Maxim® VHP

Maximum Pressure and Performance Soluble Oil Based Cutting and Grinding Fluid Hard Water Compatible

PRODUCT DESCRIPTION:
Maxim VHP is a multi-functional soluble oil-based fluid designed to be diluted with water for heavy, medium and light duty machining and/or grinding operations. Maxim VHP offers extended long-term in-tank stability providing maximum longevity and machine performance. It offers excellent high pressure coolant performance in soft or hard water.

Maxim VHP offers users the following advantages:

EXTENDS TOOL LIFE/IMPROVES SURFACE FINISH:
The excellent emulsion stability and stable chlorine content of Maxim VHP provides outstanding tool life and surface finish on even the most difficult to machine alloys such as Stainless Steel, Hastelloy, Inconel, Titanium, Tantalum, Waspalloy, aircraft grade aluminum and other space-age metals.

CORROSION PROTECTION:
Maxim VHP contains superior multi metal corrosion inhibitor package to protect galvanized parts, steel, aluminum, brass, copper and their alloys.

LABOR SAVINGS/ECONOMICAL:
The excellent emulsion stability combined with its extended longevity even in moderately hard water, and cleanliness of Maxim VHP means less down time, fewer pump outs, less trade waste and more production dollars per shift.

RECYCLING REDUCES HAUL AWAY COSTS BY 90%!
New to the market synergistic odor and slime inhibiting agents are formulated in Maxim VHP to provide excellent longevity. Use of Maxim VHP in conjunction with a coolant maintenance and recycling program can reduce haul away costs by 90%. Maxim VHP can be recycled through all the modern recycling equipment manufactured today. It can be run through centrifuges, coalescers, diatomaceous earth, Xybex units, Cimcool recovery units and other state-of-the-art recycling equipment. The recyclability of Maxim VHP reduces haul away costs, coolant purchases, labor and expense of pumpouts and recharges and loss of time and money when machines are not producing parts.

FREE FLOWING RESIDUE:
Maxim VHP leaves a non-sticky, free-flowing water re-emulsifiable residue on both machine and parts. No gummy, sticky, tacky or concrete-like build-up to tie up machines or aid in bacterial growth. Bacteria, fungi, mold and yeast thrive in the sticky, grease-like residue that builds up on machines with lesser quality coolants. This is the perfect home for them. This slime accumulation constantly inoculates the coolant with thriving microorganisms to cause frequent rancidity problems.

Maxim VHP's water resoluble rust preventative residue is easily removed from parts by water-based, non-hazardous parts washing compounds. Vapor degreasing, solvent washes, or high alkaline washing compounds are not required, adding to the safety of individuals and the environment.

SAFE:
Maxim VHP does not contain phenols, creosols, nitrites, nitrates, harsh alkalies, phosphates, sulfur, PCB's, or heavy metals. Maxim VHP is mild and non-irritating to the skin. Maxim VHP was formulated with the operators in mind. Each component in Maxim VHP has been evaluated for oral, dermal and inhalation toxicity. This product uses virgin oil to ensure product quality and purity.

EXCEPTIONAL RESISTANCE TO BACTERIA, FUNGUS, MOLD, YEAST:
Odor is just one of the problems caused by microorganisms in a water-based coolant. Microorganisms use the wetting agents, rust inhibitors, lubricants and emulsifiers as a source of food in a coolant. As their number increases to a count of 10^6 -10^7, they literally consume a large portion of the most important ingredients in a coolant. They can easily consume the emulsifiers to the point the emulsion begins to separate. Once this happens, the coolant is destroyed. Bacteria also secrete organic acids in their metabolism which can reduce the pH, cause rust corrosion, skin irritation and in some cases cause the emulsion to separate.

Some types of bacteria, like pseudomonas, are slime-producing bacteria and can leave a sticky, tacky residue on machine and parts. This residue can build up to the point of tying up the equipment. As this bacteria secrete acids, the machine and parts develop a reddish type surface rust on all exposed surfaces.

Fungus in a machine will form a raw liver type growth which is very difficult to kill with germicides. This build-up can be so severe it clogs coolant lines, pump filters and will float on top of the sump like a blanket. It also hangs from the machine and piping like stalactites. When germicides are added to the coolant, they just come in contact with the surface of this mass and cannot penetrate to kill all the fungus. The only way to eliminate this problem is to manually clean and scrape the fungus from the machine and coolant lines.

