

CORRGUARD™ FS

Multifunctional Additive

Cost-Effective Primary Amino Alcohol Chemistry for Improving Multi-Metal Compatibility in Extended-Life Metalworking Fluid Formulations

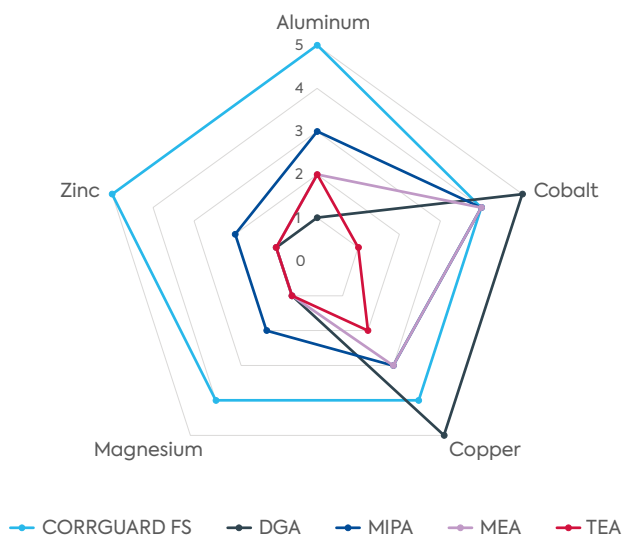
CORRGUARD™ FS is a cost-effective, multifunctional additive that can be used as an alternative to monoisopropanolamine (MIPA), diglycolamine (DGA), and monoethanolamine (MEA) in extended-life metalworking fluid formulations.

CORRGUARD FS offers several advantages across the full range of water-miscible metal removal fluids, metal forming fluids, and metal cleaners.

- Best-in-class multi-metal compatibility with ferrous and non-ferrous metals.
- Improved aluminum staining performance.
- Enhanced fluid longevity and compatibility with a wide range of registered biocides including triazine and BIT.
- Extended fluid longevity for metal cleaners.
- Excellent formulation stability with improved foam control.
- Primary amino alcohol chemistry with a preferred EH&S profile.
- Secure, reliable global supply.

Best-in-Class Multi-Metal Compatibility

Fig. 1: Multi-Metal Leaching and Staining Results in Formulated Metalworking Fluids



Metal compatibility is assessed by leaching data and corrosion/staining analysis. Leaching is analyzed by ICP on soak test fluid run at 40°C for 5 days.

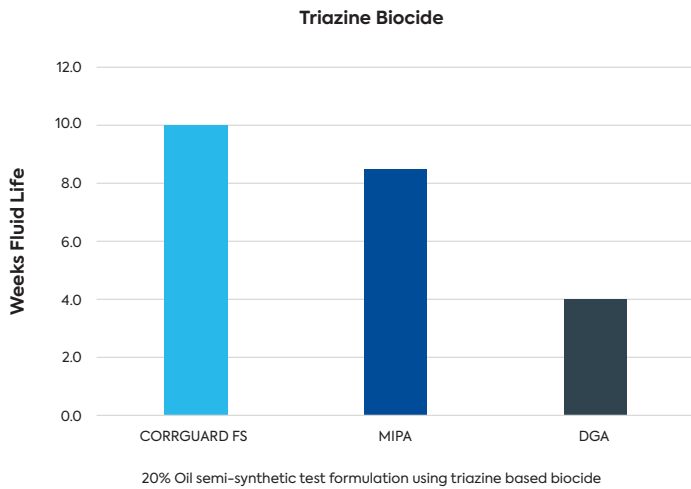
Fig. 2: CORRGUARD FS Shows Improved Aluminum Staining Performance

Alloy	CORRGUARD FS	DGA	MIPA	MEA
358				
2024				
6061				
7075				

The test is run by submerging freshly abraded aluminum coupons in fluid diluted to 5% in synthetic water with a 200 ppm hardness for 24 hours at 40°C.

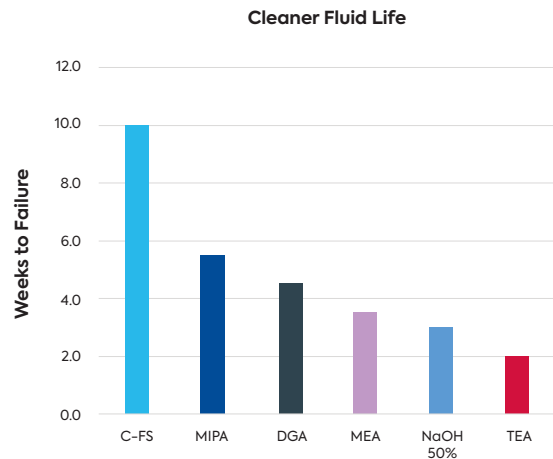
Enhanced Fluid Longevity in Metalworking Fluids and Cleaners

Fig. 3: Improved Fluid Longevity in a Semi-Synthetic Metalworking Fluid



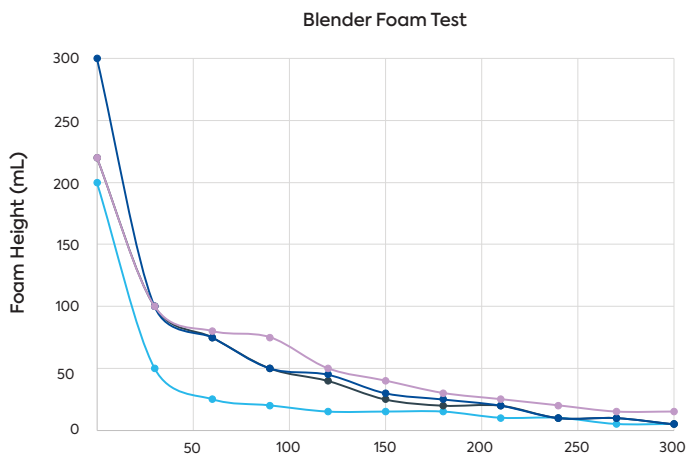
An in-house fluid life test similar to ASTM E2275 was performed. Samples are inoculated on a weekly basis with bacterial and fungal sources, and later plate-streaked in order to assess the fluid's resistance to microbial growth. Fluid failure is when a sample shows heavy growth for two weeks in a row.

Fig. 4: Improved Fluid Longevity in an Aqueous Metal Cleaner



Testing was completed on a water-based alkaline metal cleaner formulation for aluminum applications utilizing molar equivalents of the represented pH builder. These formulas were diluted at 3% in tap water for testing.

Fig 5: Appearance After 7 Weeks Microbially Aged Fluid with Tramp Oil



Diluted metalworking fluid was blended at high speed in a foam blender for 1 minute. Foam height is measured by graduations on the blender container up to 5 minutes.

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