



# CORRGUARD™ SA-100

## Multifunctional Emulsifier

**Primary amino alcohol-based amide with low secondary amine content and free of DEA for efficient emulsion stability with low foaming and hard-water compatibility**



CORRGUARD™ SA-100 is a multifunctional emulsifier containing 72% renewable content derived from an AMP-natural fatty acid alkanolamide. It has earned the USDA Bio-Preferred Certification. CORRGUARD SA-100 delivers a balanced cost and performance profile in metalworking fluids and industrial lubricants, offering the following benefits:

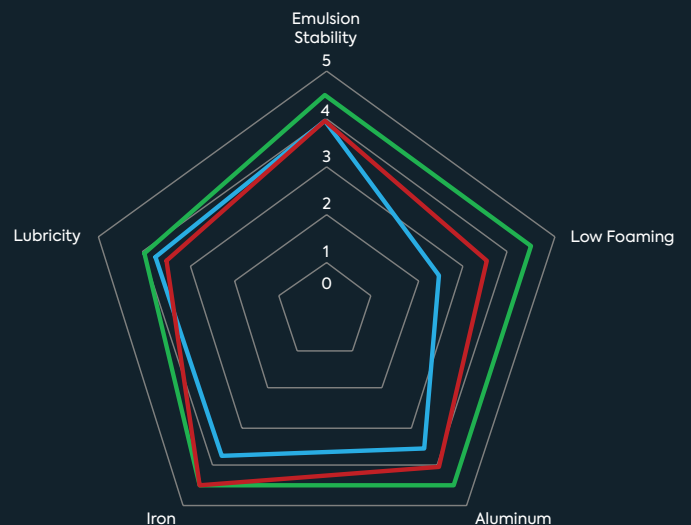
- Excellent emulsion stability with smaller particle size and uniform distribution.
- Lower foaming than diethanolamine (DEA) and diisopropanolamine (DIPA) based amides.
- Excellent hard water stability.
- Best-in-class multi-metal compatibility, including cast iron corrosion prevention and aluminum staining protection.
- Secure supply and free from secondary amines.

### Best-in-class multifunctional performance

CORRGUARD SA-100 provides excellent emulsification in metalworking fluids, featuring low foaming and hard water stability. It delivers outstanding corrosion and stain protection for ferrous metals and aluminum alloys. CORRGUARD SA-100 offers exceptional multifunctional properties compared to competitive amides.

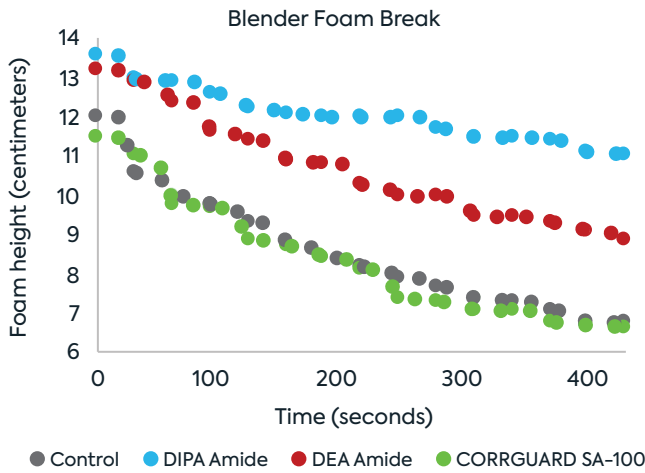
Fig. 1: In comprehensive laboratory evaluations, key performance attributes of finished semi-synthetic metalworking fluids formulated with CORRGUARD SA-100 and competitive amides were measured.

