

PMD (UK) LTD PROCESS DATA

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PREV 2

ZINCOPASS BLACK

INTRODUCTION

Zincopass Black is a process for producing a black chromate on zinc plate. It is suitable for use with acid, cyanide, and alkaline non-cyanide deposits. Zincopass Black is preferably used for rack plating, but can be used in basket or barrel operations (see Notes).

BENEFITS

Jet black, uniform colour.

Long solution life.

Ease of control.

Good corrosion resistance.

SOLUTION MAKE-UP

Zincopass Black Part 1	195 ml/l
Zincopass Black Part 2	45 ml/l
Deionised Water (See Notes)	760 ml/l

OPERATING DATA

Concentration	Part 1	195 ml/l
	Part 2	45 ml/l
Temperature	20 - 35°C	
Time	1 - 3 minutes	
pH	1.5 - 2.5 (See Notes)	

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EQUIPMENT

Tank	Polypropylene, PVC, or polyethylene, or steel lined with these materials.
Heating	PTFE immersion.
Agitation	Mild air.
Extraction	Recommended.

INSTALLATION

It is essential that the tanks to be used for Zincopass Black are thoroughly cleaned and leached before any product is introduced.

If in any doubt as to the cleaning procedure please contact PMD (UK) Limited Technical Department.

1. Half fill tank with deionised water (See Notes).
2. Add 195ml/L Zincopass Black Part 1 and mix thoroughly.
3. Add 45ml/L Zincopass Black Part 2 and mix thoroughly.
4. Add the remainder of the deionised water to bring up to working level and mix thoroughly.
5. Adjust pH to desired level with sulphuric or acetic acid to lower or sodium hydroxide solution to raise. (See Notes).

PROCESS SEQUENCE

1. Zinc plate
2. Rinse
3. Rinse
4. 0.5% v/v sulphuric acid dip
5. Rinse
6. Zincopass Black
7. Rinse
8. Rinse
9. Warm air dry (55°C max.)

MAINTENANCE AND CONTROL

The solution should be analysed regularly and replenished as necessary. (See analysis method).

The Zincopass Part 1 concentration is controlled by analysis.

Zincopass Part 2 is added in proportion to the Part 1 addition, i.e. for every 10ml/L addition of Part 1 add 6.2 ml/L Part 2.

When adding Parts 1 and 2 to the tank do not pre-mix. Add Part 1 and mix thoroughly before adding Part 2.

As a general guide, when the zinc concentration of the Zincopass Black reaches 12 - 15 g/L the solution should be replaced.

ANALYSIS METHOD

ZINCOPASS BLACK PART 1

Reagents

0.1 N sodium thiosulphate (standard volumetric solution).

50% v/v hydrochloric acid.

Ammonium bifluoride, AR grade.

Potassium iodide, AR grade.

Iodine indicator solution.

Method

1. Pipette a 2.0ml aliquot of the bath into a 500 ml conical flask.
2. Add 25ml 50% hydrochloric acid and approximately 100 ml deionised water.
3. Add 1 gm ammonium bifluoride and dissolve.
4. Add 2 gm potassium iodide and dissolve.
5. Titrate with 0.1 N sodium thiosulphate to a pale straw yellow colour. Add 2 ml of iodine indicator solution and titrate to a clear, pale green end point.
6. Record titre = t mls.

Calculation

$t \times 9.7 = \text{ml/L Part 1.}$

Replenishment

For every 10 ml/L Zincopass Black Part 1 required add 10ml/L Zincopass Black Part 1 and 6.2ml/L Zincopass Black Part 2.

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NOTES ON THE USE OF ZINCOPASS BLACK

Solution Make-up	Deionised water is recommended for Make-up. Tap water maybe used but this will cause silver to be precipitate. This must be compensated for by extra addition of Zincopass Black Part 2.
pH	For acid chloride or cyanide zinc deposits 1.5 - 2.5. For alkaline (non-cyanide) 1.5 – 2.0.
Immersion time	This will vary depending on concentration, temperature, pH, solution age, and type of zinc deposit. Excessive treatment time will produce soft, easily damaged coatings.
Process sequence	Following zinc plating the work should be rinsed thoroughly and alkaline zinc deposits should be neutralised in a 0.5% v/v sulphuric acid dip. Chloride zinc deposits should be rinsed thoroughly to ensure no drag-in of chloride to the Zincopass Black.
Zinc thickness	A freshly prepared Zincopass Black will need a zinc deposit of 7.5 μ minimum, but generally a 5.0 μ deposit is satisfactory.
Drying	The Zincopass Black film is soft until dried and should therefore be handled carefully. Work should be warm air dried, maximum temperature 55°C.
Barrel Processing	Because the black chromate film is soft and easily damaged before drying, treatment of barrel plated work is difficult in the plating barrel. The work should be transferred to baskets after zinc plating then treated in the Zincopass Black by gentle, occasional agitation of the basket. NB: Baskets should be of all plastic construction (polyethylene, polypropylene or PVC) or metal coated with these materials.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet:

<u>Product Name</u>	<u>Product Number</u>
Zincopass Black Part 1	237010
Zincopass Black Part 2	237011

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