



CHAMPION SUPER GRADE CUTTING OILS

4196 - CHAMPION® SUPER GRADE CUTTING OIL is a non-corrosive, dual-purpose cutting oil making an effective oil for cutting and lubrication of various machine tools. It is compounded with a natural ester and special non-chlorinated EP (extreme pressure) agents for added versatility.

- Effectively suppresses mist
- Does not corrode ferrous and non-ferrous metals
- Permits long tool life and increased production by combining EP, lubricating and wetting properties
- Can be used for cutting and machine tool lubrication to simplify inventories and overcome adverse effects of cross-leakage of cutting and lubricating oil

Recommended for machining non-ferrous metals and ferrous alloys having a machinability rating of approximately 50% or higher. It can be used in all automatic screw machines and in similar equipment for: Drilling, Counter-boring, Turning, Shaving, Reaming, Tapping, Forming, Stamping, Cut Off, Chamfering, Recessing or Thread Rolling

4194- CHAMPION® SUPER GRADE SOLUBLE CUTTING OIL is a premium water soluble coolant designed formulated with extreme pressure polysulfide additives and emulsifier additive metal removal leaving a finely coated anti-corrosion barrier. It helps extend tool life more than most soluble cutting oils. Excellent emulsion stability is obtained in both soft and hard water, even with water hardness up to 600 ppm. It delivers excellent performance in machining stainless steel and other ferrous metals and is recommended for operations requiring a soluble cutting fluid including Milling, Drilling, Turning, Grinding, Tapping, and Cutting. **Note:** Super Grade Soluble Cutting Oil does not contain a biocide.

TYPICAL PROPERTIES

	SUPER GRADE CUTTING OIL	SUPER GRADE SOLUBLE CUTTING OIL
Product Code	4196	4194
MSDS #	1700	1700
Gravity API @ 60°F	31.5	27.9
cSt @ 40°C	42.6	31.5
cSt @ 100°C	6.4	5.3
SUS @ 104°F	200	150
SUS @ 210°F	50	45
Viscosity Index	102	100
Pour Point °F	-15	-25
Flash Point °F	446	415
ASTM Color	2.0	2.5
Rust Test, ASTM D665 A&B	Pass	Pass
Chlorine, wt %	Nil	Nil (undiluted)
Sulfur, Total, wt %	0.95	0.95 (undiluted)
Sulfur, Active, wt %	0.90	0.90 (undiluted)

Recommended Concentrations, Soluble Cutting Oil in Water (Volume %)

Operation	High Alloy Steels	Tool Steels	Aluminum Alloys	Nickel Alloys
Broaching, Milling, Tapping	10	10	7	10
Deep Drilling, Gear Hobbing, Gear Shaping, Sawing	5	7	5	7
Grinding	3	3	3	3

Effective 04/13