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Product Bulletin

Product Name: Ultrex Electro Cleaner HC
Product Code: 2001032
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Ultrex Electrocleaner HC

Ultrex Electrocleaner HC is a moderately alkaline electro cleaner, formulated especially for brass, copper alloys, lead alloys, steel, white metal, and zinc. Its formulation provides for effective anodic conditioning, preparing the base metal for additional processing in a wide range of plating cycles.

Features & Benefits

Particularly effective on soldered parts & multi metal components	Reserve detergency for standard soak cleaning requirements
Buffered to prevent tarnish & etching of sensitive metals	Stable, light foam blanket prevents corrosive misting

Physical Data

Appearance	Free flowing, white to off-white powder
Odor	Slight
Dusty	No
Foaming tendency	Moderate
Maximum solubility	32 oz/Gal at 180°F (240 g/L at 82°C)

Product Profile

Caustic	Yes
Phosphate	No
Silicate	Yes
Complexors (Gluconate type)	No
Chelates (EDTA, NTA types)	No

Hazard Classification

DOT Classification	8 (Corrosive Material)
DOT Shipping Name	Corrosive Solid, Basic Inorganic N.O.S.*
UN Number	1498

Packing Group	II
Guide Number	154

*Sodium Metasilicate

Operating Conditions

Electro Cleaner

	Range	Optimum
Concentration (all metals)	4 – 8 oz/ Gal (30 – 60 g/L)	6 oz/Gal (45 g/L)
Temperature	140°F – 180°F (60°C – 82° C)	160°F (71°C)
Current Density (anodic)	10 – 50 ASF	As required
Voltage	3 – 6	As required
Time	2 – 5 min	As required
Agitation	Solution movement or mild air	As required

Soak Cleaner for Brass & Copper Alloys

	Range	Optimum
Concentration	4 – 10 oz/Gal (30 – 75 g/L)	7 oz/Gal (52.5 g/L)
Temperature	140°F – 180°F (60°C – 82°C)	160°C (71°C)
Time	2 – 5 minutes	As required
Agitation	Solution movement or air	As required

Equipment

Tank	Mild steel, reinforced polypro, or fiberglass
Heater	Steel coil, steel immersion type, steam fed, or gas fired
Ventilation	Mechanical to maintain levels below permissible exposure limits
Agitation	Stirrer, pump, work movement, or mild air

Solution Make Up

Danger!! Ultrex Electrocleaner HC contains Sodium Hydroxide. Consult Ultrex Electrocleaner HC SDS sheet before handling this product. It should be handled with all the safety precautions associated with Sodium Hydroxide.

Be sure the process tank has been drained and cleaned. Fill to within two thirds of final operating volume with clean, warm water (100°F to120°F, 38°C to 49°C). With good solution stirring, gradually add the required amount of Ultrex Electro Cleaner HC. Rapid additions may result in localized boiling and spattering!

After the required amount of Ultrex Electrocleaner HC has been added and dissolved, adjust final solution operating volume and temperature.

As Electro Cleaner: The alkaline components are typically consumed in the electrolysis process. Surfactants and detergents are consumed in the cleaning process by emulsifying oils and grease. Drag out of the cleaner bath and replenishment of the bath with water also dilutes the working solution. In double cleaning cycles, drag in of acid into the second electro cleaner will neutralize some of the alkalinity. Regular maintenance additions of Ultrex Electrocleaner HC are recommended to replenish the bath. This can be accomplished by observing quality of cleaning & conditioning and making appropriate additions per requirements of the process. Alternatively, the cleaner bath can be analyzed to determine actual concentration of Ultrex Electrocleaner HC and the required addition of product to restore the balanced ratio of all the cleaner components.
As Soak Cleaner: The surfactants and detergents are consumed in the cleaning process by emulsifying oils and grease. Alkaline components are used up in the cleaning process, such as by saponifying fatty acids. Drag out of the cleaner bath also depletes these active components. Regular maintenance additions of Ultrex Electrocleaner HC are recommended to replenish the bath. This can be accomplished by observing quality of cleaning and making appropriate additions per requirements of the process. Alternatively, the cleaner bath can be analyzed to determine actual concentration of Ultrex Electrocleaner HC and the required addition of product to restore the balanced ratio of all the cleaner components.

Process suggestions
Ultrex Electrocleaner HC provides good emulsifying soak cleaning action. On cooling, some of the oils will be released. Therefore, skimming the cleaner to remove oils is recommended. Solutions of Ultrex Electrocleaner HC are also compatible with coalesces and oil removal filters. At some point during the bath life, the buildup of oil and grease contaminants will effectively saturate it, beyond which maintenance additions or filtration will not maintain desired performance. When this occurs, the cleaner should be dumped, and a fresh solution prepared. The Technical Center or your Hubbard Hall Inc. sales representative will be glad to help determine optimum bath life.

Ultrex Electrocleaner HC working solutions are buffered to protect sensitive metals from tarnish and etching. For optimum results, the suggested operating ranges for electro cleaning are recommended.

Hexavalent chromium contamination (only 30 ppm) will also shorten the cleaner bath service life. Additions of Enerox Chrome Reducer CEH will efficiently reduce chrome to its trivalent state, precipitating it as CrIII Hydroxide, thereby extending cleaner life. Although tolerance of copper, iron, nickel, and zinc are high, enough loadings of these contaminants will result in deposition of a black smut. When this occurs the electro, cleaner bath should be replaced with a fresh make up.

Because of its free rinsing characteristics, Ultrex Electrocleaner HC is particularly suited for systems where rinsing facilities are marginal. It can used separately as soak and electro cleaner or perform both functions in the same process tank. Ultrex Electrocleaner HC is soap free. Therefore, no residues are left on cleaned surfaces. With proper post rinsing, parts entering the electro cleaner should be water break free. Ultrex Electrocleaner HC is a good complement to Ultrex Soak Cleaner HC.

Titration Method

1. Pipette a 5 mL sample of the cleaner bath into a 250 mL Erlenmeyer flask.
2. Add 50 to100 mL of clean water.
3. Add 2 to 4 drops of Phenolphthalein indicator to develop a pink solution color.
4. Titrate with 0.1 N Hydrochloric Acid just until the pink color turns clear.
5. Record mL used.

Calculation

Concentration (oz/Gal) = mL 0.1 N HCl x 0.597

Waste Disposal

Ultrex Electrocleaner HC and it's working solutions are alkaline. They may be neutralized with acid to meet local POTW or municipal effluent discharge requirements. Sludges and oils should be separated out before discharge. Spent Ultrex Electrocleaner HC solutions may contain dissolved metals from the cleaning process. Therefore, additional treatment of the solution may be required to meet discharge requirements.

Caution

Please read and understand the Ultrex Electrocleaner HC Safety Data Sheet before handling and using this product.

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