



# CITGO® Trukut® HD 220

## OVERVIEW

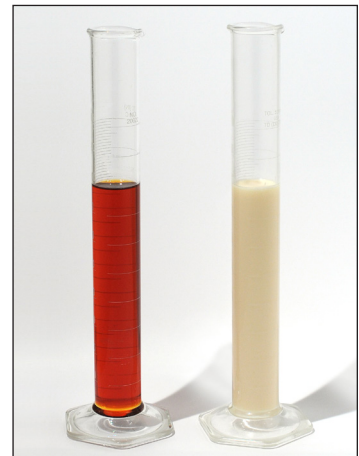


- A heavy-duty cutting and grinding fluid designed to be diluted with water to form an emulsion.
- For use on ferrous and non-ferrous metals.

## FEATURES & BENEFITS



- Contains robust technology for boundary lubrication and lubricity.
- Affords efficient cooling.
- Helps prevent bacterial growth.
- Forms stable emulsions in various water qualities.
- Low-staining with multi-metal and application compatibility.
- Free of chlorinated paraffins.
- Excellent corrosion prevention properties.
- Improves tool life and surface finish.
- Increases productivity and reduces disposal costs.
- Extends odor-free sump life.
- Predictable machining performance.
- Wide application range reduces the need for several products.
- Reduces the need for in-process corrosion protection fluids.



Concentrate      Diluted with Water

**APPLICATIONS**

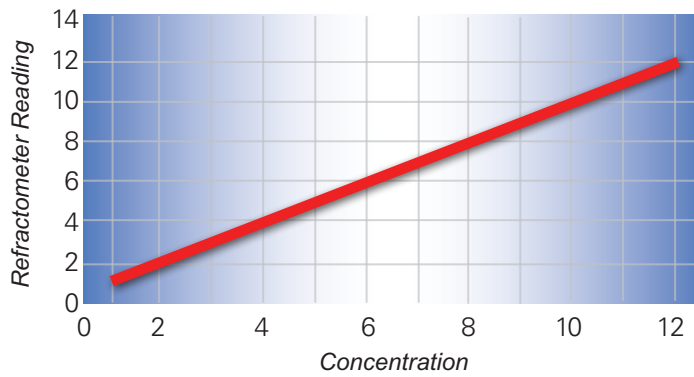


- Recommended for CNC machining where a single cutting fluid may be needed to function in a wide variety of operations and metallurgies.
- Performs well in multiple cutting operations including turning, boring, drilling, grinding, and threading.

**Material Compatibility**

	Recommended	Highly Recommended
<b>P - Steels</b>	[Color gradient from blue to white]	
<b>M - Stainless Steel</b>	[Color gradient from yellow to white]	
<b>K - Cast Iron</b>	[Color gradient from red to white]	
<b>N - Non-ferrous</b>	[Color gradient from green to white]	

**Refractometer Chart**



Refractometer Reading at 10% = 10.0 °Brix  
 Refractometer Factor = 1.0

**PROPERTIES**



**Typical Properties for CITGO Trukut HD 220:**

<b>Material Code</b>	<b>639469001</b>
Gravity, Specific, ASTM D1298, 60/60°F	0.94
Density, lb/gal	7.83
Flash Point, COC, ASTM D92, °F (°C)	311 (155)
Viscosity, cSt at 40°C	111
Color, ASTM D1500	L5.0
Pour Point, ASTM D97, °F (°C)	32 (0)
pH at 5% in Deionized	9.0
Corrosion (modified Iron Chip Rust test)	Pass
Copper Corrosion, ASTM D130, 3 hrs at 212°F	1B
Emulsion Stability, 24 hrs at 77°F	
Deionized Water	Pass
Hard Water	Pass
Solution Stability, 24 hrs at 30°F	Pass
Appearance	Amber

**METAL MACHINABILITY GROUPS<sup>™</sup>**

<b>Machining Operation</b>	<b>1</b> Non-Ferrous, Soft Metals <sup>(2)</sup>	<b>2</b> Nickel Alloys, Nitalloy Steels, Cast Irons and Alloy Steels (up to 200 Brinell)	<b>3</b> Stainless Steels, "Monel" Met- als, Cast Irons and Alloy Steels (200 to 300 Brinell)	<b>4</b> Titanium Alloys, High Tensile Nickel Alloys, Austentic Stainless Steels, Tool Steel and High Tensile Alloy Steels (300 to 400 Brinell)
Turning, Boring, Milling, Forming, Drilling, Sawing	<b>5-7%</b>	<b>5-7%</b>	<b>7-9%</b>	<b>7-9%</b>
Tapping, Thread Rolling, Reaming, Screw Cutting, Broaching	<b>5-7%</b>	<b>5-7%</b>	<b>8-10%</b>	<b>8-10%</b>
Gear Shaping, Form and Thread Milling, Shaving, Hobbing, and Trepanning	<b>5-7%</b>	<b>5-7%</b>	<b>8-10%</b>	<b>8-10%</b>
Internal and External Grinding, Form and Thread Grinding	<b>5-7%</b>	<b>5-7%</b>	<b>5-7%</b>	<b>5-7%</b>
Stamping	<b>10%</b>	<b>10%</b>	<b>20%</b>	<b>20%</b>

**Note:** Dilution ratios shown are approximate and may require higher or lower water concentrations depending on a number of factors including the type of metal cut, machine speed, the severity of the operation, metal hardness, etc.

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