping	5	5-6	5-6
Grinding	3	3	3

Refractometer Reading

Dilution Ratio	1:10	1:15	1:20	1:25	1:30
Reading	4.0	2.4	2.1	1.7	1.3

Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3apps.phillips66.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.

© 2012 Phillips 66 Company, Phillips 66, 76, Conoco, Liquid Titanium and their respective logos and products are trademarks of Phillips 66 Company in the U.S.A. and other countries.