

PRODUCT PROFILE

GENERIC DESCRIPTION

Aromatic Urethane, Zinc-Rich

COMMON USAGE

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 (2°C). 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

SPECIAL QUALIFICATIONS

Certified (with or without 44-710 Urethane Accelerator) by **NSF International** in accordance with **NSF/ANSI/CAN Std. 61** and the extraction requirements of **NSF/ANSI/CAN 600** and is qualified for use on interior potable water tanks of 1,500 gallons (5,678 L) capacity or greater, pipes 24 inches (61 cm) in diameter or greater, valves 3/4 inch (3.8 cm) in diameter or greater, fittings 1/2 inch (1.3 cm) in diameter or greater, and pumps 3/4 inches (1.9 cm) in diameter or greater. Topcoating with Std. 61 certified Tnemec coatings is required. Contact your Tnemec representative for specific recommendations. Reference Tnemec's certified product listing 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. 3 & 5** 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 .002% lead.

This product is part of a coating system tested in accordance with ISO 12944-6 (2018). Contact your Tnemec representative for coating system test results.

COATING SYSTEM

TOPCOATS

Interior: Series 20, FC20, 22, FC22, L140, L140F, N140, N140F, V140, V140F, 141, 406.
Exterior: Series 27, 27WB, 66, L69, L69F, N69, N69F, 73, 115, L140, L140F, N140, N140F, V140, V140F, 161, 1026, 1028, 1029, 1074, 1074U, 1075, 1075U, 1094, 1095, 1096. **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 NAF 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 NAF 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 NAF 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

63.0 ± 2.0% (mixed)

RECOMMENDED DFT

2.5 to 3.5 mils (65 to 90 microns)

CURING TIME

Without 44-710

Temperature †	To Handle	To Recoat
75°F (24°C)	1 hour	4 hours
65°F (18°C)	1 1/2 hours	5 hours
55°F (11°C)	2 hours	6 hours
45°F (7°C)	2 1/2 hours	7 hours
35°F (2°C)	3 hours	8 hours

† 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, reference the specified Tnemec interior topcoat product data sheet.

VOLATILE ORGANIC COMPOUNDS

Unthinned: 2.65 lbs/gallon (318 grams/litre)
Thinned 2.5%: 2.76 lbs/gallon (331 grams/litre)
Thinned 10%: 3.07 lbs/gallon (368 grams/litre)

HYDRO-ZINC® | SERIES 91-H₂O

HAPS	Unthinned: 5.05 lbs/gal solids Thinned 2.5%: 5.33 lbs/gal solids (No. 2 Thinner); 5.06 lbs/gal solids (No. 3 Thinner) Thinned 10%: 6.19 lbs/gal solids (No. 2 Thinner); 5.09 lbs/gal solids (No. 3 Thinner)
THEORETICAL COVERAGE	1,011 mil sq ft/gal (24.8 m ² /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 ± .27 kg)
STORAGE TEMPERATURE	Minimum 20°F (-7°C) Maximum 110°F (43°C)
TEMPERATURE RESISTANCE	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 Safety Data Sheet for important health and safety information prior to the use of this product. Keep out of the reach of children.

APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m ² /Gal)
Suggested	3.0 (75)	5.0 (125)	337 (31.3)
Minimum	2.5 (65)	4.0 (100)	404 (37.5)
Maximum	3.5 (90)	5.5 (140)	289 (26.9)

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 Tnemec's certified product listing 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 sift 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. Strain 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 340 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/CAN 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

Note: When intermediate and finish coats are white or light colors, best hiding of this dark color primer can be achieved by spray application; or when roller applied, by using 1/4" nap covers.

Air Spray

Gun	Fluid Tip	Air Cap	Air Hose ID	Mat'l Hose ID	Atomizing Pressure	Pot Pressure
DeVilbiss JGA †	E	765 or 704	5/16" or 3/8" (7.9 or 9.5 mm)	3/8" or 1/2" (9.5 or 12.7 mm)	50-70 psi (3.4-4.8 bar)	10-20 psi (0.7-1.4 bar)

† (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

Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
0.017"-0.021" (430-535 microns) Reversible Tip	3500-4500 psi (241-310 bar)	1/4" or 3/8" (6.4 or 9.5 mm)	60 mesh (250 microns)

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

Roller: Use a 1/4" or 3/8" (6.4 mm 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 35°F (2°C) Maximum 140°F (60°C) Maximum for Brush & Roller 120°F (49°C)
The surface should be dry and at least 5°F (3°C) above the dew point. **Note:** Series 44-710 Accelerator must be used if the surface temperature is 35°F to 60°F (2°C to 16°C) and 20% to 40% relative humidity.

AMBIENT HUMIDITY

Minimum 20% Maximum 90%

CLEANUP

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

CAUTION

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.

HYDRO-ZINC® | SERIES 91-H₂O

WARRANTY & LIMITATION OF SELLER'S LIABILITY: Tnemec Company, Inc. warrants only that its coatings represented herein meet the formulation standards of Tnemec Company, Inc. THE WARRANTY DESCRIBED IN THE ABOVE PARAGRAPH SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The buyer's sole and exclusive remedy against Tnemec Company, Inc. shall be for replacement of the product in the event a defective condition of the product should be found to exist and the exclusive remedy shall not have failed its essential purpose as long as Tnemec is willing to provide comparable replacement product to the buyer. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, ENVIRONMENTAL INJURIES OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. Technical and application information herein is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and Tnemec Company makes no claim that these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

Tnemec Company, Inc. 6800 Corporate Drive Kansas City, Missouri 64120-1372 +1 816-483-3400 www.tnemec.com