

Technical Data Sheet • CHEMEON® Etch 2500(A)

Description:

Etch additive with grain refiners and chelators intended to be combined with the customer's sodium hydroxide to produce a good general purpose alkaline etch. The etch additive is used at 0.5 to 1 gallon per 100 lbs of dry caustic. The etch solution is operated at 120 °F to 150°F for 2 to 10 minutes.

Operating Conditions:

Method of Application:	Immersion
Concentration:	0.5 to 1 gal per 100lbs dry caustic 5 - 10 oz/gal (38 - 75 g/L) dry caustic depending on the dissolved aluminum concentration
Time:	2 - 10 minutes
Temperature:	120 – 150 °F (50 – 65 °C)
Equipment material:	Steel or stainless steel

Solution Control:

Active Caustic Concentration

New Bath:

1. Pipet 10 mL of a cooled sample taken from the etch tank into a 250 mL beaker.
2. Add ~50 mL of DI water and 4 drops of phenolphthalein indicator.
3. Titrate with 1.0 N HCl until the pink color disappears.
4. Record the mL of 1.0 N HCl titrated.
5. Calculation:

$$\text{Caustic (oz/gal)} = (\text{mL of 1.0 N HCl}) \times 0.5$$

$$\text{Caustic (g/L)} = (\text{mL of 1.0 N HCl}) \times 4.0$$

Used Bath:

1. Filter a sample from the etch bath through #54 filter paper.
2. Pipet a 10 mL sample of the clear filtered bath into a 250 mL beaker.
3. Add ~50 mL of DI water.
4. Titrate with 1.0 N HCl until the first permanent cloudiness or turbidity is detected.

NOTE: With each drop of acid some precipitate will be formed but this will re-dissolve on shaking. When the precipitate does not dissolve the end point has been reached.

5. Record the mL of 1.0 N HCl used to reach the permanent precipitate.
6. Calculation:

$$\text{Caustic (oz/gal)} = (\text{mL of 1.0 N HCl}) \times 0.5$$

$$\text{Caustic (g/L)} = (\text{mL of 1.0 N HCl}) \times 4.0$$

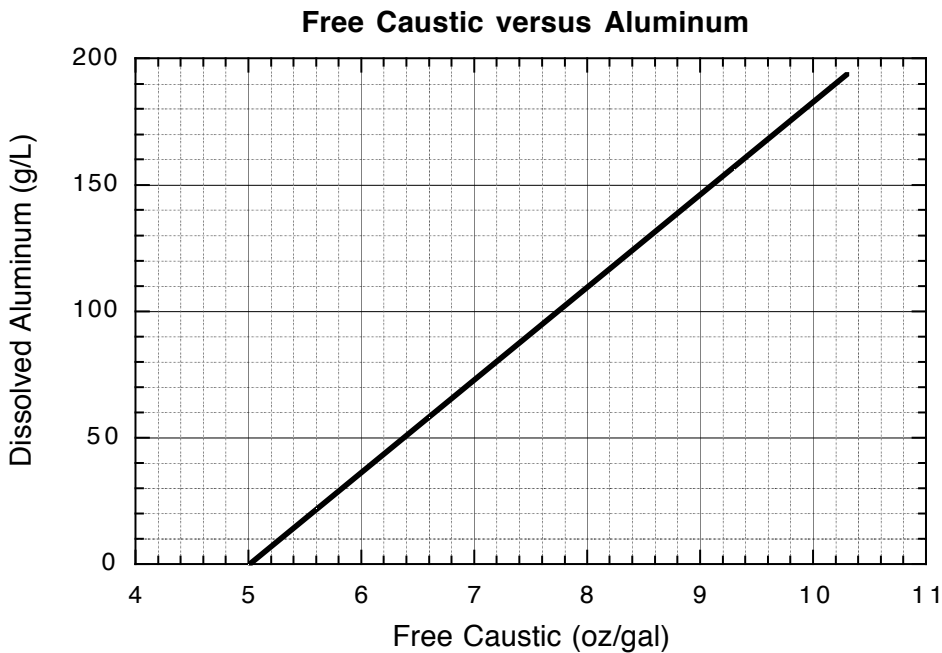
7. To the above sample add 4 drops of phenolphthalein indicator.
8. Titrate with 1.0 N HCl until the color changes from pink to colorless.
9. Record the mL of 1.0 N HCl titrated.
10. Calculation:
 Concentration of Aluminum (g/L) = (mL of 1.0 N HCl) x 2.67
 Concentration of Aluminum (oz/gal) = (mL of 1.0 N HCl) x 0.36

CHEMEON® Etch 2500(A) to add =

$$\frac{(\text{Desired oz/gal Caustic} - \text{Actual oz/gal Caustic}) \times \text{tank size gal}}{1600}$$

$$\frac{(\text{Desired g/L Caustic} - \text{Actual g/L Caustic}) \times \text{tank size liters}}{12004}$$

The free caustic concentration should increase as the concentration of dissolved aluminum increases according to the graph below. The CHEMEON® Etch 2500(A) concentration is dependent on the concentration of free caustic in the etch solution.





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Aluminum Concentration	Free Caustic Concentration		CHEMEON® Etch 2500(A) Concentration
(g/L)	(oz/gal)	(g/L)	(% by volume)
0	5	38	0.16 – 0.32
25	5.7	43	0.18 – 0.34
50	6.4	48	0.20 – 0.40
75	7.1	53	0.22 – 0.44
100	7.7	58	0.24 – 0.48
125	8.4	63	0.26 – 0.52
150	9.1	68	0.28 – 0.56

Physical and Safety Data:

CHEMEON® Etch 2500(A) is a clear liquid.

CHEMEON® Etch 2500(A) is non-hazardous. Do not take internally. In case of contact with eyes flush with water for 15 minutes.

Packaging:

55 gallon non-returnable drums

Storage:

CHEMEON® Etch 2500(A) should be stored in a cool, dry area away from sulfuric acid. Keep drums closed when not in use.

Waste Disposal:

Etch solutions with CHEMEON® Etch 2500(A) may require neutralization to a specified pH range depending on Federal, State, and local waste treatment regulations.

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