DIRECTIONS FOR USE:

A concentrate designed to be added to water, Maxim VHP forms a stable emulsion in a wide range of water temperatures and hardness.

1. Always add Maxim VHP to water in a separate container at the appropriate concentrations with as much agitation as possible. Water at room temperature forms the best emulsion. (Refer to Recommended Starting Concentration Chart.)
2. Add the mixed coolant to the cleaned sump.
3. **MAKEUP:** When adding makeup to the machine, add Maxim VHP at 1/2 to 2/3 the concentration desired in the machine. For example, startup of 10:1 requires 20:1 makeup. Always add diluted solution as makeup; never plain water.

To determine the number of gallons of Maxim VHP required to charge a machine, use the following formula to determine the total gallons held by the machine sump:

$$\frac{\text{Length x Width x Height (in inches)}}{231} = \text{Total Sump Capacity in Gallons}$$

RECOMMENDED STARTING CONCENTRATION (parts water to parts Maxim VHP)

	Ductile Iron	Brass Alloys	Mild Steel	Stainless Steel	Hard Steel Alloys	Aluminum Alloys	Copper Alloys
GENERAL TURNING	15-1	25-1	25-1	20-1	15 to 20-1	20 to 25-1	25-1
BORING	15-1	20-1	25-1	15-1	15-1	15-1	20-1
PLANING SPOT FACING	15-1	25-1	25-1	20-1	15 to 20-1	20-1	25-1
GENERAL MILLING	15-1	25-1	25-1	20-1	15 to 20-1	20-1	25-1
GENERAL DRILLING	10-1	10-1	15-1	10-1	10-1	10-1	10-1
TAPPING/REAMING	10-1	10-1	10-1	10-1	10-1	10-1	10-1
GEAR CUTTING HOBBING	10-1	10-1	10-1	10-1	10-1	10-1	10-1
SCREW MACHINES	10-1	10-1	10-1	10-1	10-1	10-1	10-1
THREADING	10-1	10-1	10-1	10-1	10-1	10-1	10-1
SAWING	15-1	15-1	15 to 20-1	15-1	15-1	15-1	15-1
BROACHING	5 to 10-1	10-1	10-1	10-1	10-1	10-1	10-1
SURFACE GRINDING	30-1	30-1	30-1	20-1	20-1	30-1	30-1
OD & FINISH GRINDING	25-1	20-1	25-1	20-1	20-1	25-1	25-1
ID & CYLINDRICAL GRINDING	20-1	25-1	25-1	20-1	20-1	25-1	25-1

Maxim VHP DILUTION RATIO VS. REFRACTIVE INDEX*	
5-1	21.0
10-1	10.5
15-1	7.5
20-1	5.0
25-1	4.0
30-1	3.2
35-1	3.0
40-1	2.5
50-1	2.0
*A/O Instrument Model 10440 Industrial Fluid Tester	

TECHNICAL DATA:
Viscosity — 190 cps @ 24°C/75°F
Specific Gravity - 0.977 @ 24°C/75°F
pH (10% emulsion) — 10.2-10.4
Density @ 24°C/75°F — 8.13 lbs./gal.
Flash Point — greater than 212°F (COC)
Miscibility — Forms an emulsion in water
Storage Stability —

a. Shelf @ 24°C/75°F — One year minimum
b. Accelerated @ 49°C/120°F — 60 days
c. Freeze/Thaw — Product will withstand three freeze/thaw cycles.

PACKAGING:
Maxim VHP is available in tank wagons; 330-gallon reusable totes; 275-gallon, DOT-approved totes; recyclable HDPE (High Density Polyethylene) 55-gallon drums and 5-gallon pails. Label copy is available in both English and Spanish. Secondary labels are also available.

Be sure to read all Directions, Precautionary and First Aid Statements on product labels before use of this or any IPG/Spartan product. Material Safety Data Sheets for all IPG/Spartan products are available from your authorized IPG/Spartan distributor.

GUARANTEE:
Spartan's modern manufacturing and laboratory control insure uniform quality. If dissatisfied with performance of product, any unused portion may be returned for credit within one year of the date of manufacture.