



Emerald™ Acid Clean If

Emerald Acid Clean LF is an acidic soak, ultrasonic, spray cleaner that may be used for the removal of a variety of soils and oxides from aluminum, stainless steel, steel, cast iron, copper, brass, Monel, and other high nickel alloys. Emerald Acid Clean LF contains a high percentage of DfE acceptable surfactants and solubilizers, designed to remove forming lubricants, machining oils, and light rust or scale from these substrates. It is also effective for lime scale removal.

Emerald Acid Clean LF is used in spray cleaning applications where bath temperatures are 150°F. or less.

Note: Emerald Acid Clean LF will not remove heavy scale from stainless steel alloys or heavy rust and scale from steel. Emerald Acid Clean #1 when used as recommended will produce little if any etch on most aluminum alloys.

Emerald Acid Clean LF can be used for vibratory finishing of copper alloys, stainless steel, steel, Monel, and other substrates when low to moderate foam levels are desired. Emerald AB 1 is recommended for part on part burnishing in tumbling barrels as it produces heavier foam to cushion parts.

Features & Benefits

Highly concentrated	High detergency
Can be used as a burnishing compound	DfE approved wetting and solvent system
Removes light rust and scales	Contains no mineral acids

Physical Data

Specific gravity	1.21
Solubility in water	Complete
Appearance and odor	Water white, clear, citrus odor
pH	1.0 – 2.0



Operating Conditions

5% to 25% (volume) - the dilution will depend upon the soils involved. The rate at which soils, rust, and oxides are removed can be affected by build-up of iron or other metallic salts in the working solutions. This may be compensated for to some extent by increasing the temperature and or the solution concentration.

When used for cleaning aluminum a concentration of 5 to 10% by volume at temperatures up to 170°F with dwell times of 5 to 10 min. is recommended. These parameters will result in little or no etch on most aluminum alloys.

For spray applications a concentration of 2 to 5% by volume with a temperature of 160°F to 170°F is recommended.

When used as a burnish compound a concentration of 0.2 to 1% by volume is recommended. For the removal of heavier oxides concentration of 5 to 10% by volume may be required.

Note: Processing copper, brass, or bronze parts in the same tank as steel may eventually lead to immersion copper deposits on the steel parts. It is recommended to use a separate tank for cleaning copper and copper-based alloys.

Temperature	Room – 170°F (77°C)
Ventilation	When heated or used in spray systems
Equipment	Stainless steel, Polypropylene, Polyethylene, Fiberglass, or rubber lined tanks
Heater	Stainless steel or nickel-plated steel piping

Titration Method

1. Take a 25.0 mL sample of Emerald Acid Clean LF solution into a 250 mL Erlenmeyer flask and dilute to 50 mL with water.
2. Add 3 to 5 drops of Phenolphthalein.
3. Titrate to pink endpoint with 1.0 N Sodium Hydroxide solution.
4. Record mL of Sodium Hydroxide used.

Calculation

$$\% \text{ by volume Emerald Acid Clean \#1} = 0.490 \times \text{ML OF 1.0 N Sodium Hydroxide Used}$$



Test Kit Method

Using the syringe provided, place a 0.5 mL sample into sample bottle and fill bottle 1/4 full of water, add 5 drops of Phenolphthalein indicator. Add N-72 solution drop wise until solution turns a definite yellow.

$$\% \text{ by volume Emerald Acid Clean LF} = 0.60 \times \text{Drops N-72 Solution}$$

Waste Disposal

Neutralize solutions of Emerald Acid Clean LF to a pH of 6.0 to 8.0 with either caustic soda or soda ash before discarding. In order to be completely informed on those latest waste disposal regulations for your area; please contact the local authorities.

Caution

Emerald Acid Clean LF is an acidic product; avoid skin, eye and oral contact. Wear protective clothing, facemask, chemical goggles, and gloves when handling the product and its made-up solutions. Flush exposed areas immediately with copious amounts of clean, cold water. Contact a doctor immediately in case of injury.

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For more information on this process,
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