

FLC-222
**Ceramic & Quartz Machining
& Grinding Fluid**

FLC-222 is a fully synthetic machining and grinding fluid formulated for the specific demands of the ceramic quartz, and brittle composites industry. It can be used as a grinding fluid to provide both superior surface finish and extended wheel life. It can also be used as a medium-duty machining fluid, allowing a single machine using a single fluid to perform multiple operations.

FLC-222 can be used to machine and grind brittle components as well as various metal inserts. Examples include surface finishing of a ceramic substrate and drilling and tapping a metal insert or inlay, all with the same fluid at the same dilution ratio.

FLC-222 rejects high levels of tramp oil and is extremely resistant to biological attack, all while being non-foaming. Even when used in combination with centrifuges, FLC-222 is non-foaming and dissipates entrained air quickly.

Superior Corrosion Protection – FLC-222 produces a perfect pass in a standard ASTM Cast Iron Chip Test at a 30:1 dilution.

Use Concentrations May Vary – The concentration of FLC-222 can be adjusted from 10:1 to 30:1 to provide maximum economy, depending on the severity of the job.

Rapid Foam Collapse – Naturally low foaming in high agitation conditions means the workpiece is always visible and coolant reservoirs will not overflow.

Leaves No Sticky or Gummy Residue – Unlike soluble oils and semisynthetics, FLC-222 keeps machine tools clean and free of gummy build up.

Oxidative, Biological, and Hydrodynamic Stability – FLC-222 will not break down

even under the harshest operating conditions

Unaffected By Hard Water – FLC-222 will not form scum or separate in water up to 600-ppm total hardness.

Low Misting – FLC-222 resists misting in the most severe applications, including Blanchard grinding.

Will Not Attack Copper or Cobalt – FLC-222 is compatible with most steel and cast iron metals and will not dissolve copper or cobalt from coated diamonds and metal bonds from wheels and tooling.

Controlled Settling – FLC-222 is formulated with an efficient settling additive package. This package allows ceramic fines to settle out of solution in a controlled manner, eliminating build up in return lines and on machine parts. When it is time to clean settling tanks and automatic swarf removal equipment, the residue can be either shoveled out or simply washed out with water.

Sulfur, Chlorine and Phosphorus-Free – FLC-222 Contains no active sulfur, chlorine, or phosphorous extreme pressure compounds and has sodium levels under 1900 ppm and potassium levels under 12 ppm.

Rejects Most Tramp Oils – FLC-222 rejects tramp oil, making oil and coolant removal from parts surfaces quick and easy.

Ultraprecise Finishing – FLC-222 produces ultraprecise finishes on both quartz and ceramic substrates, even at high tool loads and feeds.

Extended Tool Life – FLC-222 is formulated with a special lubricant package that

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FLC-222 Ceramic & Quartz Machining & Grinding Fluid

recognizes and responds to changing temperatures and loads at the tool/workpiece interface, resulting in superior tool life and finishes. Parts fabricated with FLC-222 exhibit extremely high quality finishes, much lower surface and subsurface microcracking, and greatly reduced grain pulling.

Calculating Starting Amount of Coolant –

To calculate the correct amount of coolant to be added to the sump, multiply coolant sump volume by 7.5 (the number of gallons of liquid in a cubic foot).

Example:

Tank width = 2 ft Tank length = 6 ft
 Tank depth = 2 ft Volume = 2(6)(2) = 24 ft³
 Liquid Volume = 24 x 7.5 = 180 gal

For a 50:1 concentration, add 180/50 = 3.6 gal to the coolant tank.

Adding FLC-222 to the Coolant Tank –

When diluting FLC-222, ensure that the machine sump is clean and free of built up glass fines and other foreign materials. Always add water to the sump first after cleaning, and then add FLC-222. Circulate the sump for several minutes before starting production to give the tank time to completely mix.

Checking Concentration –

Coolant concentration should be checked daily whenever possible. The simplest method is with a hand held refractometer. For the best results, always filter the coolant through a 1-micron filter before reading the solution concentration. Once the coolant has been

filtered, place a drop or two on the face of the refractometer. Hold the instrument up to the light and read the number just at the light colored line on the screen face. Write down and use it to refer to the refractive index chart enclosed with the product. Find the reading on the refractometer and locate it on the left-hand side of the chart. Now read to the right and down to determine the current dilution.

Recommended Starting Dilutions

Grinding	20:1 - 25:1
Machining	10:1 - 20:1

Typical Properties

Appearance	Transparent Blue Liquid
Volatile Component	Water
Freeze Point	32°F
Boiling Point	212°F
pH	10 - 10.3
Evaporation Rate	NA
Odor	Mild
Vapor Pressure	NA
Vapor Density	NA
Specific Gravity	1.04 - 1.05
VOC	None
Weight per Gallon	8.7
Solubility in Water	Infinite

Packaging and Handling –

FLC-222 is a liquid packed in non-returnable drums, Tote Bins, Pails, and Bulk. Refer to the Material Safety Data Sheet for suitable materials of construction, for handling, and storing of this product. Observe all safety precautions shown on the label and in the Material Safety Data Sheet.

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