TECHNICAL DATA SHEET

FOCUS CHEMICAL
Metalworking Additives

Focus InhibitR AL

PRODUCT DESCRIPTION

Focus InhibitR AL is a multifunctional phosphate designed for use in water-reducible metalworking fluids. This additive provides excellent corrosion inhibition properties when machining aluminum alloys. It can also deliver outstanding EP properties to improve a fluid's lubrication performance.

APPLICATIONS

Focus InhibitR AL is designed to be used in soluble oil, semi-synthetic, and synthetic metalworking fluids. Recommended treat rates of **Focus InhibitR AL** in concentrates range from 0.5% to 3%, depending on the particular machining operation, fluid type, pH of fluid, and dilution rates of the finished fluid in water. This additive is supplied in an acid form that may need to be neutralized or used in combination with a coupling agent for use in some semi-synthetic and synthetic metalworking fluids.

BENEFITS

- Excellent stain inhibition properties on a wide range of aluminum alloys
- Outstanding EP properties
- Effective in a variety of types of water-based metalworking formulations

TYPICAL PROPERTIES

Feature	Unit	Standard Value
Appearance @ 25 °C	-	Clear liquid
Specific gravity @ 25 °C	-	0.97
Acid value	mg KOH/g	225
Viscosity @ 40 °C	cSt	250

Remarks:

PACKAGING

Packaging	Description	Net Weight
Drums	55-gallon non-returnable	435 lbs.

HANDLING, SAFETY, HEALTH AND ENVIRONMENT

See safety data sheet

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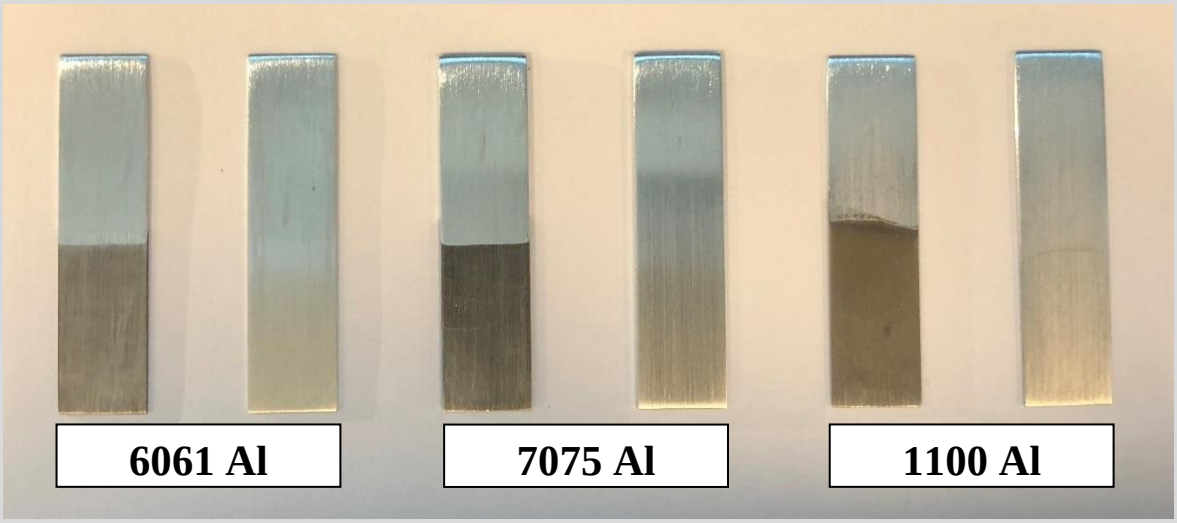
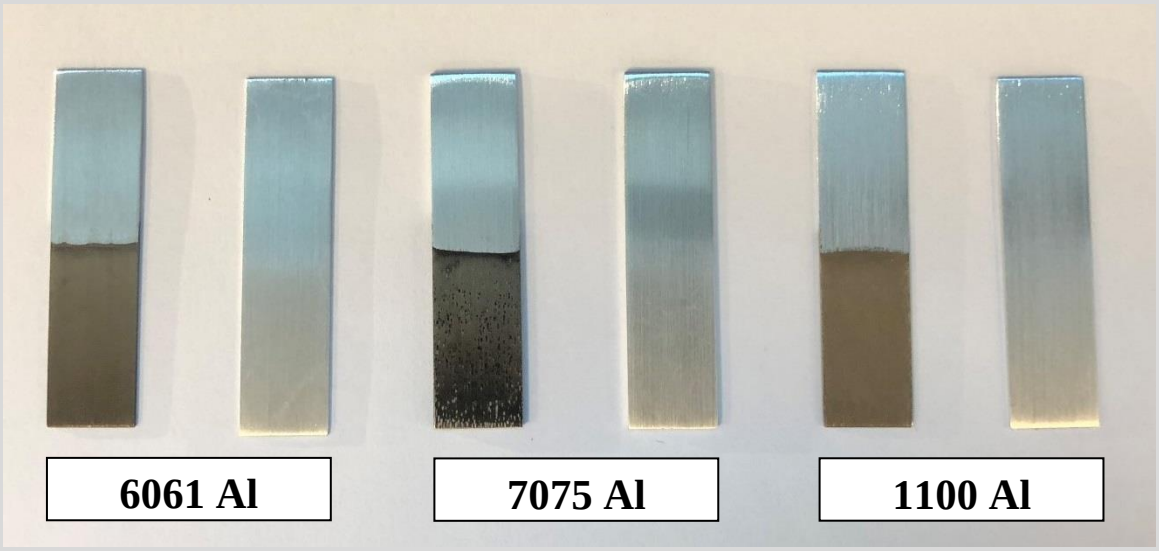
ALUMINUM STAIN INHIBITION



Aluminum Stain Testing in Semi-Synthetic Fluid

The photo above shows aluminum stain testing with and without Focus InhibitR AL in a semi-synthetic fluid after 24 hours. The aluminum strip on the left of each pair does not contain any Focus InhibitR AL while the aluminum strip on the right of each pair contains 1% InhibitR AL in the semi-synthetic concentrate. Testing was conducted at 5% in water dilutions.

