



# CITGO® CITCOOL® 33

## OVERVIEW

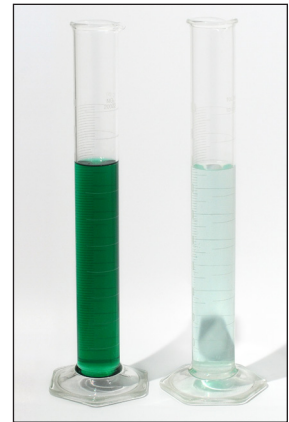


- A heavy duty synthetic coolant designed to be diluted in water to the proper concentrations to afford excellent operations in high-performance machining.

## FEATURES & BENEFITS

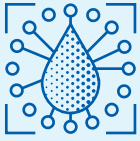


- Balanced lubricity and boundary lubrication components.
- Readily soluble in water, with a distinct, transparent green appearance.
- Fully synthetic and oil-free.
- Contains effective bactericide and fungicide to inhibit growth in service.
- Tramp oils are readily removed, eliminating a source for bacteria and fungus to grow, resulting in no rancid odors and extending sump life.
- Improves tool life and surface finish with enhanced extreme pressure and wear protection.
- Easy mixing and clean up.
- Improved solution stability, even in hard water.
- No gummy residues.
- Eliminates oil mists in the workplace.
- Good workpiece visibility.
- Superior heat transfer to improve tool life and part tolerances.



Concentrate      Diluted with Water

**APPLICATIONS**



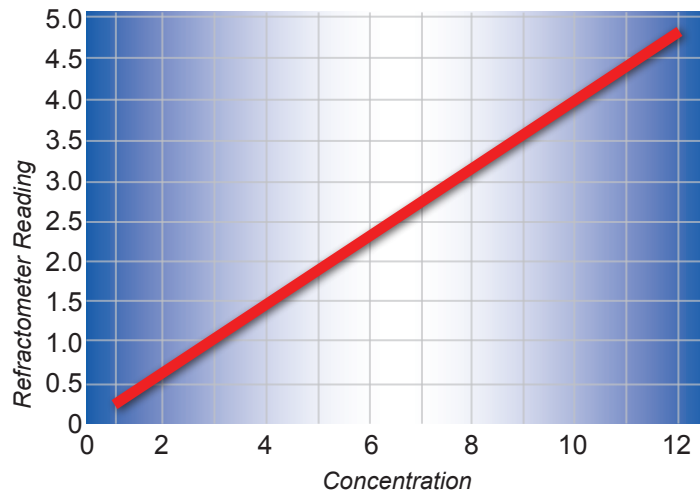
- Designed for use in machining titanium, ferrous metals, their alloys, and stainless steel.

**Material Compatibility**

	Recommended	Highly Recommended
<b>P - Steels</b>		
<b>M - Stainless Steel</b>		

\*Not recommended for aluminum, magnesium and their alloys due to possible staining.

**Refractometer Chart**



Refractometer Reading at 10% = 3.9 °Brix  
 Refractometer Factor = 2.56

**PROPERTIES**



**Typical Properties for CITGO CITCOOL 33:**

Material Code	639333001
Appearance, Concentrate (neat)	Clear, Green
Dilution (5% in DI water)	Clear, Green <sup>(1)</sup>
Gravity, Specific, ASTM D1298, 60/60°F	1.07
Density, lb/gal	8.9
Viscosity ASTM D445, cSt at 40°C	3.7
ASTM D2161, SUS at 100°F	17
pH, Concentrate	9.5
Falex Load, 5% in tap water, ASTM D3233, lbs	4500
Rust Test, 3% in tap water, ASTM D4627	Pass
Solution Stability (5%), 24 hrs. at 30°F	No Separation
Copper Corrosion (5%), 3 hrs. at 122°F, ASTM D130	1B
Foam Test, ASTM D892	
Seq. I	90-0
Seq. II	10-0
Seq. III	20-0

**Note:** 1) Dilute solutions can be hazy if tap water is used depending upon water hardness.

**STORAGE, HANDLING AND SPECIAL CONSIDERATIONS:** Preferred storage is indoors away from sun and heat. Do not allow to freeze. Under long term storage, product may discolor.

**METAL MACHINABILITY GROUPS<sup>(1)</sup>**

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

Notes: (1) 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.

(2) CITCOOL 33 is not recommended for machining aluminum alloys or magnesium (due to possible staining).

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