FOCUS TECH PROCESS CHEMICALS

Technical Data Sheet

Cu Rep 40

Acid Etch Replenisher

Product Description

Cu Rep 40 is a highly concentrated sodium chlorate based oxidizer for use with cupric chloride etching processes. Our ready-to-use, liquid formulation provides the safest, most stable oxidizer to handle. Proprietary rate enhancers afford substantially increased etch rates over generic sodium chlorate, hydrogen peroxide and chlorine gas.

Features	Benefits
◎ High oxidizer normality	◎ Increases copper concentration and improves control
◎ Rate enhancing additives	◎ Increases etch rate without increasing acid normality
◎ Ready-to-use, liquid formulation	◎ Safer, more stable and easier to handle than gaseous or solid oxidizers

Physical Properties

Concentration:	40% by weight sodium chlorate
Specific gravity:	1.4
pH:	6-8
Appearance:	clear, water white to pale yellow
Freezing point:	<40 °F

Compatible Materials of Construction

Plastics	PVC, CPVC, PVDF, polypropylene and polyethylene
Metals and alloys	Stainless steel, Hastelloy-C and titanium
Elastomers	EPDM, Viton and Buna-N

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Typical Operating Parameters

Copper loading:	20 – 30 oz/gal (150 – 225 g/L)
Free acid normality:	0.5 – 3.0 N
ORP mV:	450 – 650 mV
Temperature:	120 °F – 140 °F

Analytical Procedures

Copper concentration

Materials required:

1. 250 ml Erlenmeyer flask
2. 1 ml pipette
3. 0.1N sodium thiosulfate
4. starch indicator
5. ammonium hydroxide
6. glacial acetic acid
7. 40% w/v potassium iodide solution

Procedure:

1. Pipette 1 ml of working etchant into the Erlenmeyer flask and add 100 mls of DI water.
2. Add ammonium hydroxide drop wise until deep blue color persists.
3. Add glacial acetic acid until solution clears than add 5 mls excess.
4. Add 15 mls of potassium iodide solution.
5. Titrate with sodium thiosulfate to a straw yellow color.
6. Add 5 mls of starch indicator. Solution will turn black.
7. Continue titrating with sodium thiosulfate to clear endpoint.

Calculation:

Copper concentration (oz/gal) = mls 0.1N sodium thiosulfate used X 0.848

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Analytical Procedures (continued)

Free Acid Normality

Materials required:

1. 250 ml Erlenmeyer flask
2. 1 ml pipette
3. 0.1N sodium hydroxide
4. methyl orange indicator

Procedure:

1. Pipette 1 ml of working etchant into the Erlenmeyer flask and add 100 mls of DI water.
2. Add 5 drops of methyl orange indicator.
3. Titrate with sodium hydroxide to a lasting color change.

Calculation:

Free acid normality = mls 0.1N NaOH used X 0.10

Storage

Store in original containers above 40 °F.

Safety

CAUTION! Cu Rep 40 is a strong oxidizer. Do not allow to contact strong acids or combustible materials. Avoid contact with eyes, skin and clothing. Wear chemical handler's gloves, goggles and protective clothing when handling. Do not allow to dry on clothing. Remove and wash contaminated clothing immediately. Read and understand Material Safety Data Sheet before using this product.

Notice

The information and recommendations, contained herein, 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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