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TECHNICAL DATA

E-Kleen™ SR 1020
E-Kleen™ SR 1021
E-Kleen™ SR 1022

High Performance Non-Gluconated, Heavy-Duty Desmutter/Electrocleaner Additive For Steel

E-Kleen SR 1020, 1021 or 1022 additives are mixed with your liquid sodium or potassium hydroxide (caustic) saving you money and improving your cleaning performance. It removes difficult–to-clean carbonaceous smut on steel/iron substrates without using gluconates. Eliminating gluconates makes it easier to waste treat your spent electrocleaner. You can use sodium salts instead of calcium salts for waste treatment thus generating less sludge. Now you can achieve the desmutting qualities you require without waste treatment worries when using gluconated electrocleaners.

The **E-Kleen SR 1020/1021/1022** electrocleans difficult-to-clean parts resulting in a brighter plated deposit with excellent adhesion. When you are plating parts sometimes they come out dull and you think it is the brightener system. The **E-Kleen SR 1020/1021/1022** processes produce a cleaner part resulting in better adhesion and more luster. It's like adding brightener with some parts.

For a low-foaming electrocleaner, our **E-Kleen SR 1030** is formulated to break foam quickly eliminating potential "booms" from electrocleaning.

EPi offers nine types of electrocleaner blends – three that are sodium based, three that are potassium based, and three that are hybrid based sodium/potassium.

OPERATING PARAMETERS

Product	Silicate	Chelator	Conc.	Temp.	Time	Voltage	Amps
E-Kleen SR 1020	NO	NO	2.5% to 4% by volume	160° - 200°F	1 to 5 minutes	4 to 6 volts, anodic	50 to 100 Amps/ft²
E-Kleen SR 1021	YES	NO	2.5% to 4% by volume	160° - 200°F	1 to 5 minutes	4 to 6 volts, anodic	50 to 100 Amps/ft²
E-Kleen SR 1022	YES	YES	2.5% to 4% by volume	160° - 200°F	1 to 5 minutes	4 to 6 volts, anodic	50 to 100 Amps/ft²

Bath Make up

1. Add water. 2. Add Liquid Caustic (50% Sodium Hydroxide and/or 45% Potassium Hydroxide) as recommended below. Mix well with air agitation, air wand and/or mechanical agitation for 10-15 minutes. Make sure the water and the Liquid Caustic are thoroughly mixed before adding the **E-Kleen SR 1020**, **1021** or **1022,** otherwise the Liquid Caustic will kick out the **E-Kleen SR 1020, 1021** or **1022**. Follow the recommendations below. 3. Add **E-Kleen SR 1020**, **1021** or **1022**. 4. When all items have been added, mix the solution again.

Sodium Hydroxide Base Make-Up &Parameters	**100 gallon Tank**
1. 90%-81% by volume Water	90 – 81 gallons
2. 7.5%-15% by volume Sodium Hydroxide (50% by weight)	7.5 - 15 gallons
3. 2.5%-4% by volume **E-Kleen SR 1020, 1021** or **1022**	2.5 – 4 gallons

Potassium Hydroxide Base Make-Up & Parameters	**100 gallon Tank**
1. 90%-81% by volume Water	90 – 81 gallons
2. 7.5% -15% by volume Potassium Hydroxide (45% by weight)	7 - 15 gallons
3. 2.5%-4% by volume **E-Kleen SR 1020, 1021** or **1022**	2.5 – 4 gallons

Hybrid Potassium/Sodium Hydroxide Base Make-Up & Parameters	**100 gallons Tank**
1. 82.5%-81% by volume Water	82.5 – 81 gallons
2. 5% by volume Sodium Hydroxide (50% by weight)	5 gallons
3. 10% by volume Potassium Hydroxide (45% by weight)	10 gallons
4. 2.5% - 4% by volume **E-Kleen SR 1020, 1021** or **1022**	2.5 – 4 gallons

Maintaining the E-Kleen SR 1020, 1021 or 1022 Concentration

Caustic and **E-Kleen SR 1020, 1021** or **1022** will be consumed in the cleaning process as well as through drag out. When additions of caustic are made to the cleaning solution, add back **E-Kleen SR 1020, 1021** or **1022** at 0.2 to 0.4 times the amount of caustic that was added. For example if 10 gallons of caustic is added, a 2 to 4 gallon addition of **E-Kleen SR 1020, 1021** or **1022** should be made at the same time.

Titration Method

1. Take a sample of the **E-Kleen 1020, 1021, or 1022** solution from the bath with a beaker and allow to cool to room temperature.
2. Pipette 10 ml of the sample into a clean 250 ml Erlenmeyer flask. Add 50 ml of water.

3. Add 10 drops of Phenolphthalein Indicator to produce a pink colored solution.
4. Titrate with 1.0 N Hydrochloric Acid (HCl) until the color changes suddenly from pink to colorless.
5. Calculation:

   Concentration of Sodium Hydroxide (50%) in **E-Kleen 1020, 1021, 1022** (% by volume) = ml of HCl x 0.51

TOTAL ALKALINITY

1. Take a sample of the **cleaning solution** and allow to cool to room temperature.
2. Pipette a 10 ml sample into a clean 250 ml Erlenmeyer flask. Add 50 ml of water.
3. Add 10 drops of Phenolphthalein Indicator to produce pink color. Titrate with 1.0 N Hydrochloric Acid from pink to colorless.

   ml of 1.0 N Hydrochloric used represents Free Alkalinity
4. Add 5 drops Methyl Orange Indicator which turns it kind of an orange color, **do not re zero burette** and continue titrating with 1.0 N Hydrochloric Acid until the color changes from orange to an orange/pink color. Record the **total** ml of 1.0 N HCl used.

   Total ml of 1.0 N Hydrochloric used represents Total Alkalinity

The values for free and total alkalinity can be compared and when the total alkalinity gets to be 1.5 to 1.7 times as much as the free alkalinity the bath should soon be discarded.

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

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**.

10/13/14