



# 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

**4197 - Champion Super Grade Soluble Cutting Oil WITH BIOCIDES.** CHAMPION'S heavy-duty multi-purpose coolant treated with biocide to inhibit growth of bacteria and fungi for improved odor and sump life

## TYPICAL PROPERTIES

|                          | SUPER GRADE<br>CUTTING OIL | SUPER GRADE<br>SOLUBLE CUTTING OIL |
|--------------------------|----------------------------|------------------------------------|
| Product Code             | 4196                       | 4194                               |
| 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<br>Steels | Tool Steels | Aluminum<br>Alloys | Nickel<br>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