

# Tnemec Zinc Metallizing with Epoxy and Urethane Topcoats Specification

## PART 1- GENERAL

### 1.1 DESCRIPTION:

Work under this item shall consist of surface preparation, metallizing and painting of steel components as shown on the plans, as directed by the Architect or Engineer in accordance with these specifications. The coating system under this specification shall consist of an 85/15 Zinc aluminum thermally sprayed metallizing system, an epoxy sealer coat, and a urethane topcoat. The thermal spraying process consists of melting the metal described herein and then applying said metal onto a properly prepared surface by means of compressed air.

### 1.2 WORK SPECIFIED IN OTHER SECTIONS

All weld and torch cuts and blisters must be ground smooth.

### 1.3 QUALITY ASSURANCE

#### A. Application

1. All Work specified above shall be done at one facility.
2. All work shall be done at a facility certified by the Department of Defense as specified in DOD-2138-A/1992 standard specifications.
3. Applicator shall be certified in accordance with DOD-2138-A/1992.
4. Written proof of certification shall be submitted before any work commences.

#### B. Mock-Up

1. Prior to commencement of the work, the specified system shall be applied to a representative piece or section of the structure, in the same manner in which it will be applied during production work.
2. The sample shall be submitted to the Architect or Engineer for approval of color, texture and overall suitability.
3. Work shall not commence until written approval of the mock-up has been received from the Architect or Engineer.

### 1.4 CONSTRUCTION METHOD

The Architect or Engineer shall require that the Contractor demonstrate proven ability and competence in the application of the metallizing and topcoat materials, in conformance with the specifications herein and with the manufacturer's printed instructions.

### 1.5 REFERENCES

- A. ANSI/AWS A533-9X, Specification for Alloy Wires, Cored Wire and Ceramic Rods for Thermal Spraying, American Welding Society.
- B. ANSI/AWS C2. 18.93, Guide for the Protection of Steel with Thermal Spraying Coating of Aluminum and Zinc, American Welding Society.
- C. ASTM C633, Standard Test Method for Adhesion or Cohesive Strength for Flame Sprayed Coatings, American Society for Testing and Materials.
- D. SSPC-CS Guide 23.00, June 1, 1991, Coating system Guide for Thermal Spray Metallic Coating Systems; Steel Structures Painting Council.

## 1.6 SUBMITTALS

Product Data: Submit manufacturer's technical information including installation instructions, product description, and product test data conforming to the products specified. Test data may be submitted in printed form on the manufacturer's standard printed material, however if requested Contractor shall submit specific performance test information as certified by independent laboratory analysis.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Zinc Metallizing material shall be an 85% Zinc, 15% Aluminum wire as specified herein.
- B. Paint System as produced by:  
Tnemec Company Inc.
  - 1. Epoxy Sealer: Tnemec Series 27 F.C. Typoxy or Series V69 Hi-Build Epoxoline II @ 3-5 mils dft.
  - 2. Urethane Topcoat: Tnemec Series 73 Endura-Shield or Series 1095 Endura-Shield @ 3-5 mils dft.

### 2.2 PERFORMANCE CRITERIA

- A. The system shall meet or exceed the following:
  - 1. Adhesion of Zinc/Aluminum metallizing: An average of 1,500 psi, per ASTM D4541.
  - 2. Adhesion of Tnemec Series 27F.C. Typoxy or V69 Hi-Build Epoxoline II/ Series 73 Endura-Shield over Zinc/Aluminum metallizing: A rating of 5 out of 5 Per ASTM D 3359 after system had been exposed to 10 freeze/thaw cycles (1 cycle = 4 hours 100% humidity, 16 hours in freezer, 4 hours in 140° oven).
  - 3. Corrosion resistance of Zinc Aluminum metallizing: 0% rust at scribe after 16 months exterior exposure. A rating of 10 out of 10 (no rusting at scribe) after 4 years natural exposure.
  - 4. Corrosion resistance of Zinc Aluminum metallizing with 1 coat Tnemec Series 27F.C. Typoxy or V69 Hi-Build Epoxoline II and 1 coat Series 73 Endura-Shield: A rating of 10 out of 10 (no rusting at scribe) after 1500 hours salt fog (Prohesion Method). ASTM D-1654.

## PART 3- EXECUTION

### 3.1 PRE-WORK INSPECTION

Metallizing/Coating applicator shall examine surfaces to be coated and report any conditions that would adversely affect the appearance or performance of the coating system and which cannot be put into an acceptable condition by the specified surface preparation.

### 3.2 APPLICATION

- A. Apply materials at specified film thicknesses by method recommended by the Manufacturer.
- B. Application of paint shall be in accordance with SSPC, Paint Application Specifications for Steel and Manufacturer's instructions.
- C. Allow each coat to dry thoroughly before recoating (**Must wait minimum 24 hours at 55° F** for the Tnemec Series 27 F.C. Typoxy or Series V69 Hi-Build Epoxoline II to cure before applying finish; Series 27 F.C. Typoxy or V69 Hi-Build Epoxoline II can also be force cured prior to application of finish to accelerate cure times)
- D. Finish coats shall be smooth, uniform in color and free of runs, dry spray, overspray, blisters, and wrinkles.
- E. Temperature and humidity conditions shall be in accordance with Manufacturer's instructions.

### 3.3 COATING SCHEDULE

Surface Prep: SSPC-SP10 Near White Metal Blasting, with a 3-4 mil anchor pattern.  
First Coat: Zinc/Aluminum metallizing at 4-6 mils dft  
Second Coat: Tnemec Series 27FC Typoxy or V69 Hi-Build Epoxoline at 3-5 mils dft  
Third Coat: Tnemec Series 73 Endura-Shield or 1095 Endura-Shield at 3-5 mils dft

Specifier Note: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including *Master Format*, *Section Format*, and *Page Format*, contained in the *CSI Manual of Practice*.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.

Delete all “Specifier Notes” when editing this section.

Specifier Notes: This section covers Tnemec high-performance coating systems for commercial facilities.

This specification is only a guide listing various coating system options for various environments and should not be used as a final specification. Additional coating systems not listed in this specification are available, and may be more appropriate for your coating application.

To finalize this specification, please contact [www.rightergroup.com](http://www.rightergroup.com)

Most coatings specified contain organic solvents. Consult Righter Group for compliance to local VOC regulations.

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February 2022