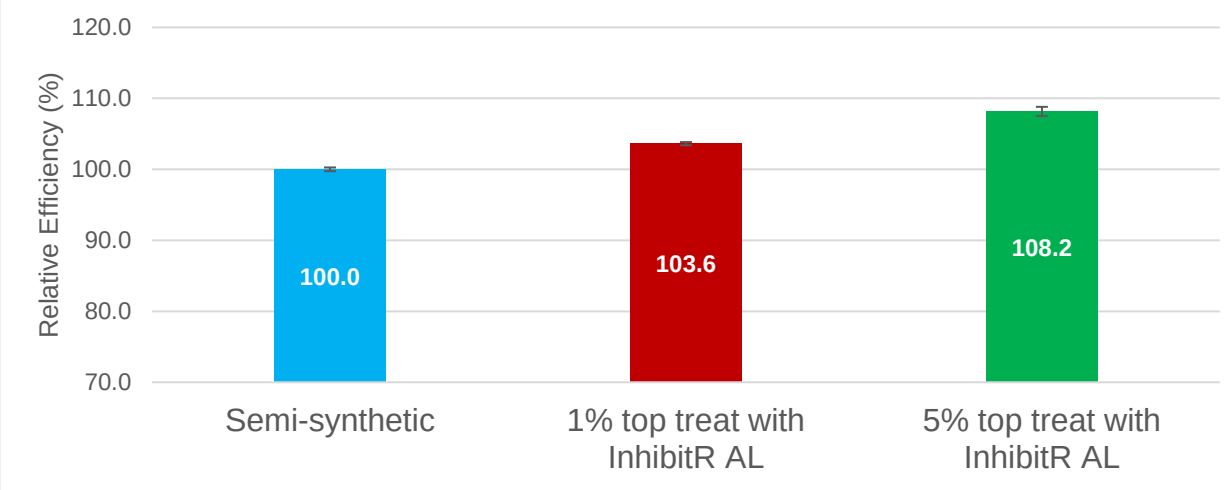


Aluminum Stain Testing in Synthetic Fluid

The photo above shows aluminum stain testing with and without Focus InhibitR AL in a synthetic fluid after 24 hours. The aluminum strip on the left of each pair does not contain any Focus InhibitR AL while the aluminum strip on the right of each pair contains 1% InhibitR AL in the synthetic concentrate. Testing was conducted at 5% in water dilutions.

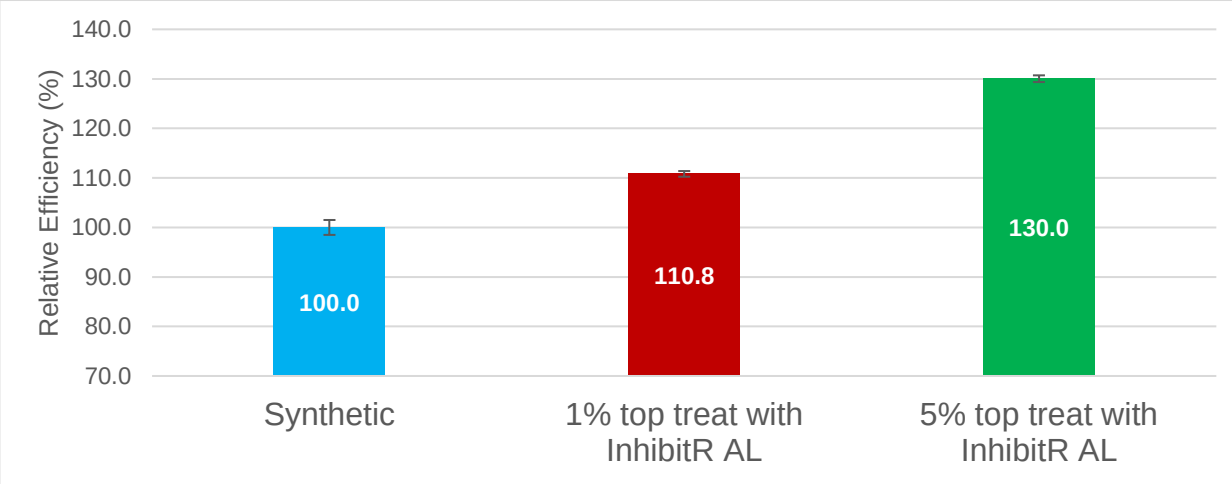
Focus InhibitR AL

EP/LUBRICATION TESTING BY MICROTAP



EP/Lubrication Testing in Semi-Synthetic Fluid on 6061 Aluminum

The graph above shows the relative efficiency of EP/lubrication properties conducted by microtap with and without Focus InhibitR AL in a semi-synthetic fluid. The semi-synthetic fluid (blue bar) does not contain any Focus InhibitR AL. The red bar and green bar represent fluids containing 1% and 5%, respectively, of Focus InhibitR AL in the semi-synthetic concentrate. Testing was conducted at 5% in water dilutions.



EP/Lubrication Testing in Synthetic Fluid on 6061 Aluminum

The graph above shows the relative efficiency of EP/lubrication properties conducted by microtap with and without Focus InhibitR AL in a synthetic fluid. The synthetic fluid (blue bar) does not contain any Focus InhibitR AL. The red bar and green bar represent fluids containing 1% and 5%, respectively, of Focus InhibitR AL in the synthetic concentrate. Testing was conducted at 5% in water dilutions.