**Hydro-Zinc® Series 91-H₂O**

**Product Data Sheet**

**Product Profile**

**Aromatic Urethane, Zinc-Rich**

A two-component, moisture-cured, zinc-rich primer for the interior and exterior of steel potable water tanks. Provides outstanding long-term corrosion resistance when used as a primer in conjunction with other Tnemec potable water tank coatings. It cures quickly and can be topcoated the same day at surface temperatures down to 35°F. Series 91-H₂O has no maximum recoat time, making it ideally suited as a primer for both sides of plate steel surfaces in water tank fabrication shops. Application methods include “dry-fall” under certain conditions (see Application). **Note:** When used in conjunction with cathodic protection, anodes or impressed current systems should not provide current demand more negative than ~1.05 volts relative to a copper-copper sulfate reference electrode half-cell.

**Colors**

Greenish-gray

**Zinc Pigment**

83% by weight in dried film

Certified (with or without 44-710 Urethane Accelerator) in accordance with NSF/ANSI Std. 61 for use on interior potable water tanks of 8,000 gallons (30,283 L) capacity or greater, pipes 56 inches (142.2 cm) in diameter or greater, valves 1 ½ inches (3.8 cm) in diameter or greater, fittings ½ inch (3.9 cm) in diameter or greater, and pumps 1 ½ inches (3.8 cm) in diameter or greater. Topcoating with Std. 61 certified Tnemec coatings is required. Contact your Tnemec representative for specific recommendations. Reference the “Search Listings” section of the NSF website at www.nsf.org for details on the maximum allowable DFT. Meets zinc-rich primer requirements of AWWA D102-17 Standard for Inside System No. 5 & 6 and Outside System No. 3, 4 & 6. Series 91-H₂O uses a zinc pigment which meets the requirements of ASTM D 520 Type III and contains less than 0.002% lead.

**Performance Criteria**

Extensive test data available. Contact your Tnemec representative for specific test results.

**Coating System**

**Topcoats**

- **Interior:** Series 20, 20HS, FC20, FC20HS, 22, FC22, LI40, LI40F, NI40, NI40F, VI40, VI40F, 141, 406, 161, 161HS, 1026, 1028, 1029, 1074, 1074U, 1075, 1075U. Note: Certain topcoat colors may not provide one-coat hiding depending on method of application. Contact your Tnemec representative. **Note:** Series 91-H₂O must be exterior exposed for three days prior to topcoating with Series 1028 or 1029. **Note:** Series 91-H₂O must be exterior exposed for one day prior to topcoating with Series 27WB.

**Surface Preparation**

**Steel**

- **Wet Interior/Severe Exposure:** SSPC-SP10/NACE 2 Near-White Blast Cleaning with a minimum angular anchor profile of 1.5 mils.
- **Dry Interior/Exterior Exposure:** SSPC-SP6/NACE 3 Commercial Blast Cleaning with a minimum angular anchor profile of 1.5 mils.

**Ductile Iron**

All external surfaces of ductile iron pipe and fittings shall be delivered to the application facility without asphalt or any other protective lining on the exterior surface. All oils, small deposits of asphalt paint, grease, and soluble deposits should be removed in accordance with NAPF 500-03-01. When viewed without magnification, the exterior surfaces shall be free of all visible dirt, dust, loose annealing oxide, rust, mold coating and other foreign matter. **Pipe:** Uniformly abrasive blast using angular abrasive to a NAPF 500-03-04. External Pipe Surface Condition. When viewed without magnification, the exterior surfaces shall be free of all visible dirt, dust, loose annealing oxide, rust, mold coating and other foreign matter. **Fittings:** Uniformly abrasive blast using angular abrasive to a NAPF 500-03-05. Fitting Blast Clean #2 condition. When viewed without magnification, no more than 5% staining may remain on the surface and the exterior surfaces shall be free of all visible dirt, dust, annealing oxide, rust, mold coating and other foreign matter.

