

# Series 330 Glass Armor

## Surface Preparation & Application Guide



## 1.0 INTRODUCTION

The purpose of this guide is to acquaint contractors and applicators with the basic information necessary for properly ordering and installing Tnemec's Series 330 Glass Armor. Prior to starting work, please read this entire guide carefully. If you have questions, contact your Tnemec representative or call 1-800-TNEMEC1. It is important that you obtain answers to any questions before work begins.

Please review all pertinent Product Data Sheets as well as the Series 330 Plural Component Equipment Recommendation Guide prior to starting.

Also, reference the project specifications and compare them with this guide and the Product Data Sheets. Resolve any inconsistencies prior to starting work.

This application guide cannot cover every issue that may be encountered in the field. If issues arise that are not addressed in this guide or the Product Data Sheets, please contact your Tnemec representative or call 1-800-TNEMEC1 for assistance.

## 2.0 SURFACE PREPARATION

### 2.1 PRIOR TO BLASTING STEEL

Prior to abrasive blasting, all oil, grease, tar and other residues must be removed from the surface. Solvent cleaning (per SSPC SP1) and high pressure water or steam cleaning are effective methods for removing hydrocarbon residues and other by-products. Fresh water rinse to ensure complete removal of soluble salts and cleaning chemicals.

The surface should be clean, dry, and contaminant free, and be at least 5°F (3°C) above the dew point. Do not apply when humidity exceeds 80%. For tanks, dehumidification equipment is recommended if humidity exceeds 80%.

If dehumidification equipment is not used, the surface to be coated should be abrasive blasted within twenty four (24) hours prior to the application of the lining material.

### 2.2 PREPARATION OF STEEL

SSPC-SP5/NACE 1/ISO SA 3.0 ( White Metal Blast Cleaning with a minimum angular anchor profile of 3.0 mils.)

All surfaces must be clean, dry and free of oil, grease and other contaminants.

### 2.3 WELD QUALITY

Remove weld spatter, burrs, or protrusions; remove and/or round sharp edges; and smooth rough welds and gouges prior to abrasive blasting. Welds should be ground to remove any irregularities and are considered ready for painting when a minimum finishing level of a C designation, as defined by NACE RP0178 latest revision, has been achieved.

### 2.4 TANK BOTTOM PREPARATION

Buffer, striker, and datum plates should be prepared in accordance with SSPC-SP5/NACE 1/ISO SA 3.0 ( White Metal Blast Cleaning with a minimum angular anchor profile of 3.0 mils.)

## 3.0 SERIES 330 GLASS ARMOR

Series 330 Glass Armor is a 100% solids, high build flexibilized epoxy lining designed for internally coating large bulk storage tank bottoms and other vessels that experience movement due to load, expansion/contraction or vibration. Spray applied in a single coat application, Series 330 Glass Armor may be applied to a dry film thickness (DFT) ranging from 20 to 40 mils. Series 330 does not require reinforcing cloth and is suitable for steel storage tank bottoms.

### 3.1 PACKAGING - SERIES 330

	PART A (partially filled)	PART B (partially filled)	MIXED YIELD
Small Kit	1-5 gallon can	1-3 gallon can	4 gallons
Medium Kit	2-6 gallon pails	1-6 gallon pail	15 gallons
Large Kit *	2-55 gallon drums	1-55 gallon drum	150 gallons

\* Configured for plural-component applications.

### 3.2 COVERAGE RATES - SERIES 330

	Dry Mils (Microns)	Wet Mils (Microns)	Sq. Ft./Gal. (m <sup>2</sup> /gal.)
Suggested	30.0 (762)	30.0 (762)	53 (5.0)
Minimum	20.0 (508)	20.0 (508)	80 (7.5)
Maximum	40.0 (1016)	40.0 (1016)	40 (3.7)

Allow for overspray and surface irregularities. Application of coating

below minimum or above maximum recommended dry film thicknesses may adversely affect coating performance.

### 3.3 STORAGE - SERIES 330

Minimum storage temperature is 50°F (10°C) and maximum is 100°F (38°C).

### 3.4 PRE-HEATING - SERIES 330

Prior to application, heat each component to 110°-120°F (43°-49°C).

### 3.5 MIXING - SERIES 330

Place band heaters on drums and set to medium heat. Recirculate the material through the primary heaters set to the highest setting back into the drums. Remove the center 2" bung on the drum and insert the drum agitator. The material should be 80°-90°F (27°-32°C) before the drum agitator is turned on. Agitate the material for 30-60 minutes before use or until the material in the drums reaches 110°-120°F (43°-49°C). For Small Kits, mix the entire contents of Part A and Part B separately. Use a minimum 10 amp, 3/4" heavy-duty drill with a PS Jiffy blade and mix the components for a minimum of two minutes. Do not mix Part A with Part B. Use a 2 (Part A epoxy) to 1 (Part B amine) to mix ratio plural component heated airless spray unit. Note: Product must be heated to 110°-120°F (43°-49°C) prior to and during application. For Touch-up kits mixing instruction, contact Tnemec's Technical Service department for specific details.

### 3.6 STRIPE COATING

It is good painting practice to brush one or more coats on welds, edges, or any area that is not ideally fabricated. Stripe coating can be done by spraying material on the areas to be stripe coated and then brushed into the surface, or by power mixing small batches of properly proportioned material and applying by brush.

