

Technical Data Sheet

**LANTHANE BLUE 126**

A High Performance, BLUE Passivate for Zinc

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Creation	Approval	Alpha. Index	Date	Observations

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## 1. Process and Deposit Description

<b>General description</b>	LANTHANE BLUE 126 is a liquid trivalent passivate which provides high corrosion resistance and a pronounced BLUE film when applied to all zinc electrodeposits.
<b>Product features</b>	<ul style="list-style-type: none"> <li>➤ Formulated to provide a pronounced blue film and exceptional corrosion protection to all zinc electrodeposits.</li> <li>➤ Bath concentration can be altered to achieve the desired corrosion protection without negatively affecting the color of the film.</li> <li>➤ Completely hexavalent chromium and oxidizing agent free.</li> <li>➤ Can be applied in rack and barrel applications.</li> <li>➤ For increased corrosion protection and/or friction modification, can be used in conjunction with any of our complete line of FINIGARD topcoats.</li> </ul>

## 2. Make-up and Maintenance of the Plating Bath

<b>Make-up</b>	<ul style="list-style-type: none"> <li>● Fill the tank to 2/3 of the final volume with water.</li> <li>● Add the required amount of LANTHANE BLUE 126,</li> <li>● Fill with water to the final operating level. Mix well.</li> <li>● If necessary, adjust the pH to 2.0 units with 20% or 30% Sodium Hydroxide. Typical make-up requirements are as follows:</li> </ul>								
<table border="1"> <thead> <tr> <th colspan="2">Per 1.000 litres</th> </tr> </thead> <tbody> <tr> <td>LANTHANE BLUE 126</td> <td>100 l (10% v/v)</td> </tr> <tr> <td>Sodium Hydroxide</td> <td>1.5 Kg (3 lbs)</td> </tr> <tr> <td>Water</td> <td>To volume</td> </tr> </tbody> </table>		Per 1.000 litres		LANTHANE BLUE 126	100 l (10% v/v)	Sodium Hydroxide	1.5 Kg (3 lbs)	Water	To volume
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<b>Equipment</b>	<p>LANTHANE BLUE 126 passivate is made of acid substances, so we advise to use resistant materials such as PVC, PPH, ebonized or plasticized steel.</p> <p>The use of a thermostat and air agitation equipment is recommended.</p>																					
<b>Operating conditions</b>	<table border="1" data-bbox="472 520 1399 747"> <thead> <tr> <th>Parameter</th> <th>Optimum</th> <th>Working range</th> </tr> </thead> <tbody> <tr> <td>LANTHANE BLUE 126</td> <td>100 ml/l (10% v/v)</td> <td>40 - 100 ml/l (4-10% v/v)</td> </tr> <tr> <td>Ph</td> <td>1.8</td> <td>1.6 - 2.5</td> </tr> <tr> <td>Temperature</td> <td>22°C (72°F)</td> <td>20 - 25°C (68-77°F)</td> </tr> <tr> <td>Dipping time</td> <td>30 seconds</td> <td>20 - 50 seconds</td> </tr> <tr> <td>Rack system agitation</td> <td colspan="2">Light air</td> </tr> <tr> <td>Barrel system agitation</td> <td colspan="2">Barrel rotation is sufficient</td> </tr> </tbody> </table> <p><b>Concentration</b></p> <p>Depending upon the available dwell time, we recommend operating at the lower concentration and higher time.</p> <p>A higher concentration cannot compensate for low temperature (ex. 15°C). Low temperature greatly reduces the film formation.</p> <p>For decorative applications not requiring superior corrosion protection, we recommend operating at 40 ml/l (4% v/v).</p> <p><b>Temperature</b></p> <p>When temperatures are below 20°C, the passivation process is slow and irregular, creating colourless, matte and sometimes spotty films.</p> <p><b>pH</b></p> <p>With new bath make-up, adjust the pH up to 2.0 units.</p> <p>Ideal operating pH ideal value must be evaluated and defined according to:</p> <ul style="list-style-type: none"> <li>© Plant dwell and transfer times</li> <li>© Zinc electrolyte used</li> <li>© Availability of HNO<sub>3</sub> pre-dip</li> </ul> <p>PH corrections must be made with:</p> <ul style="list-style-type: none"> <li>• 65% nitric acid (42°Bé) or 30% caustic soda.</li> </ul>	Parameter	Optimum	Working range	LANTHANE BLUE 126	100 ml/l (10% v/v)	40 - 100 ml/l (4-10% v/v)	Ph	1.8	1.6 - 2.5	Temperature	22°C (72°F)	20 - 25°C (68-77°F)	Dipping time	30 seconds	20 - 50 seconds	Rack system agitation	Light air		Barrel system agitation	Barrel rotation is sufficient	
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**Dipping time**

When transferring from LANTHANE BLUE 126 tank to first rinse, the passivate film is still active.

When passivation is new, we recommend dwell times of 30 - 50 seconds. As the bath ages and zinc increases, we recommend reducing dwell times to maintain the aesthetic blue color.

