



ETCHAL PLUS

INTRODUCTION

Etchal Plus is a highly concentrated mixture of caustic soda with a correct blend of sequestering agents that significantly reduces the risk of sludge formation in the etch tank. If properly maintained the etch tank can be run as a never dump system. Irritating caustic fumes are reduced dramatically with the fume suppressing ability of the Etch Additive LG. It is suitable to provide an attractive, matte and reproducible finish on aluminium parts.

BENEFITS

- Produces matte finish
- Excellent sequestering properties
- No negative effects on metal treatability in waste treatment
- Improved finish with increased aluminium in tank
- REACH and RoHS compliant

OPERATING DATA

Concentration	8% to 10% by volume Etchal Plus
Aluminium	Minimum 20 g/l
Etch Additive LG	10-20 g/l
Temperature	49°C to 60°C
Immersion Time	45 secs – 15 mins or as required

EQUIPMENT

Tanks	Polypropylene
Heaters	PTFE, Titanium

SPECIAL CONSIDERATIONS

When the fresh Etch tank is made with no Aluminium, the concentration of Etchal Plus should be 4 to 6% to avoid fumes. As the Aluminium builds up, the Etchal Plus concentration can be increased to 8 to 10%.



ANALYSIS METHOD

Etchal Plus

Reagents

1N Hydrochloric Acid

Phenolphthalein Indicator

Potassium Fluoride

Apparatus

5ml Pipette

250ml Erlenmeyer Flask

50ml Measuring Cylinder

Method

1. Filter a small quantity of samples.
2. Pipette 5ml of filtered sample into a 250ml Erlenmeyer flask.
3. Add 50ml of water.
4. Titrate with 1.0N Hydrochloric Acid to a cloudy end point.
5. Record ml of acid as 'A'.
6. Add 3-5g of Potassium fluoride.
7. Add 8-10 drops of Phenolphthalein Indicator.
8. Titrate with 1.0N Hydrochloric Acid until the pink colour disappears.
9. Add 3-5g of Potassium Fluoride.
10. If the solution turns pink, continue titrating with acid until it is no longer pink.
11. Repeat additions of Potassium Fluoride until colour stops being pink permanently.
12. Record ml of 1.0 Normal Hydrochloric Acid used as 'B'.

Calculation

Available Etchal Plus (%) = 'A' X 1.97

Free Caustic (g/l) = 'A' X 8.0

Aluminium (g/l) = ('B' - 'A') X 1.35

Etch Additive LG

Reagents

0.2N Potassium Permanganate Solution

0.2N Oxalic Acid

Acid Mixture: 950ml of Sulphuric Acid (96%) + 50ml of Phosphoric Acid (85%)



Apparatus

5ml Pipette
250ml Volumetric Flask
500ml Erlenmeyer Flask
20, 25 & 50ml Pipettes

Method

1. Dilute 25mls of filtered Etch Bath to 250mls with DI in a volumetric Flask.
2. Pipette 20mls of above solution to a 500mls Erlenmeyer Flask and add 100mls of DI water and 50mls of the 0.2N Potassium Permanganate Solution.
3. Warm to 70°C and stir for 5 min.
4. After cooling down to 40°C add 20mls of the acid mixture carefully while stirring.
5. Warm to 70°C again and add 50mls of the 0.2N Oxalic Acid.
6. After discoloration, the warm solution is immediately titrated with 0.2N Potassium Permanganate to a permanent pink end point.

Calculation

Etch Additive LG g/l = mls of KMnO₄ x 2.23

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Etchal Plus	206052
Etch Additive LG	206050

Whilst every endeavour has been made to ensure that the information given in this data sheet is correct, PMD Chemicals Limited gives no warranty, express or implied, relating to the use or performance of this product.