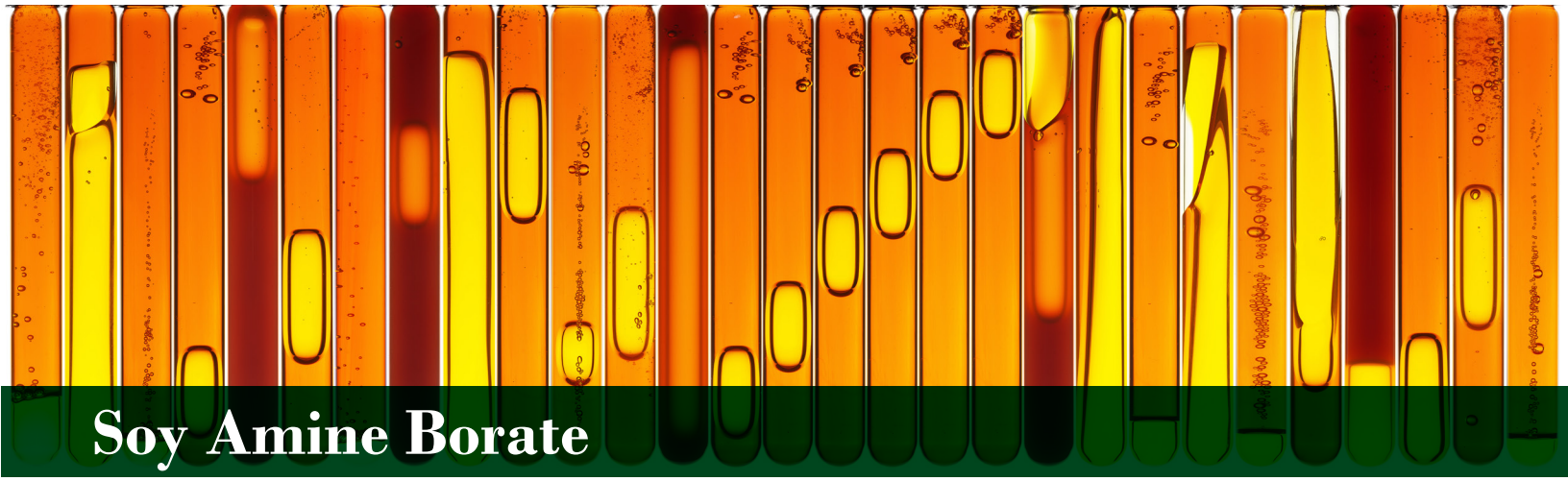
Airable
RESEARCH LAB
WHERE SUSTAINABLE SOLUTIONS START

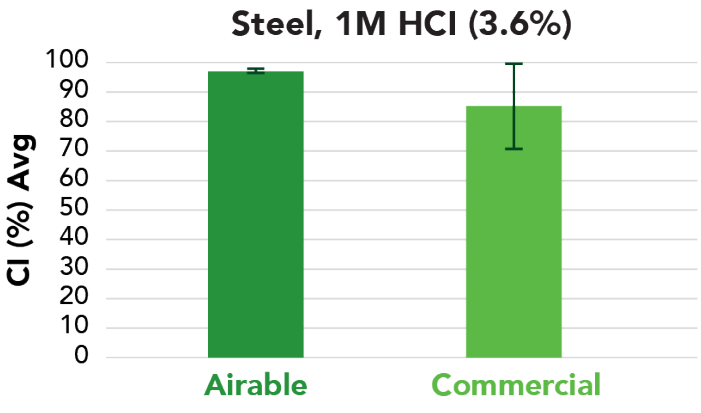


Soy Amine Borate

Airable has developed a novel soy-based amine borate technology that is suitable for corrosion inhibition, antiwear protection, and surface activity. Unlike traditional amine borates produced from alkylamines or polyamines, Airable's platform begins with vegetable-oil-derived alkanolamines, giving formulators a sustainable additive alternative.

TECHNOLOGY

Our amine borate is produced following green chemistry principles, using solvent-free conditions and benign catalysts. The resulting material has polar functionality that grants excellent film-forming to protect metal surfaces. In a corrosion-resistance experiment, as shown in the figure below, our soy-derived ingredient outperformed monoethanolamine borate (control) against 1M HCl on steel.



Steel coupons were submerged in 1M HCl solutions with and without inhibitor for 24 hours. The mass loss was used to calculate corrosion rate compared to the negative control.

KEY BENEFITS

- Corrosion inhibition
- Renewable content
- Efficient, tunable synthesis
- Surface activity
- Water-soluble

APPLICATIONS

- Corrosion inhibitors for ferrous and non-ferrous metals
- Antiwear and friction-modifying additives in lubricant and metalworking fluids
- Additives for greases, hydraulic fluids, and cutting fluids
- Polar, surface-active modifiers in rust preventatives and cleaner–lubricant blends

Typical use level: 0.1-5 wt%, depending on formulation type.

STATUS AND AVAILABILITY

Airable Research Lab filed a provisional patent on this technology in November 2025. Contact Airable to discuss partnership options.

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