**Agitating**

Air agitating must be moderate and uniform. Alternatively, mechanical agitation via pump/filter can also be used.

Without agitation, it will be necessary to increase the dwell time to achieve the same performance and/or appearance.

**Replenishment and maintenance**

\* Automated pH control is recommended. Fluoride resistant probes are required. If not automated, we recommend frequent adjustments (minimum once every 4 hours). The optimal pH value is dependent upon the total treatment time and to temperature.

\* Consumption per **100 m<sup>2</sup> (1076 ft<sup>2</sup>)** of treated surface:

**0.30 - 0.40 l. of LANTHANE BLUE 126 (d= 1.27 g/cc )**  
**1 gallon / 10,500-14,000 ft<sup>2</sup>**

The figures above do not include drag-out.

Drag-out incidence is basic to determine product consumption and industrial costs.

With medium drag-out during operative phase:

Rack system plants	0.2 l/m <sup>2</sup>
Barrel system plants	0.25 l/m <sup>2</sup>

Real total consumption per **100 m<sup>2</sup>** of treated surface:

**1.8 - 2.4 l. of LANTHANE BLUE 126 (d= 1.27 g/cc)**  
**1 gallon / 1,700-2,500 ft<sup>2</sup>**

With higher drag-out, consumption will increase. Nitric acid consumption will depend on process sequence and on zinc electrolyte used.

LANTHANE BLUE 126 can be analyzed via titration or AA. Both methods can be provided by Coventya's Technical Service Department.

\* The passivate film colour and shade can be influenced by all of the following: concentration, pH, dipping time, temperature, iron/zinc contamination levels and drying temperature.

Immersion time will affect the film thickness and color as follows:

Spotted transparent yellow → blue - violet → intense blue → light blue → transparent.

With continued time/thickness the work processed will ultimately end up as iridescent blue/green.

\* Metallic contamination limits:

Zinc 10 - 15 g/l (10,000-15,000 ppm)

Iron 100 - 150 mg/l (ppm)

The presence of iron will cause a yellow spotty appearance, especially in the drying and dripping points on holes.

### 3. Plating Sequence

#### Typical Processing Sequence

1. ZetaPlus, PRIMION or Alcyon Zinc (8-12µm)
2. Cold Water Rinse
3. Cold Water Rinse
4. Cold Water Rinse
5. Acid Activate (0.2 – 0.5% nitric acid)\*
6. Cold Water Rinse
7. Cold Water Rinse
8. LANTHANE BLUE 126
9. Cold Water Rinse
10. Hot water rinse (60°C)

\* Activate prior to passivate with nitric acid 42 °Bé (0.2%) for cyanide and acid zinc; (0.5%) for alkaline non-cyanide zinc.

**Notes:**

- Even if acid activation is not necessary for acid zinc, it will be fundamental for alkaline electrolytes.

- The rinse between activation and passivation is important because it reduces zinc, iron and sodium salt drag-out that can reduce passivate bath life.
- Frequent changing of the activation solution guarantees a longer LANTHANE BLUE 126 bath life and better performance/appearance of the work being processed.
- Drying must be done properly for optimum results. Drying stabilizes the passivate film and ensures the highest level of performance and appearance.

#### 4. Waste Water Treatment

Operating solutions of LANTHANE BLUE 126 do NOT contain hexavalent chromium compounds. They will, however, contain heavy metals, namely trivalent chromium, zinc, and iron that may need to be treated based upon the combined overall wastewater flow and the existing treatment process. Coventya offers a complete line of *OMEGA* WaterCare wastewater treatment chemicals. Contact Coventya for details on how this technology can be used in a specific installation if your discharge limits require enhanced treatment methods.

The solution contains fluorides that may be precipitated using the calcium hydrate in waters and solution neutralization

#### 5. H & S

<b>Safe handling</b>	<p>The preparation, maintenance, and disposal of LANTHANE BLUE 126 solutions require the handling of concentrated, acidic, fluoride containing trivalent chrome chemicals. Additionally, concentrated alkali and/or acid may be required for pH adjustment purposes. Avoid contact with the skin and eyes. Wear protective clothing and safety gear. In the event of any contact, flush affected area with a large volume of cold water and contact a physician, if necessary.</p> <p>Please review appropriate LANTHANE BLUE 126 MSDS.</p>
<b>Storage</b>	<p>We recommend checking the use-by date on the label and on the C of A. We recommend storing the products in closed packages, away from heat sources and protected from rain and light. For further information, please consult our MSDS. The presence of a small quantity of precipitate does not change the product quality and performance. If some is present, we advise agitating before using.</p>

## 6. Warranty

### **Disclaimer of responsibility**

The data set forth in this bulletin is believed by COVENTYA to be true, accurate, and complete, but is not guaranteed. Our sole warranty is as stated in our Standard Terms and Conditions of Sale. We cannot warrant that our customers will achieve the same results from any process, chemical or product described in this bulletin because we do not have control over the conditions of use; nor can we assume any responsibility for our customer's use of any of our products in a manner which infringes the patents of third parties.