**Technical Data**

**Volume Solids**

<table>
<thead>
<tr>
<th>Solids Type</th>
<th>Recommended DFT</th>
<th>Curing Time</th>
<th>To Handle</th>
<th>To Recoat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unthinned</td>
<td>2.65 lbs/gal (318 grams/litre)</td>
<td>2.5 hours</td>
<td>6 hours</td>
<td></td>
</tr>
<tr>
<td>Thinned</td>
<td>2.76 lbs/gal (351 grams/litre)</td>
<td>2.5 hours</td>
<td>6 hours</td>
<td></td>
</tr>
</tbody>
</table>

50% relative humidity. **Note:** Refer to product listings on www.nsf.org for specific potable water return to service information. Curing time will vary with surface temperature, humidity and film thickness. **Ventilation:** When used as a tank lining or in enclosed areas, provide adequate ventilation during application and cure. Reference ventilation guidelines contained in the latest edition of AWWA D 102. **Note:** For faster curing, low humidity and low-temperature applications, add No. 44-710 Urethane Accelerator (see separate product data sheet). **Note:** For cure times to immersion service, refer to the specified Tnemec interior topcoat product data sheet.

**Volatiles and Organic Compounds**

**HAPs**

- **Unthinned:** 5.05 lbs/gal solids
- **Thinned 25%:** 5.33 lbs/gal solids (No. 2 Thinner), 5.06 lbs/gal solids (No. 3 Thinner)
- **Thinned 35%:** 6.19 lbs/gal solids (No. 2 Thinner), 5.09 lbs/gal solids (No. 3 Thinner)

**Published technical data and instructions are subject to change without notice. The online catalog at www.tnemec.com should be referenced for the most current technical data and instructions or you may contact your Tnemec representative for current technical data and instructions.**
**PRODUCT DATA SHEET**

**HYDRO-ZINC® | SERIES 91-H₂O**

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**THEORETICAL COVERAGE**
1.011 mil sq ft/gal (24.8 m²/L at 25 microns). See APPLICATION for coverage rates.

**NUMBER OF COMPONENTS**
Two: Part A and Part B

**PACKAGING**
Four-Gallon and One-Gallon Kits: Consist of one premeasured container of liquid (Part A) and one premeasured container of powder (Part B). When mixed, yields four gallons (15.1L) or one gallon (3.79L).

**NET WEIGHT PER GALLON**
23.94 ± 0.60 lbs (10.86 ± 0.27 kg)

**THEORETICAL COVERAGE**
Minimum 20°F (-7°C) Maximum 110°F (43°C)

**VIEW TEMPERATURE**
Dry (Continuous) 250°F (121°C) Intermittent 300°F (149°C)

**SHELF LIFE**
Part A: 12 months at recommended storage temperature.
Part B: 24 months at recommended storage temperature.

**FLASH POINT - SETA**
Part A: 78°F (26°C) Part B: NA

**HEALTH & SAFETY**
Paint products contain chemical ingredients which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product.

**APPLICATION**

<table>
<thead>
<tr>
<th>COVERAGE RATES</th>
<th>Dry Mils (Microns)</th>
<th>Wet Mils (Microns)</th>
<th>Sq Ft/Gal (m²/Gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggested</td>
<td>5.0 (75)</td>
<td>5.0 (125)</td>
<td>357 (31.5)</td>
</tr>
<tr>
<td>Minimum</td>
<td>2.5 (65)</td>
<td>4.0 (100)</td>
<td>404 (37.5)</td>
</tr>
<tr>
<td>Maximum</td>
<td>5.5 (90)</td>
<td>5.5 (140)</td>
<td>289 (26.9)</td>
</tr>
</tbody>
</table>

Allow for overspray and surface irregularities. Film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance. Reference the “Search Listings” section of the NSF website at www.nsf.org for details on the maximum allowable DFT.

**MIXING**

**Note:** It is important to always use the entire contents of A and B components. Use a mechanical mixer and keep material under constant agitation while mixing. Slowly siph the entire contents of Part B zinc powder into liquid (Part A).

