



Hydrokool™ HD

Phillips 66® Hydrokool 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 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.

Hydrokool 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.

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

Applications

Hydrokool 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

Hydrokool 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
- Non-corrosive to non-ferrous metals
- Resists bacterial degradation
- Transparent for good visibility of the machining operation
- Mixes easily with water⁽¹⁾

⁽¹⁾ **Note:** When mixing, always add Hydrokool™ HD to water; never add water to Hydrokool™ HD. Typical concentrations (Hydrokool™ 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.

**Premium
Synthetic
Coolant for
Metalworking**

**KEEPING THE
WORLD
RUNNING
SMOOTHLY.**





Hydrokool™ 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, Hydrokool™ HD in Water (Volume %) | | | |
|---|--------------------------|-------------------|------------|
| Operation | Carbon Steels, 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 & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/EN/products/Pages/MSDS.aspx>.