COVENTYA

Technical Data Sheet

# Lanthane 3180

## High Corrosion Iridescent

## Trivalent Chrome Passivation

## For Pure Zinc

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| **Creation** | **Approval** | **Alpha index** | **Date (dd/mmyy)** | **Modification** |

# 1 INTRODUCTION

The LANTHANE 3180 system is a zinc protection process which is completely free from hexavalent chromium and which meets the most stringent requirements for corrosion resistance,

It consists of a 2-stage process comprising a trivalent chromium passivation followed by an organo-mineral finish of the Finigard 802, Finigard 105 or Finigard 460 type.

The protective film obtained on zinc is a silver-grey colour with slight iridescence.

The Lanthane 3180 system produces high coating weight films of the order of 0.7 to 1.5 mg/dm$^2$ (as Cr).

Lanthane 3180 should be applied over Alkali non-cyanide zinc and Chloride zinc deposits.

The process may be used either by barrel or rack application.

# 2 MAKE-UP

## 2.1 Lanthane 3180 Passivate

- Fill the working tank two-thirds with D. M. water

- Add the required amount of Lanthane 3180 Solution

- Bring to the working level with D. M. water

- Check and if necessary adjust the pH to the required value using either nitric acid or caustic lye.

## 2.2 Finish

Finigard EX 802, Finigard 105, or Finigard 460
See the relevant Operating Instructions sheet for the particular process in use.

# 3 OPERATING CONDITIONS

## 3.1 Passivation

| PARAMETER | | OPTIMUM | RANGE |
|---|---|---|---|
| LANTHANE 3180 Concentration | (ml/l) | 60 | 60 - 100 |
| pH | | 2.4 | 2.0 – 2.6 |
| temperature | (°C) | 25 | 22 - 35 |
| time | (sec) | 45 | 30 - 70 |
| agitation | | air agitation | |
| | | barrel or basket movement | |

- Temperature

The weight of chromium deposited depends on the bath temperature and concentration. Higher temperatures enhance the protective effect.

- PH

pH corrections should be made using:
Nitric acid to reduce the pH
Sodium hydroxide (30%) solution to raise the pH.

- Immersion time

The immersion time should include the time taken in transfer from the passivate to the first rinse, as the solution continues to react.

- Agitation

Air agitation should be moderate and uniform.

Mechanical agitation using a pump may also be used.
Where agitation is absent, immersion times become unacceptably long.

### 3.2 Top-Coat

The Finigard EX 802 or Finigard 105, or 460 top-coat is applied over the passivate film following two thorough water rinses dedicated to the trivalent passivate process.

For details on how to apply the above-mentioned top-coats, please see the relevant Operating Instructions sheet.

## 4 MAINTENANCE AND CONTROL

### 4.1 Frequently check and adjust the pH (every 4 hours of working).

### 4.2 Approximate consumption (per $m^2$ treated):

10 - 20 ml of Lanthane 3180 (dependent on the work to be treated)
Consumption values for the top-coats are given in the relevant sheets.

### 4.3 Determination of the Lanthane 3180 Concentration

**Reagents**:

- Ammonium persulphate
- 0.1 mol/L silver nitrate solution
- Sulphuric acid (50 % in water)
- Potassium iodide 10%
- 0.1 mol /L sodium thiosulphate solution
- starch solution 1%

Apparatus:
1. 250 ml Iodometric flask.
2. 5 ml and 10 ml “A” class pipette
3. “A” Class Burette
4. Boiling Chips

Procedure:

1. Take 2 ml of bath sample in iodometric flask and add to it 50 ml water.
2. Add 10 mL H2SO4 (50% in water) and 2g Ammonium persulphate and 25 mL Std. silver nitrate solution.
3. Boil the solution for 20 min using boiling chips.
4. Meanwhile prepare KI solution by dissolving 10 gm of KI in 100 ml DM Water.
5. Cool the solution to RT and add 10 ml of KI solution to the cooled sample solution.
6. Stopper the flask immediately and pour little water on the flare of the flask.
7. Keep It in dark for 10 mins. And then titrate quickly with 0.1 N Sodium thiosulphate.
8. When the solution turns pale yellow, add freshly prepared starch indicator and continue the titration.
9. After addition of starch, blue color will appear.
10. Take the reading when blue color disappears.

Bath Concentration (Lanthane 3180 ml/lit) = B.R. X 21.66

## 5 PROCESS SEQUENCE

After Alkaline non-cyanide zinc plating, the following sequence is advised:

1. ZetaPlus or Primion Zinc (8-12µm)
2. Cold Water Rinse
3. Cold Water Rinse
4. Cold Water Rinse
5. Acid Activate (0.5 – 1.0% nitric acid, 5-30 seconds)
6. Cold Water Rinse
7. Cold Water Rinse
8. LANTHANE 3158
9. Cold Water Rinse
10. Cold Water Rinse
11. Finigard Topcoat (if applicable)
12. Dry 5-10 minutes @60 - 80°C (Component temperature)

The warm water conditioning rinse is mainly used in barrel application to avoid excessive cooling of the work at the beginning of the treatment.

## 6 EQUIPMENT

6.1 Passivate

Lanthane 3180 Solution contains acidic materials, so acid-resistant equipment must be used:
PVC, high-density polypropylene or plastic-coated steel.
The tank should be fitted with air-agitation tubes.

6.2 Top-Coat

See the relevant Operating Instructions sheet.

## 7 HANDLING PRECAUTIONS

7.1 Passivate

The supplied concentrates and working bath are sufficiently acidic to require handling precautions to be taken (gloves, glasses/goggles and boots).

The user should pay strict attention to information supplied on the product label and health & safety sheet.

7.2 Top-Coat

Refer to the relevant sheets.

## 8 EFFLUENT TREATMENT

8.1 Passivate

Lanthane 3180 does not contain hexavalent chromium, therefore discharge can be effected following neutralization. Effluent streams must be so treated to precipitate out heavy metals.

8.2 Top-Coat
Refer to the relevant sheets.

## 9 CARRIAGE OF SAMPLES FOR ANALYSIS

Users are reminded it is forbidden to send dirty or dangerous articles by post.

## 10 SHELF-LIFE

Lanthane 3180 Passivate: 2 years from date of manufacture.