

## E-Prep™ 224

### Stabilizer and Additive for Sulfuric Acid/Hydrogen Peroxide Descale and Bright Dips for Brass and Copper

**E-Prep 224** is a concentrated liquid accelerator, stabilizer and anti-tarnish additive developed for the replenishment of **E-Prep 221** bright dip baths for brass and copper. It minimizes the breakdown of the peroxide and prevents retarnishing of copper and brass after brightening. It is added to a bath when Hydrogen Peroxide is added.

**E-Prep 224** is also used with sulfuric acid and hydrogen peroxide to formulate customized descaling and bright dip baths to suit specific applications. It offers flexibility, reduced product inventory, and cost effectiveness.

**E-Prep 224** can also be added to bright dip baths to offer extra stability for the hydrogen peroxide during weekends, holidays, and downtime. Add 2% by volume of **E-Prep 224**.

**E-Prep 224** does not contain flammable solvents, chelators, chromates, or nitric acid and therefore it is environmentally safe and easy to waste treat.

#### **EQUIPMENT**

Polypropylene tanks, reinforced from outside, are best suited for use with **E-Prep 224**.

Stainless Steel tanks utilizing Inconel Alloy 22, Inconel 600, Inconel 617 or Incoloy 800 grades. Quartz or Teflon coated heaters are recommended for the bright dip tank. Stainless steel coils are used for internal cooling. Good exhaust ventilation with positive air flow over the tank is highly recommended for large tanks of **E-Prep 224**. Smaller solution volumes should be operated in well ventilated areas.

#### **DIRECTIONS FOR USE:**

Prior to bright dipping, brass and copper parts should be thoroughly cleaned with **E-Kleen 105** and preconditioned.

##### **100 Gallon Descale Bath Make-Up**

Water, deionized or soft	75 gallons ( <u>73 gal</u> if using 26% hydrogen peroxide)
Concentrated Sulfuric Acid	15 gallons
<b>E-Prep 224</b>	5 gallons
35% wt. Hydrogen Peroxide	5 gallons ( <u>7 gal</u> if using 26% hydrogen peroxide)
Temperature	Ambient to 120°F
Time	2 – 5 minutes

##### **Bright Dip Bath Make-up - 100 gallons**

Water, deionized or soft	79 gal ( <u>74 gal</u> if using 26% hydrogen peroxide)
Concentrated sulfuric acid	1 gal
<b>E-Prep 224</b>	5 gal
35% wt. Hydrogen Peroxide	15 gal ( <u>20 gal</u> if using 26% hydrogen peroxide)
Temperature	110 - 120°F
Time	1 to 2 minutes

\*\* Optional: For brighter polishing, to assist cleaning and to install a foam blanket, add **E-Wet 224 -W** at 0.01- 0.1%. (See **E-Wet 224-W** bulletin.)

The bright dip bath is used following the descaling/preconditioning with an intervening cold water rinse. Following bright dipping, the parts are rinsed with cold water followed by a short dip in a 5% by volume Sulfuric Acid solution to remove the brown film, followed by another cold water rinse, a hot water rinse, followed by drying (forced air or spin dry).

**Note:** The descaling and bright dipping processes generate heat. Hence, heavy volume use of the solutions will require installation of a water-cooling jacket to keep temperatures below 130°F at all times. Failure to do this would cause severe breakdown of the peroxide and cause the solutions to boil over.

After new bath make-up, replenishment additions of **E-Prep 224** would be proportional to the hydrogen peroxide additions based on its analysis. In the above example, **E-Prep 224** replenishment additions will be equal to one-fifth the amount of that of hydrogen peroxide additions.

### **CAUTION**

Do not get in eyes, on skin or on clothing. Do not take internally. When handling, wear goggles or face shield. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. For eyes, call a physician.

**Do not** work with **E-Prep 224** without first reading and understanding the **MATERIAL SAFETY DATA SHEET** furnished by EPI.

### **PACKAGING**

**E-Prep 224** is packaged in 5 gallon and 55 gallon plastic containers and comes as a clear, colorless liquid.

### **IMPORTANT NOTICE! For Industrial Use Only**

The following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: seller's and manufacturer's only obligation shall be to replace such quantity of the product as proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. **Neither seller nor manufacturer shall be liable, either in tort or in contract, for any loss or damage, direct, incidental or consequential, arising out of the use or the inability to use the product.**

9/21/12