

## **E-Pik™ 211**

### **Acid Salt - Deoxidizer/Activator**

**E-Pik 211** is a mixture of dry, granular, free-flowing acid salts which is dissolved in water and used to deoxidize and/or activate metal surfaces prior to plating or chemical conversion finishing. The mildly acidic solutions are used at temperatures ranging from ambient to 180°F with elevated temperatures enhancing the activity and are generally required for derusting steel surfaces.

**E-Pik 211** is used to remove oxides and to activate steel, stainless steel, zinc plate, zinc diecast, copper and copper alloys.

**E-Pik 211** is not as harsh in its action on metal surfaces as are mineral acids.

**E-Pik 211** solutions do not have to be ventilated if used at ambient temperatures.

#### **EQUIPMENT**

**E-Pik 211** solutions must be contained in acid-resistant tanks such as polypropylene, polyethylene, PVC or rubber lined steel.

Heated solutions should be ventilated.

Quartz immersion heaters should be used for heating the solutions.

#### **SOLUTION MAKE-UP**

Prior to charging the production tank, some experimentation should be performed with properly prepared sample parts using various concentrations of **E-Pik 211** solution, immersion times and temperatures. The sample parts should be prepared by thoroughly cleaning and degreasing the surfaces with the appropriate **EPI E-Kleen** brand of metal cleaner.

As a general guideline the following concentrations of **E-Pik 211** are recommended for use at ambient temperatures except for stainless steel:

|                        |                         |   |
|------------------------|-------------------------|---|
| <b>Steel</b>           | <b>Activation</b>       | 4-8 oz/gal.<br>30 to 60 second immersion                  |
|                        | <b>Rust Removal</b>     | 16-32 oz/gal.<br>2-5 minute immersion                     |
| <b>Stainless Steel</b> | <b>Activation</b>       | 16-32 oz/gal.<br>2 - 5 minute immersion<br>150°F to 180°F |
|                        | <b>Deoxidizing</b>      | 4 to 16 oz/gal.<br>30 to 60 second immersion              |
| <b>Zinc plate</b>      | <b>Deoxidizing</b>      | 1 to 2 oz/gallon<br>15-30 second immersion                |
| <b>Zinc Diecast</b>    | <b>Prior to Plating</b> | 1 to 2 oz/gal.<br>15 to 45 seconds                        |

Residual **E-Pik 211** solution must be removed with a thorough cold water rinse prior to further finishing.

## **SOLUTION MAINTENANCE**

Small periodic additions of the **E-Pik 211** salts are made to the solution to maintain the desired degree of activity. The solution is disposed of only when its effectiveness is reduced by the accumulation of dissolved metals, dirt, oil, grease, etc.

### **Burette Method**

The strength of the solution may be determined by the following titration procedure:

1. Take a sample of the solution and cool to room temperature.
2. Pipette 10 ml of the sample into a clean 125 ml Erlenmeyer flask. Add 10 ml of DI water.
3. Add 8 to 10 drops of Phenolphthalein Indicator.
4. Titrate with 1.0N Sodium Hydroxide to a definite pink color.
5. Concentration of **E-Pik 211 (oz/gal.)** = ml of 1.0N Sodium Hydroxide x 1.50.

### **Dropping bottle test**

A test kit for the procedure below is available from **EPI** and contains:

- 1 each 10 ml graduated cylinder
- 5 each Disposable pipette
- 1 each 250 ml beaker
- 1 each 1/2 oz dropping bottle of Phenolphthalein
- 1 each 4 oz dropping bottle of 1.0N Sodium Hydroxide

The strength of the **E-Pik 211** working solution is easily determined with the following procedure:

1. Transfer 0.5 ml of **E-Pik 211** working solution to a 250 ml beaker utilizing disposable pipette.
2. Add 10 mls of DI water with a 10 ml cylinder.
3. Add 8 to 10 drops Phenolphthalein indicator to the sample solution in the beaker.

Using the 4 oz dropping bottle containing 1.0N Sodium Hydroxide, add drops to the sample solution in the 250 ml beaker with constant swirling until the solution turns a faint permanent pink color. Count the drops as they are being added.

Concentration of **E-Pik 211 (oz/gal)** = number of drops of 1.0N Sodium Hydroxide x 0.89

## **CAUTION**

The **E-Pik 211** salts and solutions are acidic. They may cause skin and eye irritation. Eye protection, rubber gloves and a rubber apron must be worn when working with **E-Pik 211** and its solutions.

Avoid prolonged contact with skin.

In case of contact with skin or eyes, flush freely with running water for at least 15 minutes. For eyes, get medical attention.

Avoid contact of **E-Pik 211** and its solutions with alkaline materials.

Do not mix **E-Pik 211** or its solutions with any other chemicals or solutions.

Do not work with **E-Pik 211** without first reading and understanding the **MATERIAL SAFETY DATA SHEET** furnished by **EPI**.

## **PACKAGING**

50 pound, 100 pound and 400 pound non-returnable containers.

## **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.**

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