



PLASPLATE CHROME CONDITIONER

INTRODUCTION

PLASPLATE CHROME CONDITIONER is the first step pre-treatment in our Plating on Plastics process (POP)

This fully stabilised Chromic etch solution is supplied as a liquid concentrate and is easily controlled by wet analysis techniques.

PLASPLATE CHROME CONDITIONER fully prepares a full range of substrates for subsequent plating, details of each particular process cycle can be found with the POP process presentation.

Surface tension reducing additives and wetting agents provide additional surface preparation ensuring complete activation is carried out using the following PlasPal Activation stage.

BENEFITS

- Single component liquid concentrate
- Stabilised process
- High powered wetting agents giving enhanced adhesion properties

SOLUTION MAKE -UP

Plasplate Chrome Conditioner 100%

It is essential that the tanks to be used for Plasplate Chrome Conditioner are thoroughly cleaned and leached before any chemistry is introduced. If in any doubt as to the cleaning procedure please contact PMD (UK) Technical Department.

1. Add Plasplate Chrome Conditioner to tank
2. Heat to operating temperature

OPERATING DATA

Chromic acid	350 – 450g/L (Optimum 425g/L)
Sulphuric acid	140 – 190ml/L
SG	1.46 – 1.50
Temperature	50 - 60°C
Time	1 – 15 mins
Extraction	Required

EQUIPMENT

Tanks	Steel, lined with PVC or other suitable material.
Heaters	PTFE, lead alloy or tantalum immersion with thermostatic control.



PROCESS SEQUENCE

1. Plasplate Chrome Conditioner
2. Rinse
3. Rinse
4. Plaspal Catalyst
5. Rinse
6. Rinse
7. Plasplate Accelerator
8. Rinse
9. Rinse
10. Plasplate EN Electroless nickel
11. Rinse
12. Cubrite 2000 Acid copper
13. Rinse
14. Rinse
15. Nibrite 5500 Bright Nickel
16. Rinse
17. Decochrome
18. Rinse
19. Rinse
20. Dry

MAINTENANCE AND CONTROL

Plaspal Chrome Conditioner should be analysed and replenished on a regular basis.

Trivalent chrome will build up due to the etching action. This should be maintained at less than 40g/L

ANALYSIS METHODS

1. Hexavalent chrome

Reagents

Ammonium bifluoride,
Concentrated hydrochloric acid
Potassium iodide
Iodine indicator
0.1N Sodium thiosulphate (standard volumetric solution)



Method

1. Pipette a 10ml aliquot of the plating solution into a 500ml volumetric flask and make up to the mark with DI water.
2. Mix thoroughly.
3. Pipette 10ml of this dilution into a 250ml conical flask.
4. Add 100ml of DI water, 2 g of ammonium bifluoride and stir to dissolve.
5. Add 10 ml of concentrated hydrochloric acid.
6. Add one spatula of potassium iodide and stir to dissolve.
7. Leave in a dark cupboard to react for 5 minutes.
8. Titrate with 0.1 N sodium thiosulphate to a pale straw colour, add iodine indicator and continue titration to a light green colour.
9. Record the titre = A mls.

Calculation

$A \times 16.67 = \text{g/L chromic acid}$

Replenishment

For every 1g/L required add 2.5ml/L Plasplate Chrome Conditioner

2. Sulphuric acid

This analysis should be carried out after additions of Plasplate Chrome Conditioner have been carried out.

Reagents

Bromocresol green indicator
0.1N sodium hydroxide

Method

1. Pipette Take 10.0 ml of the diluted soln. (prepared in chromic acid analysis) in to a conical flask.
2. Add 80 ml of DI water.
3. Add 4 – 5 drops of Bromocresol green indicator and titrate with 0.1 N sodium hydroxide to a green end point. Alternatively titrate to a ph of 5.2.
4. Record titre = T mls.

Calculation

$[T - (\text{g/L chromic acid} \times 0.02)] \times 13.89 = \text{ml/L Sulphuric acid}$



3. Trivalent chromium

Reagents

1 N sodium hydroxide
Hydrogen peroxide (30%)
Potassium Iodide
Conc. Sulphuric acid
0.1 N sodium thiosulphate
Iodine indicator

1. Pipette 10.0 ml of the diluted soln. (prepared in chromic acid analysis) in to a conical flask.
2. A 50 ml of 1 N sodium hydroxide.
3. Add 10 ml of Hydrogen peroxide and boil for 20min.
4. Cool
5. Add 1 - 2 grams of potassium iodide and 3 - 5 ml of conc. sulphuric acid.
6. Cover and keep in dark for 5 min.
7. Titrate with 0.1 N sodium thiosulphate to a straw-yellow colour. Add iodine indicator solution and continue the titration to a clear light green end-point.
8. Record titre = B mls.

Calculation

$(B - A) \times 12.67 = \text{g/L of chromium (III) oxide}$

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
Plaspal Chrome Conditioner	237031
Plaspal Catalyst	227020
Plasplate Accelerator	227006
Plasplate EN	551013
Cubrite 252	567022
Nibrite 5500	544033
Decochrome	417001

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