### 3.7 SURFACE TEMPERATURE

Minimum	50°F (10°C)
Maximum	120°F (49°C)

### 3.8 APPLICATION & EQUIPMENT - SERIES 330

Series 330 Glass Armor is applied using a Graco "Xtreme-Mix" 68:1 or larger plural component, heated, airless spray unit only.

#### PLURAL COMPONENT AIRLESS SPRAY

Pump Size	Graco 68:1 Xtreme or larger
Gun	Graco XTR-7 or WIWA 500F
Tip Orifice	0.025" - 0.029"
Atomizing Pressure	3400- 3800psi (dynamic)
Integration Line	50'-3/8"
Static Mixers	Two 3/8" x 12" SST 12 fold static mixers One 1/4" x 9" SST 12 fold static mixer
Whip Lines	(2) 6'- 10' X 1/4"
Primary Heat (Pt. A)	110°F-120°F
Primary Heat (Pt. B)	110°F-120°F
Hose Heat	140°F-160°F
Material Temp at Gun	100°F-110°F
Purge Time	Less than one minute.

**Note:** Products under continual testing and equipment recommendations may change. Contact Tnemec's Technical Service Department for the most current Bridgeport Glass Armor plural component equipment recommendations guide.

### 3.9 PUMP MAINTENANCE

Clean up and purge lines immediately after use with No. 4 Thinner.

## 4.0 CURING TIME

#### CURING TIME - SERIES 330

Temperature	75°F (24°C)
To Touch	6 hours
To Handle	8 hours
Immersion	24 - 36 hours

These times are based on a 20.0 mil (500 micron) dry film thickness. Higher film thicknesses, insufficient ventilation

or cooler temperatures will require longer cure times. This coating commonly develops an amine-blush during cure. While this condition will not adversely affect performance of the coating, this blush must be removed by aggressive sweep blasting before applying additional coats. During high humidity conditions, it is recommended that the application be done while the temperatures are increasing and/or use of DH equipment. Cure time to achieve a minimum Shore D Hardness of 77 or Barcol GYZJ 935 hardness of 55 for immersion service is 24 to 36 hours. In order to obtain an accurate durometer reading, the minimum DFT must be 30 mils.

## 5.0 HIGH VOLTAGE DISCONTINUITY (SPARK) TESTING

High voltage discontinuity (spark) testing is recommended to determine the presence and number of discontinuities in the nonconductive Series 330 Glass Armor applied to a conductive surface.

All high voltage discontinuity (spark) testing shall be performed in accordance with NACE SP0188 and the procedures outlined herein.

Series 330 Glass Armor should be applied and allowed to cure within the parameters of the corresponding Product Data Sheets. Sufficient curing time of the coating system shall be allowed prior to conducting a holiday test, as indicated by the "Return to Service" duration on the Product Data Sheets. Curing time will vary with surface temperature, air movement, humidity, and film thickness.

If the substrate is incompatible or if thickness constraints are not applicable for a non-destructive dry film thickness gauge, measurements of the coating system thickness are to be performed during application of each system component using a wet film gauge, feeler gauge, or other measurement device that can accurately measure the coating wet film thickness. These coating measurements are to be tabulated to determine the total system thickness.

All high voltage discontinuity (spark) testing shall be performed using a

Tinker & Rasor model AP/W Holiday Detector. Refer to the following chart for appropriate voltage based on coating system thickness.

To perform holiday testing attach a ground wire from the instrument ground output terminal to the conductive substrate and ensure proper electrical contact. Test conductivity by attaching the instrument ground wire to rebar or other metallic ground permanently installed in the concrete and touch the electrode to the bare concrete. If metallic ground is not visible, the ground wire can be placed directly against a bare concrete surface and weighted with a damp cloth and paper sand-filled bag. Make contact with the exploring electrode on the conductive substrate to verify the instrument is properly grounded. If the test proves negative, determining discontinuities with a high voltage spark test will be ineffective. Under no circumstances shall the voltage be increased above the recommended voltage potential.

#### RECOMMENDED VOLTAGES FOR HIGH VOLTAGE SPARK TESTING WITH TINKER & RASOR MODEL AP/W

Total Dry Film Thickness (mils)	Voltages (V)
20-24	2,500
25-29	3,000
30-39	3,500
40-47	5,000
48-59	6,000
60-69	7,500
70-79	8,500
80-99	10,000
100-124	12,500
125-134	15,000
135-159	16,000
160-174	17,500
175-214	20,000
215-269	27,000
270-299	31,000
300-350	35,000

Holiday testing of repaired areas shall be performed using same testing procedures as outlined above.

If utilizing alternate high voltage DC holiday detectors, never exceed the rec-

ommended 100-125 volts DC per mil or contact Tnemec Technical Services for recommended voltage settings. Excessive voltage may produce a holiday in the coating film.

## **6.0 REPAIRS**

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Any defects, holidays or thin areas should be repaired using additional catalyzed material. Defects should be repaired by scarifying with a fine abrasive. Feather the edges to form a smooth transition and then recoat with additional Series 330 Glass Armor .

## **7.0 HEALTH & SAFETY**

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Series 330 Glass Armor is for industrial use only and installed by qualified coating and lining application specialists.

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. Keep out of the reach of children.



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Published technical data and instructions are subject to change without notice. Contact your Tnemec technical representative for current technical data and instructions. Warranty information: The service life of Tnemec's coatings will vary. For warranty, limitation of sellers' liability, and product information, please refer to Tnemec's Product Data Sheets at [www.tnemec.com](http://www.tnemec.com) or contact your Tnemec technical representative.