

225 Primrose Plus

Water Soluble Cutting Oil

DESCRIPTION:

Primrose Plus Water Soluble Cutting Oil has a distinguished performance record in the toughest machining operations requiring an emulsifiable cutting fluid. Second only to pure water in its ability to conduct heat away, it provides superior lubricity to cutting operations.

COMPOSITION:

Primrose Plus Water Soluble Cutting Oil is a specially compounded emulsifying concentrate or coolant composed of a petroleum oil and a carefully balanced blend of emulsifying agents to produce a fluid with maximum cooling ability, excellent lubricity and anti-weld properties. It contains corrosion inhibitors effective with both ferrous and non-ferrous metal surfaces, emulsion stabilizers and rust preventives. Work pieces machined with emulsions of this oil ordinarily need no further protection during subsequent handling or storage, nor do machines require any additional protection. Foam inhibitors are extremely effective even in soft water. Primrose Plus 225 is non-staining to non-ferrous metals.

**PERFORMANCE
CHARACTERISTICS:**

- Increases tool life because of superior lubricating, cooling and anti-weld properties.
- No smoke, fog, or undesirable fumes.
- Contains biocide to help deal with bacteria and fungi in cutting fluid dilutions.
- No detrimental effects on operators.
- Gives a better finish to special alloys, even with higher speeds.
- May be used more effectively than chemical coolants -- Intervals between coolant changes is lengthened and cleanout time is reduced.
- Thin film of oil protects metal surfaces, yet is not heavy enough to require degreasing before painting.
- Eliminates rust in equipment and on finished parts.
- Stops paint peeling on machines.

USES:**Machining and Grinding**

Modern tooling and high machining speeds demand the maximum cooling effect of water. At the same time, they require the good features of petroleum cutting oils. Each specific combination of metal machineability, tool set-up, feed, and speed dictates its own optimum dilution ratio. In general, the richest dilutions range from (oil to water) 1:15 to 1:30 for most difficult jobs. Free machining steels and other materials with high machinability ratings commonly use emulsions of 1:30 to 1:50. Because grinding usually requires maximum cooling with less emphasis on lubrication, dilution ratios of 1:60 to as high as 1:150 yield excellent results in both finish quality and length of wheel life.

Protecting Metal Surfaces

Primrose Plus Water Soluble Cutting Oil is an excellent, economical corrosion preventative for short term protection of metallic surfaces. It is recommended for use in either of two ways:

(1) AS A WATER EMULSION

When surface cleaning is accomplished by immersing parts in mechanically agitated water baths, addition of Primrose Plus 225 to the water will provide short term protection from corrosion. When the water evaporates, a fine, continuous, protective film remains on the surface to provide effective protection. Although it may be used in mixtures as diluted as one part of oil to 100 parts of water (1:100), it is not recommended that this extreme dilution be used if parts are to be protected from corrosion for more than one day, or if the parts are to be exposed to anything but a mild, protected environment. In general, maximum dilution for satisfactory protection in indoor storage is 1:60. For best results in this application, a mixture of 1:30 or 1:20 is recommended.

(2) WITHOUT DILUTION



PRIMROSE PLUS

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Primrose Plus 225 is an effective corrosion preventive because its emulsifiers and other additives give it preferential wetting properties which prevent contact of moisture with the surface of the metal. It may be applied by any method which permits uniform, continuous coverage: spray, brush, dip, wipe. For effective protection, surfaces should be clean and dry before application.

For Water Systems

Primrose Plus 225 is formulated to meet the application requirements for hydraulic as well as engine cooling systems. It offers strong corrosion protection, a high degree of stability, and the ability to emulsify with hard water and resist foaming in soft water. In general, the oil should be mixed with water to form an emulsion containing 1% to 3% oil by volume. It can be added directly to the water in the system to be protected. Caution should be observed regarding cleanliness of the system and ph value of the water to insure that a stable emulsion will result.

NOTE – Handling precautions on container label should be observed.

APPLICATIONS:

Primrose Plus 225 may be used with various metals in operations such as the following:

- Broaching
- Milling
- Gear Cutting
- Boring and Turning
- Threading
- Sawing
- Grinding
- Drilling and Reaming

TYPICAL SPECIFICATIONS:

Gravity: API	20.4
Viscosity, SUS @ 100° F	200
Flash, °F	320
Fire, °F	350
Pour, °F	-20
Color, ASTM D 1500	4.5
Sulfur, %	0.37
Copper Strip Test 212° F, 3 hours	1
Corrosion Test (x) 77° F and 100° F, 168 hours	passes
ph Value (x)	8.8
Emulsion Test (x) 1 Part Oil; 9 Parts Synthetic Hard Water	
Froth, 15 min., MI.	nil
Separated Oil, 72 hours : % 1 Part Oil; 9 Parts Synthetic Hard Water; 10 Parts Methyl Alcohol	trace
Froth, 15 min. : MI.	nil
Separated Oil, 72 hour : %	1.8

(x) Method described in the latest issue of MIL-C-4339 Specification.