— CORRGUARD SA-100    — DIPA Amide    — DEA Amide



## Low foaming

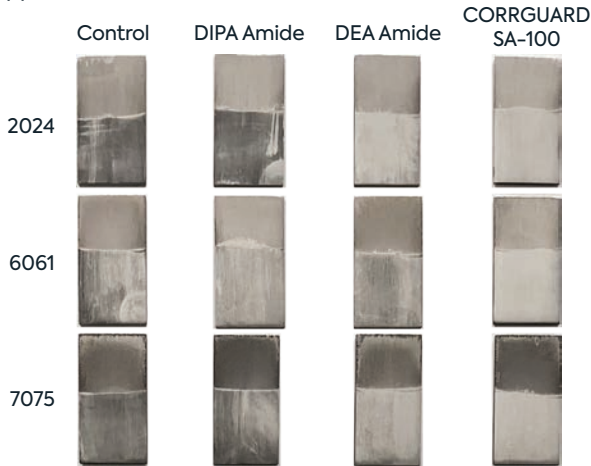
Fig. 2: A blender foam test was conducted with 20% low-oil semi-synthetic metalworking fluid, diluted at 5% in Chicago tap water. The emulsion was gently mixed for 15 minutes on a stir plate, then transferred into the blender and blended for 1 minute. Foam height was measured over time.



CORRGUARD SA-100 shows similar low-foaming tendencies as the ethoxylated alcohol co-emulsifier (control) and is better than the DIPA amide and DEA amide in this low-oil semi-synthetic metalworking fluid at a similar treat rate.

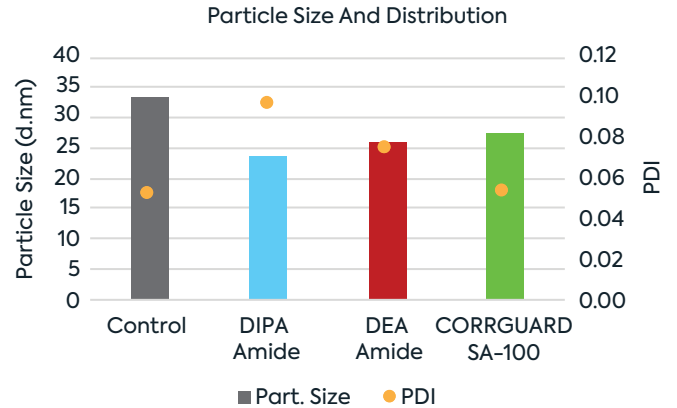
## Excellent multi-metal corrosion and aluminum staining protection

Fig. 4: Aluminum staining on various alloys. Coupons of different aluminum alloys were partially submerged for 24 hours at 40°C in 5% diluted 20% low-oil semi-synthetic metalworking fluids in 200 ppm hardness water.



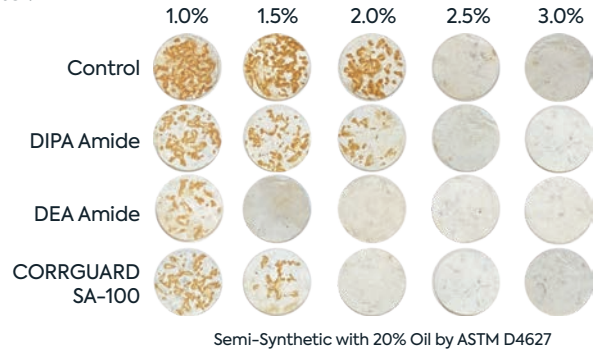
## Improved emulsion stability

Fig. 3: 20% low-oil semi-synthetic metalworking fluids were diluted in DI water for the emulsion droplet size distribution study. The measurement was performed on a Malvern Zetasizer.



Particle size and polydispersity index (PDI) of the metalworking fluids showing improved emulsion stability with CORRGUARD SA-100. Samples formulated with ethoxylated alcohol (control) and various alkanolamides were analyzed for droplet size and polydispersity index (PDI). CORRGUARD SA-100 exhibits a smaller droplet size than the control and monodisperse distribution, it also has the lowest PDI among the amides evaluated, which results in an improved emulsion stability.

Fig. 5: Cast iron corrosion testing was conducted according to the modified ASTM D4627 method. The low-oil semi-synthetic metalworking fluids were prepared at 5% dilution in Chicago tap water.



CORRGUARD SA-100 is a best-in-class alkanolamide that provides balanced performance in low-oil semi-synthetic metalworking fluids. It offers excellent multi-metal corrosion and staining protection, low foaming and improved emulsion stability.

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