**Do Not Reverse This Procedure—** Adjust mixer speed to break up lumps and mix until the two components are thoroughly blended. Siph through a 35 to 50 mesh (300 to 600 microns) screen before using. For spray application, keep under low RPM agitation to prevent settling. For brush or roller application, stir frequently to prevent settling. Do not use mixed material beyond pot life limits.

**THINNING**
For spray, thin up to 10% or 3/4 pint (380 mL) per gallon with No. 2 Thinner if temperatures are below 80°F (27°C). Thin up to 10% or 3/4 pint (380 mL) per gallon with No. 3 Thinner if temperatures are above 80°F (27°C). For brush or roller, thin up to 10% or 3/4 pint (380 mL) with No. 3 Thinner. Do not thin more than 2.5% when air pollution regulations limit the atmospheric discharge of volatile organic compounds (VOC) in coatings to a maximum of 350 grams/litre (2.80 lbs/gal).

**Caution:** Series 91-H2O certification is based on thinning with No. 2 or No. 3 Thinner. Use of any other thinner voids NSF/ANSI Std. 61 certification.

**POT LIFE**
8 hours at 77°F (25°C) and 50% R.H.

**Caution:** This product cures with moisture acting as a catalyst. Incorporation of moisture or moisture laden air (humidity) during use will shorten pot life. Avoid continual agitation at high RPM. When feasible keep containers of mixed material covered during use.

**APPLICATION EQUIPMENT**

**Air Spray**

<table>
<thead>
<tr>
<th>Gun</th>
<th>Fluid Tip</th>
<th>Air Cap</th>
<th>Air Hose ID</th>
<th>Mat'l Hose ID</th>
<th>Atomizing Pressure</th>
<th>Pot Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeVilbiss</td>
<td>E</td>
<td>765 or 704</td>
<td>5/16&quot; or 3/8&quot; (7.9 or 9.5 mm)</td>
<td>3/8&quot; or 1/2&quot; (9.5 or 12.7 mm)</td>
<td>50-70 psi (3.4-4.8 bar)</td>
<td>10-20 psi (0.7-1.4 bar)</td>
</tr>
</tbody>
</table>

† (with heavy mastic spring) Low temperatures or longer hoses will require additional pressure. Use pressure pot equipped with an agitator and keep pressure pot at same level or higher than the spray gun. Compressed air must be dry.

**Airless Spray**

<table>
<thead>
<tr>
<th>Tip Orifice</th>
<th>Atomizing Pressure</th>
<th>Mat'l Hose ID</th>
<th>Manifold Filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.017”-0.021” (430-535 microns)</td>
<td>3500-4500 psi</td>
<td>1/4” or 3/8” (6.4 or 9.5 mm)</td>
<td>60 mesh (250 microns)</td>
</tr>
</tbody>
</table>

Use appropriate tip/atomizing pressure for equipment, applicator technique and weather conditions.

**Roller:** Use a 1/4” or 3/8” (6.4 or 9.5 mm) high quality synthetic woven nap cover. Stir material frequently or keep under agitation to prevent settling.

**Brush:** Use high quality natural or synthetic bristle brushes. Stir material frequently or keep under agitation to prevent settling.

**SURFACE TEMPERATURE**
Minimum 55°F (2°C) Maximum 140°F (60°C)

**AMBIENT HUMIDITY**
Minimum 20% Maximum 90%

**CLEANUP**
Flush and clean all equipment immediately after use with the recommended thinner or xylene.

Dry overspray can be wiped or washed from most surfaces. Satisfactory dry-fall performance depends upon height of work, weather conditions and equipment adjustment. Low temperature is of particular concern. Test for each application as follows: Spray from 15 to 25 feet towards paint container. The material then should readily wipe off. **Note:** Heat can fuse-dry overspray to surfaces. Always clean dry overspray from hot surfaces before fusing occurs. Be aware that exterior surface temperatures can be higher than air temperature.
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