

PROCIRC 952(80)

POST TREATMENT

INTRODUCTION

Procirc 952(80) Post Treatment has been specially developed for the elimination of pink-ring associated with the manufacture of multi-layer boards.

Used as a post treatment after Procirc SP230 Black Oxide it reduces the copper oxide crystal to metallic copper.

The resultant finish is a very dark brown colour and results in a 'black' finish when bonded.

The greatly improved bond adhesion prevents micro-delamination, even with multiple stack drilling, and thus eliminates pink-ring problems.

BENEFITS

Elimination of 'pink-ring' associated with multi-layer boards.

Black finish of bonded boards.

Multiple stack drilling.

Single component replenisher.

Simple analytical control.

Can be used in immersion or flood conveyer systems.

SOLUTION MAKE-UP

Procirc 952(80) Post Treatment	4% v/v aqueous
Procirc 9521 Spray Suppressant	1-3 ml/l (Optional)
Procirc 9540 Stabiliser	0.9 ml/l (on initial bath make-up only)
Sodium Hydroxide	10 g/l

OPERATING DATA

Concentration	3-4% v/v
pH	12-12.5 (to maintain initiation time)
Temperature	30-35 degC
Time	3-4 minutes immersion 0.5-2 minutes flooded conveyer
Agitation	Not essential
Filtration	Continuous through a 1 micron filter
Extraction	Recommended

EQUIPMENT

Tanks	Polypropylene, polyethylene, unplasticised PVC, stainless steel, titanium.
Heating	PTFE, stainless steel or titanium immersion heaters with thermostatic control.
Filters	1-2 turn overs per hour through 1 micron cartridges.

INSTALLATION

It is essential that the tanks to be used for Procirc 952(80) post treatment are thoroughly cleaned and leached before any chemistry is introduced.

Contact PMD (UK) Limited Technical Department for appropriate procedure.

1. Half fill the clean empty tank with water.
2. Add the appropriate volume of Procirc 952(80) Post Treatment and mix thoroughly.
3. Add enough caustic liquor to give 10 g/l NaOH w/v in final volume and mix thoroughly.
4. Add Procirc 9540 Stabiliser at 0.9 ml/litre and mix thoroughly.
5. Make up to operating volume with water and mix thoroughly.
6. Check the concentration of the solution (See Analysis Methods) and adjust as necessary.
7. Heat the solution to operating temperature.

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PROCESS SEQUENCE

(Appropriate pre-treatment)

1. Procirc SP230 Black Oxide.
2. Rinse.
3. Rinse.
4. Procirc 952(80) Post Treatment
5. Rinse.
6. Rinse.
7. Dry.

MAINTENANCE AND CONTROL

The solution should be regularly analysed and replenished using Procirc 952(80) Post Treatment.

The pH, if necessary, needs to be maintained with caustic liquor.

ANALYSIS METHODS

Procirc 952(80) Post Treatment Concentration

Reagents

50% v/v Sulphuric Acid

Starch indicator

0.1N Sodium Thiosulphate solution (standard volumetric solution)

Potassium Iodate/Iodide solution. (8.92 g/l KIO_3 + 200 g/l KI aqueous)

Method

1. Pipette a 5ml sample of the cooled working solution into a 250ml conical flask.
2. Add approximately 100 ml DI water.
3. Add, by pipette, 10 ml of the Potassium Iodate/Iodide solution and mix thoroughly.
4. Add approximately 10 ml of 50% v/v sulphuric acid.
5. Add approximately 1 gm starch indicator.
6. Titrate with 0.1N sodium thiosulphate to a clear end point.
7. Record titre = t mls.

Calculation

$$\% \text{ Procirc 952(80)} = 6.7 - (0.27 \times t)$$

Replenishment

For every 0.1% drop in concentration add 1 ml/l Procirc 952(80) Post Treatment.

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ANALYSIS METHODS CONTINUED

Alkalinity

Reagents

50% w/v sodium hydroxide.

Method

1. Take 100 ml sample of working solution in a 250 ml beaker.
2. Measure the pH of the working solution using a calibrated pH meter.
3. Add 50% w/v sodium hydroxide solution in 1 ml increments until the pH is within the specified range.

Total volume of increments = t mls.

Calculation and Additions

Addition of sodium hydroxide g/l = t x 5.

Additions of sodium hydroxide should be made using caustic liquor.

e.g. Addition (litres caustic liquor) = $\frac{t \times 5}{\text{conc}^n \text{ liquor (g/l)}}$ x vol of bath (litres)

The pH of the working solution should be maintained to the following limits.

pH range 12 - 12.5

As a guide, approximately 2 g/l sodium hydroxide will increase the pH by one unit, (on a regularly maintained solution).

DISPOSAL

Dispose of in accordance with local authority requirements.

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PRODUCT FAMILIES

The following products or product families are referred to in this data sheet.

<u>Product Name</u>	<u>Product Number</u>
Procirc SP230 Black Oxide (1000L IBC)	955003
Procirc SP230 Black Oxide (200L drum)	955004
Procirc SP230 Black Oxide (25L drum)	955005
Procirc 952(80) Post Treatment	954003
Procirc 9540 Stabiliser	951001

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