

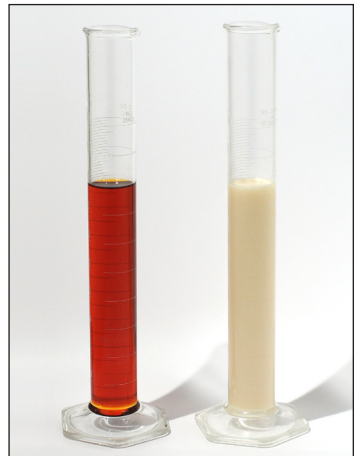


CITGO TRUKUT® HD 220

Date 04/18

DESCRIPTION: CITGO Trukut HD 220 is a heavy-duty cutting and grinding fluid designed to be diluted with water to form an emulsion. It is recommended for use on ferrous and non-ferrous metals.

- FEATURES:**
- Contains robust boundary lubrication and lubricity technology
 - Affords efficient cooling
 - Helps prevent bacterial growth
 - Forms stable emulsions in various water qualities
 - Low staining. Multi-metal and application compatibility
 - Free from chlorinated paraffins
 - Excellent corrosion prevention properties

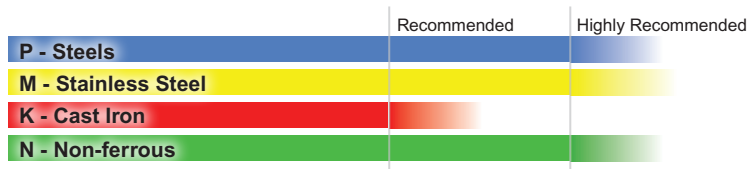


Concentrate Diluted with Water

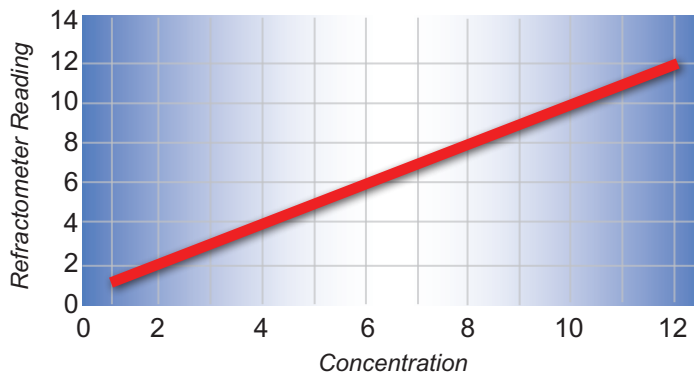
- BENEFITS:**
- Improves tool life and surface finish
 - Increases productivity
 - Extends odor-free sump life
 - Predictable machining performance
 - Wide application range reduces the need for several products
 - Reduces disposal costs
 - Reduces the need for in-process corrosion protection fluids

APPLICATIONS: CITGO Trukut HD 220 is well suited for CNC Machining where a single cutting fluid may be needed to function in a wide variety of operations and metallurgies. It performs in multiple cutting operations including turning, boring, drilling, grinding, and threading.

Material Compatibility



Refractometer Chart



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

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Date 04/18 - (Continued)

TYPICAL PROPERTIES - CITGO TRUKUT® HD 220

Material Code	639469001
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

	1 Non-Ferrous, Soft Metals	2 Nickel Alloys, Nitalloy Steels, Cast Irons and Alloy Steels (up to 200 Brinell)	3 Stainless Steels, “Monel” Metals, Cast Irons and Alloy Steels (200 to 300 Brinell)	4 Titanium Alloys, High Tensile Nickel Alloys, Austentic Stainless Steels, Tool Steel and High Tensile Alloy Steels (300 to 400 Brinell)
Machining Operation				
Turning, Boring, Milling, Forming, Drilling, Sawing	5-7%	5-7%	6-8%	8-10%
Tapping, Thread Rolling, Reaming, Screw Cutting, Broaching	6-9%	5-7%	6-8%	8-10%
Gear Shaping, Form and Thread Milling, Shaving, Hobbing, and Trepanning	5-7%	5-7%	6-8%	8-10%
Internal and External Grinding, Form and Thread Grinding	5-7%	5-7%	5-7%	5-7%
Stamping	10%	10%	20%	20%

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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