

PROCIRC SP230

BLACK OXIDE

INTRODUCTION

Procirc SP230 Black Oxide is a revolutionary oxide treatment which has been specially formulated to eliminate the variable performance associated with standard two component oxide systems.

The single component system is easily controlled using a simple chemical test.

Procirc SP230 Black Oxide is a highly active yet self limiting oxide treatment. This ensures excellent coverage with a consistent grain structure which gives high bond strengths before and after thermal shock. It offers maximum reliability to high quality multilayer manufacture.

BENEFITS

Single component replenisher - easy to use.

Consistent oxide formation despite high bath throughputs.

Simple method of control and replenishment.

Self limiting oxide growth prevents any thermal shock failure.

Uniform black finish with consistent crystal structure.

No problems with dilution factors associated with 2 part systems.

Buffered to prevent atmospheric carbon dioxide absorption problems.

Low chemical consumption ensures cost effective performance.

Can be used in simple immersion or flood conveyor systems.

SOLUTION MAKE-UP

| | |
|---------------------------|-------------------|
| Procirc SP230 Black Oxide | 50 - 60% v/v |
| Deionised Water | 50 - 40% v/v |
| Procirc SP2301 Stabiliser | 15 g/l (Optional) |

OPERATING DATA

| | |
|---------------|---|
| Concentration | 50 - 60% v/v |
| Temperature | 65 - 80 deg C |
| Time | 1 - 6 mins |
| Agitation | Optional |
| Filtration | Continuous through a 5 - 10 micron filter |
| Extraction | Recommended |

EQUIPMENT

| | |
|---------|--|
| Tanks | Polypropylene, stainless steel, titanium or hastelloy. |
| Heating | PTFE, stainless steel or titanium immersion heaters with thermostatic control. |
| Filters | 1 - 2 turnovers per hour through 5 - 10 micron cartridges. |

INSTALLATION

It is essential that the tanks to be used for Procirc SP230 Black Oxide are thoroughly cleaned and leached before any chemistry is introduced.

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

1. Fill the clean empty tank with the appropriate volume of D.I. Water.
2. Add the appropriate volume of Procirc SP230 Black Oxide and mix thoroughly.
3. Check the concentration of the solution (See Analysis Methods) and adjust as necessary.
4. Heat the solution to operating temperature.

PROCESS SEQUENCE

1. Acid or Alkali clean (optional).
2. Rinse.
3. Rinse.
4. Procirc 921 or Procirc SP263 Microetch.
5. Rinse.
6. Rinse.
7. Predip 2 - 3 % sodium hydroxide solution. (aqueous)
8. Procirc SP230 Black Oxide.
9. Rinse.
10. Rinse.
11. Dry.

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MAINTENANCE AND CONTROL

The solution should be regularly analysed and replenished as necessary.

Evaporation losses should be replaced using DI water.

Concentration losses should be replaced with Procirc SP230 Black Oxide.

THROUGHPUT

Drag out factors will influence overall costs but figures of 5 - 12 ml Procirc SP230 Black Oxide per sq.ft. laminate are typical.

ANALYSIS METHODS

Procirc SP230 Black Oxide Concentration

Reagents

20% v/v sulphuric acid

Solid potassium iodide (Regent grade)

Iodine indicator

0.1 N Sodium Thiosulphate solution (standard volumetric solution)

Method

1. Cool bath sample to room temperature.
2. Pipette 5 ml of the sample into a clean 100 ml volumetric flask and make up to the mark with DI water.
3. Mix well.
4. Pipette 5 ml of this diluted solution into a clean 500 ml conical flask and add approximately 100 ml DI water.
5. Add approximately 3 g solid potassium iodide and totally dissolve.
6. Add 25 ml of 20% sulphuric acid solution and thoroughly mix.
7. Titrate with 0.1N sodium thiosulphate to a pale straw colour.
8. Add the iodine indicator and continue the titration from a blue to a colourless end-point.
9. Record titre = t mls.

Calculation

$t \times 3.77 = \% \text{ concentration Procirc SP230 Black Oxide.}$

Replenishment (For a 55% concentration solution)

$\frac{55 - \% \text{ Concentration}}{100} \times \text{tank volume (Its)} = \text{Its Procirc SP230 Black Oxide required}$

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DISPOSAL

Dispose of in accordance with local authority requirements.

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 (1000 ltr IBC) | 955003 |
| Procirc SP230 Black Oxide (200 ltr drum) | 955004 |
| Procirc SP230 Black Oxide (25 ltr drum) | 955005 |
| Procirc SP2301 Black Oxide Stabiliser | 950001 |
| Procirc 921 Microetch | 923001 |
| Procirc SP263 Microetch | 923003 |

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