

ECONOVATE PLUS

TRI-ACID SALTS

INTRODUCTION

Econovate Plus Tri-Acid Salts enhanced formula produces a deeper cleaned, smut-free surface on many metals including steel/stainless steel, cast iron, copper, brass, zinc die-castings, aluminum, nickel, silver and lead alloys. This product ensures that subsequent deposits conform to the most stringent quality control specifications regarding adhesion.

BENEFITS

- Versatile - designed to replace a variety of conventional mineral acids.
- Higher tolerance to oil contamination than liquid acids.
- Excellent smut remover including heat treat smut.
- Economical - longer life and even more effective cleaning.
- Balanced formulation ensures consistent performance over long periods.
- Safer to use than liquid mineral acids with no fumes.
- Can be set up as a cathodic activator/scale remover

SOLUTION MAKE-UP

Ferrous Metals

Econovate Plus 100 to 200 g/L (higher for heat treated plus heat)

Copper and Brass

Econovate Plus 50 to 100 g/L (60 g/L opt / 10 sec – 1 min)

Aluminum

Econovate Plus 10 to 100 g/L

Zinc Based Die-Castings

Econovate Plus 10 to 100 g/L (30 g/L opt / 30 sec)

Nickel Activation

Econovate Plus 120 g/L (1 min)

Chrome Strip

Econovate Plus 120 g/L (plus heat / 1 – 3 mins)

INSTALLATION

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1. Fill the tank 75% full with clean water and slowly add the correct amount of Econovate Plus while stirring and continue stirring until the solids have completely dissolved.
2. Make up to the working volume with water and mix thoroughly before use.

OPERATING DATA

Temperature	Ambient (For certain applications such as heavy scale, corrosion or chrome strip, the solution may be heated up to 180°F)
Cathodic Activation	45 – 100 ASF (1.5 – 6 Volts) with graphite (AGR type) anodes
Treatment Time	As required, usually between 10 sec and 5 mins
Agitation	Mild agitation may be useful to ensure thorough cleaning

EQUIPMENT

Tanks	Molded polythene or polypropylene. Rubber or PVC lined tanks.
Heaters (if required)	PTFE electric immersion heaters or steam coils.

MAINTENANCE AND CONTROL

The volume of the solution should be maintained regularly by the addition of water.

The solution should be regularly analyzed using the method below and maintained by adding fresh salts as required.

The solution should be discarded and a fresh one made-up when the solution is so loaded with metals that replenishment has no effect on cleaning time.



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ANALYSIS METHODS

Reagents

1N Sodium Hydroxide.
Phenolphthalein Indicator.

Method

1. Pipette a 25.0 ml sample of the working solution into a 250 ml Erlenmeyer flask.
2. Dilute to 50 ml with DI water and add 2-3 drops of phenolphthalein indicator.
3. Titrate with 1N sodium hydroxide to the first permanent pink end point.

Calculation

Titration ml x 5.56 = g/L Econovate Plus

STORAGE

Store in original containers above 40°F

SAFETY

CAUTION! Econovate Plus and working solutions contain acidic components. Avoid contact with eyes, skin and clothing. Wear chemical handler's gloves, goggles and protective clothing when handling. Read and understand Material Safety Data Sheet before using this product.

PRODUCT GROUPS

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Econovate Plus	223005

NOTICE

The information and recommendations of PMD (UK), Ltd. and Automated Chemical Solutions, Inc., and its representatives, regarding this product are, to the best of our knowledge, true and accurate. We make no guarantee of results because the conditions of actual use are beyond our control. We assume no liability for damages or penalties resulting from the use of this product or following our recommendations. Our recommendations and suggestions for use of this product are not intended to grant license to operate under or infringe any patent.



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