

M.O.A.C.™

Maximum Oil and Cooling

Extremely Heavy Duty Water Soluble Oil Machining and Grinding Fluid

PRODUCT DESCRIPTION:

M.O.A.C. is a multi-functional, soluble oil based fluid designed for extremely heavy duty machining and/or grinding operations. Formulated with a unique blend of lubricity additives, M.O.A.C. can handle jobs that normal soluble oils cannot.

SAFE TO THE ENVIRONMENT/OPERATOR FRIENDLY:

M.O.A.C. was formulated free of nitrites, nitrates, phenols, creosols, harsh alkalis, phosphates, sulfur, PCB's, MEA, DEA, TEA, heavy metals or other hazardous materials. This, in turn, promotes safety for the environment and individuals.

ADVANTAGES:

- A unique blend of raw materials offers extremely high lubricity, which extends tool life and greatly improves surface finish.
- Specially formulated for aggressive metal removal operations even with hard to machine materials where normal soluble oils will not work.
- Low-foaming properties allow M.O.A.C. to be used in today's extreme high pressure, high speed systems.
- Contains multi-metal corrosion inhibitors to protect against stain and rust on aluminum, galvanized, steel, brass, copper and other modern alloys.
- Protects against microbial growth to help extend the life of the fluid.

DIRECTIONS FOR USE:

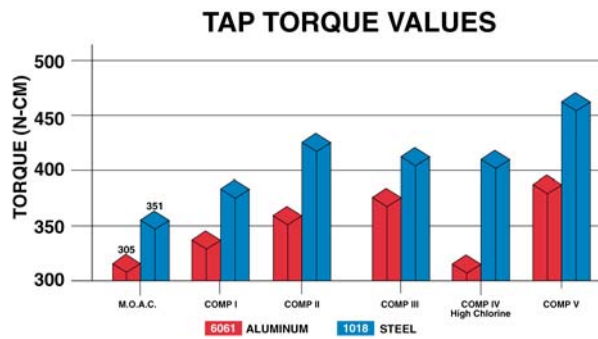
A concentrate designed to be diluted with water; M.O.A.C. forms a milky, tan emulsion in a wide range of water temperatures and hardness.

1. To insure a uniform solution, mix M.O.A.C. to the water while stirring in a separate container.
2. Agitate solution until thoroughly mixed.
3. Add mixed coolant to a cleaned sump. (Use Spartan's *The Cleaner* at the appropriate concentration and be sure to rinse thoroughly prior to charging sump.)
4. **Makeup:** When adding makeup to the machine, add M.O.A.C. at 1/3 to 1/2 of the original desired working concentration. For example, startup of 10:1 requires 20:1 makeup. Always add **diluted** solution as makeup; never plain water.

Monitoring coolant concentration with the AO Model 10440 refractometer:

Refractometer Reading*	Concentration (Ratio)
20.0	20.0% (5:1)
10.0	10.0% (10:1)
6.7	6.7% (15:1)
5.0	5.0% (20:1)
4.0	4.0% (25:1)
2.0	2.0% (50:1)

*A/O Instrument Model 10440 Industrial Fluid Tester:



Tap Torque Test

The Tap Torque Test, an actual tapping operation, demonstrates that M.O.A.C. has superior lubricating properties over competitive extreme pressure semi synthetics and extreme pressure soluble oils.

RECOMMENDED STARTING CONCENTRATION (Parts water to parts M.O.A.C.)

	DUCTILE	BRASS	MILD	STAINLESS	HARD	ALUMINUM
COPPER	IRON	ALLOYS	STEEL	STEEL	STEEL	ALLOYS
ALLOYS					ALLOYS	ALLOYS
GENERAL TURNING 25-1	15-1	25-1	25-1	20-1	15 to 20-1	20 to 25-1
BORING 20-1	15-1	20-1	25-1	15-1	15-1	15-1
PLANING SPOT FACING 25-1	15-1	25-1	25-1	20-1	15 to 20-1	20-1
GENERAL MILLING 25-1	15-1	25-1	25-1	20-1	15 to 20-1	20-1
GENERAL DRILLING 10-1	10-1	10-1	15-1	10-1	10-1	10-1
TAPPING/REAMING 10-1	10-1	10-1	10-1	10-1	10-1	10-1
GEAR CUTTING & to	5 to	5 to	5 to	5 to	5 to	5 to
HOBBING 10-1	10-1	10-1	10-1	10-1	10-1	10-1
5 to	5 to	5 to	5 to	5 to	5 to	5 to
SCREW MACHINES* 10-1	10-1	10-1	10-1	10-1	10-1	10-1
5 to	5 to	5 to	5 to	5 to	5 to	5 to
THREADING 10-1	10-1	10-1	10-1	10-1	10-1	10-1
SAWING 15-1	15-1	15-1	15 to 20-1	15-1	15-1	15-1
BROACHING 10-1	5 to 10-1	10-1	10-1	10-1	5 to 10-1	10-1
SURFACE GRINDING 30-1	30-1	30-1	30-1	20-1	20-1	30-1
OD & FINISH GRINDING 25-1	25-1	20-1	25-1	20-1	20-1	25-1
ID & CYLINDRICAL GRINDING 25-1	20-1	25-1	25-1	20-1	20-1	25-1
JIG GRINDING 10-1	10-1	10-1	10-1	10-1	10-1	10-1
PLUNGE FORM GRINDING 10-1	10-1	10-1	10-1	10-1	10-1	10-1

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**Consult with your Spartan IPG Distributor and Spartan IPG Regional Manager for specific application instructions.*

Formula for determining Total Volume by Gallons

$$\frac{\text{Width} \times \text{Length} \times \text{Height (in inches)}}{231} = \text{TVG}$$

TECHNICAL DATA:

Viscosity c 12,800 cps @ 24°C/75°F

Specific Gravity – 1.037 @ 24°C/75°F

pH (10% emulsion) c 10.2-10.6

Density – @ 24°C/75°F c 8.63 lbs./gal.

Flash Point c greater than 212°F (COC)

Miscibility c Forms an emulsion in water

Storage Stability c

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

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.

PACKAGING:

M.O.A.C. is available in tank wagons; 330-gallon reusable totes; 275-gallon 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.

GUARANTEE:

Spartan's modern manufacturing and laboratory controls 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.