



Extend Etch

Extend Etch is a phosphate free, strongly alkaline etch developed to replace the conventional alkaline aluminum etch.

Following the operating instructions of the Extend Etch will enable one to operate the bath on a non-dump basis. This represents a significant cost savings in downtime, chemical consumption and waste treatment cost.

Extend Etch is a caustic bearing product containing additives which will prevent scale buildup on the plate coil and tank walls.

Features & Benefits

Continuous use	Cost savings from decreased downtime and chemical consumption
Phosphate free	Easier waste treatment
Prevents scale build up	Easier maintenance

Physical Data

Appearance	White to off-white granular mixture
Solubility	Complete in water

Operating Conditions

Initial make-up concentration	5 – 6 oz/Gal 37.5 – 45.0 g/L
Temperature	100°F – 160°F
Equipment	Mild steel tank and heat coils
Ventilation	Recommended Required at temperatures >110°F

Tank Make-Up Procedure



Fill tank 2/3 full of cold water, then add full amount of Extend-Etch. Mix in the product and add the remainder of the water. Bring solution to desired operating temperature.

Maintenance of the Non-Dump System

The key to maintaining a non-sludging-never dump system, is that the concentration of the Extend Etch must be maintained at 2 oz/gal above the concentration of the aluminum content of the bath.

For example, when the aluminum content of the bath is 6 oz/gal., Then the Extend Etch should be at 8 oz/gal., Or, when the aluminum content of the bath is 9 oz/gal., Then the Extend Etch should be at 11 oz/gal.

In summary, the concentration of the Extend Etch obtained from equation 1 should be a minimum of 2 oz/gal above the dissolved aluminum content (equation 2).

Fresh Addition Procedure

Slowly add the powdered Extend Etch to the heated solution of Extend Etch. The additions of the powdered Extend Etch will raise the solution temperature. An overly rapid addition may cause the solution to "boil out" of the tank, especially at the higher temperatures.

While Extend Etch is classified as an etch cleaner, there are operations which might require a pre-cleaner prior to immersion in the Extend Etch solution. Heavy oil films, if not removed first in a non-etch soak cleaner, will cause an unusual etch pattern on the surface of the aluminum.

Another point to consider when selecting an alkaline pre-soak is if the rinsing is quite poor or even non-existent between the soak and the Extend Etch solution, then one should select a non-silicated soak cleaner. Carrying silicates into Extend Etch will ultimately result in a spotty etch surface.



Titration Method

1. Pipette 2 mL of Extend Etch solution into a 500 mL Erlenmeyer flask.
2. Add 50 mL of water and 5 drops Phenolphthalein Indicator.
3. Titrate with 0.5 N Hydrochloric Acid until the pink color disappears.
4. Record mL used.
5. To the titrated solution, add 30 mL of Potassium Fluoride (20%/wt) solution. The solution will become pink again.
6. Re-zero the burette and titrate with 0.5 N Hydrochloric Acid until the pink color disappears.
7. Record mL used.
8. Add 30 mL of Potassium Fluoride solution again. If the pink color does not appear within 30 seconds, then do not titrate any further. However, should the pink color appear, titrate again and add this figure to step 7. It may be necessary to repeat this procedure again, especially when the aluminum content in the Extend Etch solution is high.

Note: The of step number 7 are used in equation 2 to determine "Y" and equation 3 to determine aluminum content of bath.

Concentration

Equation 1

$$\text{Extend Etch (oz/gal)} = 1.5 \times (\text{mL step 4}) - Y$$

Equation 2

$$Y = (\text{mL step 7}) \times 0.53$$

*Insert Y from equation 2 into equation 1 to determine Extend Etch concentration

Aluminum Content Dissolved in Bath

Equation 3

$$\text{Aluminum content (oz/gal)} = 0.35 \times \text{mL step 7}$$

Caution

Extend Etch is an alkaline product and should be handled accordingly. Avoid skin, eye, and oral contact. Wear protective clothing, gloves, and goggles when handling the product. Flush exposed areas immediately with clean, cold water. Contact a doctor immediately in case of injury. Consult SDS for details.



Waste Disposal

In order to be completely informed on those latest waste disposal regulations for your area, please contact the local, state, and federal authorities.

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