Ultrex SP 22

**Ultrex SP 22** is a proprietary blend of acid salts, dispersants, and surfactants, designed especially for pickling steel, copper alloys, and stainless steel. It's formulation provides effective neutralization of alkaline films and activation of the metal substrate, for additional processing in a wide range of plating cycles.

**Features & Benefits**

* Good Cleaning Action on Smuts, Light Scales & Rust
* Sufficient Detergency to Emulsify Residual Oils
* Safer, More Convenient to Use Than Concentrated Acids
* Eliminates the Handling, Storage, & Use of Corrosive Liquid Acids
* Non-Fuming, Does Not Heat Water When Dissolved
* Application in Barrel & Rack Process Lines

**Recommended Application Immersion Acid Dip & Activator**

|  |  |  |
| --- | --- | --- |
| **Base Metal** | **Range** | **Optimum** |
| Steel | 8-32 oz/gal (60-180 g/l) | 20 oz/gal (150 g/l) |
| Brass | 6-12 oz/gal (45-90 g/l) | 9 oz/gal |
| Copper Alloys | 8-16 oz/gal (60-120 g/l) | 12 oz/gal (90 g/l) |
| Stainless steel | 20-48 oz/gal (150-360 g/l) | 34 oz/gal (255 g/l) |
| Zinc | 4-8 oz/gal (30-60 g/l) | 6 oz/gal (45 g/l) |
| Time | 2-5 minutes | As required |
| Agitation | Solution movement or mild air | As required |

**Recommended Application Cathodic Pickling of Steels**

|  |  |  |
| --- | --- | --- |
|  | **Range** | **Optimum** |
| Concentration | 16-24 oz/gal (60-180 g/l) | 20 oz/gal (150 g/l) |
| Temperature | 85-120 deg F (29-49 deg C) | 102 deg F (39 deg C) |
| Voltage (rack) | 1-2 | As required |
| C D (cathodic, rack) | 20-40 ASF | As required |
| Anodes | Carbon or Lead | As required |
| Time | 1-5 minutes | As required |
| Agitation | Solution movement or mild air | As required |

**Cathodic Activation of Electroplated Nickel**

|  |  |  |
| --- | --- | --- |
|  | **Range** | **Optimum** |
| Concentration | 16-24 oz/gal (60-180 g/l) | 20 oz/gal (150 g/l) |
| Temperature | 75-90 deg F (24-32 deg C) | 82 deg F (28 deg C) |
| Voltage (rack) | 1-2 | As required |
| C D (cathodic, rack) | 20-40 ASF | As required |
| Anodes | Carbon or Lead | As required |
| Time | 1-3 minutes | As required |
| Agitation | Solution movement or mild air | As required |

**Equipment**

|  |  |
| --- | --- |
| Tank | Koroseal lined steel, reinforced polypro, or fiberglass |
| Heater | Quartz or Teflon coil |
| Ventilation | Mechanical to maintain levels below permissible exposure limits |
| Agitation | Stirrer, pump, work movement, or mild air |

**Solution Make Up**

Consult Ultrex SP 22, MSDS sheet before handling this product.

Be sure the process tank has been drained and cleaned. Fill within two thirds of the final operating volume with clean, warm water (100-120 deg F, 38-49 deg C). With good solution stirring, gradually add the required amount of Ultrex SP 22.

After the required amount of Ultrex SP 22 has been added and dissolved, adjust final solution operating volume and temperature.

**Analysis Procedure Ultrex SP 22**

The active components are typically consumed in the appropriate process (refer to pg.1). Surfactants and detergents are consumed in the cleaning operation, by emulsifying oils and grease. Drag out of the acid bath and replenishment of the bath with water also dilutes the working solution. In double cleaning cycles, drag in of the preceding electro cleaner will neutralize some of the acidity. Regular maintenance additions of **Ultrex SP 22** are recommended to replenish the bath. This can be accomplished by observing quality of: activation, pickling, or descaling, and making appropriate additions per requirements of the particular process. Alternatively, the acid bath can be analyzed to determine actual concentration of **Ultrex SP 22**, and the required addition of product to restore the balanced ratio of all the acid bath components.

The following analysis procedure is recommended:

1. Pipette a 10 milliliter sample of the acid bath into a 250 milliliter Erlenmeyer flask.
2. Add 50-100 milliliters of clean water.
3. Add 2-4 drops of Methyl Orange Indicator, developing a pink solution color.
4. Titrate with Sodium Hydroxide of known normality, until the pink color has been discharged to ayellow colored endpoint.

Calculation: (milliliters of titrant) X (Normality) X (1.739) = **Ultrex SP 22** (oz/gal)

**Process Suggestions**

Ultrex SP 22 sufficiently neutralizes alkaline: films from the preceding cleaner dip, while activating the base metal prior to plating or subsequent operation. The solution is fortified with surfactants, that emulsify residual oils and grease that may be dragged into the acid bath. Light rust and oxides are normally removed in the immersion dip. Metallic smuts, light scales, and spot welds are best removed by immersion or cathodically, at higher concentrations of Ultrex SP 22. Problems that may occur in the line include:

* Hardened floating tar balls or crust lining the acid tank. Indicates drag in of cleaner solution, oils, and grease. Maintenance of the cleaners and optimizing line rinsing is recommended.
* Water breaks after the acid. Usually, poor cleaning or contaminated acid solution.
* Rusting after the acid dip. This may be due to long transfer times or extended immersion in rinses. Otherwise, the acid solution may be saturated with dissolved metal requiring its dumping.
* Base metal smuts in the acid. The acid may be too strong for the alloy dipped, or contaminated with dissolved metals.
* Surface smut or immersion deposit (such as copper on steel), exiting the acid.
* Excessive metallic contamination. Replace the acid with a fresh make up.

**Physical Characteristics**

|  |  |
| --- | --- |
| Appearance | Off white, bead like, granular mixture |
| Odor | Odorless |
| Dusty | No |
| Foaming Tendency | Low |
| Maximum Solubility | 48 oz/gal at 75 deg F (3600 g/l at 24 deg C) |

**Product Profile**

|  |  |
| --- | --- |
| Citrates | No |
| Phosphate | No |
| Amines | No |
| Complexors (Gluconate type) | No |
| Chelates (EDTA, NTA types) | No |

**Hazard Classification**

|  |  |
| --- | --- |
| DOT Hazard Class | Not Regulated |
| DOT Shipping Name | Not Applicable |
| Un Number | Not Applicable |
| Packing Group | Not Applicable |
| Guide Number | Not Applicable |

**Waste Disposal**

Ultrex SP 22 and it's working solutions are acidic. They may be neutralized with dilute caustic soda solutions to meet local POTW or municipal effluent discharge requirements. Sludges and oils should be separated out before discharge. Spent Ultrex SP 22 solutions may contain dissolved metals from the activation and pickling process. Therefore, additional treatment of the solution may be required to meet discharge requirements.

**Caution**

Please read and understand the ULTREX SP 22 Material Safety Data Sheet before handling and using this product.

Recommended safety procedures for ULTREX SP 22 tank make up are described on page 2 of the Technical Data bulletin.

**WARRANTY:** THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.

**Our People. Your Problem Solvers.**

**For more information on this process,**

**please call us at 203.756.5521 or email:** **techservice@hubbardhall.com**

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