



## Super S® Soluble Oil B

---

**Super S® Soluble Oil B** is an emulsifying oil that readily mixes with water, forming an homogeneous and exceptionally stable emulsion. It is used in the machining of both ferrous and nonferrous metals, particularly when cutting with carbon or high speed steel or tungsten carbide tools.

This oil is an extremely versatile fluid which maintains a good oily residue that provides excellent rust and corrosion protection, has excellent storage stability, and is formulated to cool and lubricate components at the point of impact. Bacteria growth and odors are controlled by environmentally friendly biocides.

Soluble Oil B is recommended for metal working application where cooling and rust protection are of the utmost importance. It contains a specially formulated surfactant which forms very stable emulsions even in the presence of hard water that quickly dissipates heat from the contact point of the tool and the workpiece. The surfactant system also promotes fast removal of metal shavings for precise, clean surface finishes making it particularly suitable for cutting with carbon or high speed steel or tungsten carbide tools.

This universal, high performance metal working fluid is formulated without boron, chlorine, or formaldehyde to comply with HS&E regulations and to improve worker safety. The additive package affords for quick wetting for smooth consistent cuts and cleaner, long-lasting tools and components.

**Soluble Oil B** contains lubricity additives designed for machining of aluminum alloys, but also provides

excellent protection for cast iron, low, medium, and high alloyed steel, and yellow metals. It is not to be used for machining of magnesium alloys due to the reactivity of hot magnesium with water becoming a fire hazard.

It is used extensively in milling, drilling, gear cutting, turning, planing, shaping, sawing, and grinding operations where the lubrication package and extreme pressure additives are specifically designed to enhance tool life and may even extend fluid life by up to 50% when combined with a suitable metalworking fluid maintenance program.

Soluble Oil B is a versatile water-soluble metalworking fluid which finds many applications helping reduce inventory. Emulsions of metalworking fluids and water may become contaminated with harmful microorganisms such as bacteria and fungus, which can cause illness and infection. This can occur even in emulsions with fluids that initially contain some biocide because the biocide can be depleted during service making it important that a metalworking fluid maintenance program is followed as a control for this hazard.

**Super S® Soluble Oil B** is typically diluted in water in ratios at ratios from 10:1 to 50:1 depending on the application. See the chart on page 2 for specific dilution ratios. Although it offers excellent rust/corrosion protection during cutting operations, it is not recommended to use as a short-term rust protectant alone.

**To avoid forming sticky, invert emulsions that do not emulsify properly, always add oil to the water.**



# Super S<sup>®</sup> Soluble Oil B

## FEATURES

- **Boron, Chlorine, Nitrite, and Formaldehyde free** to comply with health, safety, and environmental regulations
- **Excellent lubricity** designed to enhance tool life and surface finish in aluminum machining
- **Controls surface foam** reducing potential for pump cavitation
- **Excellent cooling** allowing for use in high speed applications and with hard metals
- **Good stability** with minimum tendency to separate or turn rancid
- **Versatility** allows for use in many different applications where cooling at contact point and surface finish are most important

## APPLICATIONS

**Super S<sup>®</sup> Soluble Oil B** is recommended for metals (except magnesium) where maximum cooling is desired — particularly when cutting with carbon, high speed steel, or tungsten carbide tools.

**Super S<sup>®</sup> Soluble Oil B** is used extensively in milling, drilling, gear cutting, turning, planing, shaping, sawing, and grinding operations.

Although especially designed for machining of aluminum, it may be used for machining of ferrous alloys as well.

Suitable for use in large central lubrication systems and single sump machines where low foaming cutting fluids are critical.

	Cast Iron	Low-med alloy steel	High alloy-stainless steel	Aluminum alloys	Mg alloys	Yellow metals
Grinding						
Milling, Turning (general machining)						
Drilling						
Reaming, Tapping						
Broaching						

Suitable application

## RECOMMENDED CONCENTRATIONS

	Turning, Shaping, Planing, Drilling	Milling	Pipe and Plain Threading	Automatic Screw Machine	Grinding	Thread Grinding	Deep Drilling	Gear Shaving or Cutting
Plain, medium, and high carbon steels	20:1	20:1	•	20:1	50:1	20:1	•	20:1
Alloy steels	15:1	15:1	•	15:1	50:1	15:1	•	15:1
Ingot iron, wrought iron, low carbon steels	15:1	15:1	•	15:1	50:1	15:1	•	15:1
Stainless steels, tool and die steels	10:1	10:1	•	10:1	50:1	10:1	•	10:1
Aluminum and aluminum alloys	25:1	25:1	30:1	30:1	50:1	30:1	20:1	30:1
Copper and brass	25:1	25:1	30:1	30:1	•	•	20:1	30:1
Zinc and Zinc alloys	25:1	30:1	30:1	30:1	•	•	20:1	•
Bronze and high strength copper alloys	10:1	10:1	10:1	10:1	50:1	10:1	•	10:1
Magnesium and magnesium alloys	FIRE HAZARD							
Titanium and titanium alloys	10:1	10:1	•	•	•	•	•	•
Nickel and nickel alloys	10:1	10:1	•	10:1	50:1	10:1	•	10:1
Cast iron	Dry	Dry	Dry	•	Dry	Dry	Dry	Dry

• Seldom used

## TYPICAL CHARACTERISTICS

Density @ 60°F	7.63
Viscosity @ 40°C	34-38
Phosphorus, ppm	560-580
Chlorine, ppm	<10
Boron, ppm	<10

*Results are typical of current production. While future production will conform to Smitty's internal specification, variations in these characteristics may occur during normal operating conditions.*