

## E-Kleen™ 153

### All Metal, Heavy Duty, Liquid, Alkaline Soak/Electro/Ultrasonic Cleaner

**E-Kleen 153** is a liquid mixture of surface active agents, immersion desmutters, detergents, silicate, phosphates and caustic that will emulsify the soils and oils. **E-Kleen 153** removes carbon scum on steel and other smut on other metals. This results in better adhesion, brighter plated parts and smut free black oxide parts.

**E-Kleen 153** does not contain chelators, which tie up heavy metals and require special waste treatment.

**E-Kleen 153** is ideal for soak, electro, and ultrasonic cleaning of steel, stainless steel, copper, brass, bronze, zinc diecast and aluminum. It can remove fabricating soils, light buffing and drawing compounds, grease and oil. Following cleaning, solutions of **E-Kleen 153** are easy to rinse from parts.

#### OPERATING PARAMETERS-Soak Cleaning

**Concentration:** 8 to 12% by volume in water  
**Temperature:** 130° to 180°F  
**Time:** 5-10 minutes

#### OPERATING PARAMETERS-Electro Cleaning

**Concentration:** 8 to 12% by volume in water  
**Temperature:** 130° to 180°F  
**Time:** 0.5-5 minutes for steel  
10-60 seconds for brass, copper, and zinc die-cast  
**Voltage:** 5-7 volts anodic for steel  
2-4 volts anodic for copper and brass  
0.5-1 volts anodic for zinc die-cast

#### Current Density

30 – 100 ASF for steel  
10 – 30 ASF for copper and brass  
10 – 25 ASF for zinc diecast

## **OPERATING PARAMETERS-Ultrasonic Cleaning**

**Concentration:** 2-4% by volume in water  
**Temperature:** 100° - 130°F  
**Time:** 2-5 minutes

## **EQUIPMENT RECOMMENDATION**

Tanks should be constructed of mild steel or stainless steel. Racks, baskets and barrels must be compatible with other metal finishing solutions used thereafter. Do not use galvanized steel, bronze, copper, tin or aluminum. Immersion heaters may be of mild steel. Adequate forced ventilation must be provided.

## **SOLUTION MAKE UP**

Add the **E-Kleen 153** liquid concentrate slowly to water while stirring. Avoid splashing the liquid concentrate and solution on skin, eyes and clothing.

The **E-Kleen 153** working solution concentration is maintained with periodic additions of the liquid concentrate to replace that consumed by removing soils or due to dragout. The strength of the working solution is determined chemically with either a buret titration or dropping bottle test. When the cleaning solution becomes excessively contaminated with soils, it should be dumped and a new solution made up.

## **SOLUTION CONTROL**

### **A. Buret Titration Method**

1. Take a sample of the **E-Kleen 153** solution from the bath with a beaker and allow to cool to room temperature.
2. Pipette 25 ml of the sample into a clean 125 ml Erlenmeyer flask. Add 25 ml of water.
3. Add 5 drops of Phenolphthalein Indicator to produce a pink colored solution.
4. Titrate with 1.0N Hydrochloric Acid (HCl) until the pink color suddenly disappears.
5. Calculation:  
Concentration of **E-Kleen 153** (vol. %) = ml of HCl x 1.96 x Normality of HCl

### **B. Dropping Bottle Method (Test kit available from EPI)**

1. Take a 10 ml sample of the cleaner solution and add along with 10 ml of water to a 150 ml beaker.

2. Add 4 to 7 drops of Phenolphthalein Indicator.
3. Add dropwise 5N Sulfuric Acid from a dropping bottle while counting the drops and swirling the solution.
4. Stop adding the drops when the color changes suddenly from pink to colorless.
5. Calculation:  
Concentration of **E-Kleen 153** (vol. %) = number of drops Acid x 1.19

## **WASTE TREATMENT**

**E-Kleen 153** does not contain any chelators which interfere with removal of heavy metals by precipitation. The product does contain phosphates which may require treatment depending on local regulations. To dispose of spent solutions of **E-Kleen 153** neutralize with an acid to the required pH level.

## **STORAGE**

If product freezes, allow it to thaw and then upon melting, it will reconstitute.

## **CAUTION**

**THIS MATERIAL CONTAINS POTASSIUM HYDROXIDE. MAY CAUSE SEVERE BURNS.** Do not get in eyes, on skin or clothing. Avoid breathing mists. While making up solutions or adding liquid concentrate to a working solution, add slowly while stirring to avoid spattering or splashing. 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** mix **E-Kleen 153** with acidic materials or any other chemical substances. **Do not** work with **E-Kleen 153** without first reading and understanding the **MATERIAL SAFETY DATA SHEET** furnished by **EPI**.

## **PACKAGING**

Five (5) and 55 gallon 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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