

Technical Datasheet

FINIDIP 1406

Bright Cr³ Blue Passivation For Pure Zinc

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| Created by | Approved by | Index / alpha. index | Date | Revision |

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1. Product description

▪ **General** Finidip 1406 is a liquid passivate, designed to give a Bright blue finish and high corrosion resistance. This is totally hexavalent chromium free formulation designed to combine high corrosion resistance with a decorative blue appearance with minimum 8 microns of Zinc thickness. Shade variation is minimum when controlled parameters are maintained. This can be applied to alkaline non-cyanide zinc as well as Acid zinc processes for both Rack and Barrel applications. Where very high corrosion resistance is required, the action of Finidip 1406 may be enhanced by the application of Finigard Series material over the passivate film.

- **Advantages**
- Excellent corrosion performance with/without top-coat
 - Can be applied as blue and thick film passivate
 - High corrosion protection with/without heat treatment
 - For rack and barrel applications
 - For acid and alkaline zinc
 - Easy wastewater treatment

▪ **Corrosion resistance**

| Electroplated layer | Top-Coat | Application | Corrosion resistance * after 24 h, 120°C |
|---------------------|----------|-------------|---|
| | | | Blue |
| Zinc (8 - 12 µm) | without | Barrel | 120 hrs |
| | | Rack | 168 hrs |
| | | Barrel/Rack | 240 hrs |
| | with | Barrel | 144 hrs |
| | | Rack | 216 hrs |
| | | Barrel/Rack | 240 hrs |

* Corrosion resistance according to ASTM B117. The actual performance is depending on the plated parts and operating conditions and may largely vary

2. Make up and maintenance

▪ **Make up** **Chemicals for 100 L passivate solution**

| Additives | Blue Passivate |
|-------------|----------------|
| FINIDP 1406 | 8 ltr |

Make-up procedure

1. Add 2/3 of the required water to the operating tank. DI water is recommended.
2. With constant agitation, add the required amount of **FINIDP 1406**.
3. Fill to the final operating level with water.
4. Adjust the pH to 2.0 with nitric acid or caustic soda.
5. Confirm the temperature of the bath is within the correct range. Adjust if necessary.
6. The **FINIDP 1406** solution is now ready for use.

For control of pH use nitric acid (65%) or sodium hydroxide (30%). For make-up and maintenance of the passivation no circulation water from ion exchangers should be used since the water may contain surfactants or other impurities

| <div>▪ Equipment</div> | <div>Tank and related equipment PVC, polyethylene, polypropylene, or rubber lined steel tanks are suitable for use with FINIDP 1406 solutions.</div> <div>Bath agitation and air injection A good and uniform air agitation is necessary for a constant colour and optimal brightness.</div> <div>Heating A heater is necessary to maintain the temperature during winter time. Ceramic bath heater, spirals or heating elements made of Teflon, PVDF or plastic coated steel can be used. It is not necessarily required to work with an automatic temperature control.</div> | | | | | | | | | | | | | | | |
|---|--|-----------|-----------------------|-------------|-------------|---------------|---------|----|---------|-----|------|---------|------|-------------|---------|------|
| <div>▪ Operating conditions</div> | <div>Operating conditions</div> <table><tr><th>BLUE</th><th>Range</th><th>Optimum</th></tr><tr><td>FINIDP 1406</td><td>60 – 100 ml/l</td><td>80 ml/l</td></tr><tr><td>pH</td><td>1.8-2.2</td><td>2.0</td></tr><tr><td>Time</td><td>30-50 s</td><td>40 s</td></tr><tr><td>Temperature</td><td>20-30°C</td><td>25°C</td></tr></table> | BLUE | Range | Optimum | FINIDP 1406 | 60 – 100 ml/l | 80 ml/l | pH | 1.8-2.2 | 2.0 | Time | 30-50 s | 40 s | Temperature | 20-30°C | 25°C |
| BLUE | Range | Optimum | | | | | | | | | | | | | | |
| FINIDP 1406 | 60 – 100 ml/l | 80 ml/l | | | | | | | | | | | | | | |
| pH | 1.8-2.2 | 2.0 | | | | | | | | | | | | | | |
| Time | 30-50 s | 40 s | | | | | | | | | | | | | | |
| Temperature | 20-30°C | 25°C | | | | | | | | | | | | | | |
| <div>▪ Analytical control</div> | <div>pH-value The pH value should be checked regularly. The pH is adjusted with a 30% sodium hydroxide solution or nitric acid (65%).</div> | | | | | | | | | | | | | | | |
| <div>▪ Replenishment and maintenance</div> | <div>Consumption for 100 m² passivated surface</div> <table><tr><th>Parameter</th><th>Thick layer passivate</th></tr><tr><td>FINIDP 1406</td><td>3.0 – 5.0 L</td></tr></table> <div>The passivation FINIDP 1406 can be controlled easily by aspect of the passivated parts and the pH. The passivation, however, should be replenished continuously using the consumption rates. A too strong drop of the passivation concentration has to be avoided. In such cases the full performance of the passivation often cannot be regained. This is especially observed in older passivation.</div> | Parameter | Thick layer passivate | FINIDP 1406 | 3.0 – 5.0 L | | | | | | | | | | | |
| Parameter | Thick layer passivate | | | | | | | | | | | | | | | |
| FINIDP 1406 | 3.0 – 5.0 L | | | | | | | | | | | | | | | |

3. Waste water treatment

| | |
|-------------------------|---|
| <p>▪ General</p> | <p>Operating solutions of FINIDP 1406 do NOT contain hexavalent chromium. 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 Water Care wastewater treatment chemicals.</p> <p>Contact Coventya for details on how this technology can be used in a specific installation if your discharge limits require enhanced treatment methods.</p> |
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4. H & S

- **Safe Handling** **FINIDP 1406** is an acidic, fluoride-containing solution which is corrosive to skin and eyes. To avoid skin and eye contact it is essential to wear goggles, gloves and protective clothing.
- **First Aid**

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

After contact with skin, wash immediately with plenty of water.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed, seek medical advice immediately and show container or label.

5. Warranty

- **Disclaimer of Responsibility**

Handling chemicals implies the absolute respect of the local regulations applying for the chemical products. We pack our products according to the required international rules.

Chemical products without dangerous declaration are never completely innocuous. Always avoid contact with skin and eyes.

Our responsibility is limited to a handling according to the given instructions.

For every technical requirement we remain at your entire disposal.

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|------------------------------|----------------|-------------|------------------------------|
| ▪ Product information | Product-Number | Name | Density [g/cm ³] |
| | | FINIDP 1406 | 1.18 |