

AWS C2.23M/C2.23:2018,
NACE NO.12, SSPC CS-23

Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel



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Prepared by the
American Welding Society (AWS) C2 Committee on Thermal Spraying,
NACE TG 146 on Coatings, Thermals Spray and administered by NACE Specific Technology Group (STG) 02 on
Protective Coatings and Linings-Atmospheric, and sponsored by NACE STG 39 on Process Industry-Materials
Applications, and SSPC C.1.14 Committee on Thermal Spray Coatings

Under the Direction of the
AWS Technical Activities Committee

Approved by the AWS Board of Directors

Abstract

This AWS/NACE/SSPC joint standard contains requirements for the application of zinc and aluminum alloys to steel substrates using thermal spray, often referred to as “metalizing.” The metal coatings are referred to as metalized or “thermal spray coatings” (TSCs). The standard includes requirements for surface preparation, coating application, repairing coating defects, measurement of coating thickness, adhesion testing of the applied coating, and application of sealers and topcoats over the thermally sprayed metal coating. This standard is intended for use by facility owners and specifiers who develop project specifications for the application of thermally sprayed coatings for the preservation and maintenance of steel structures and components. The standard also may be used by thermal spray coating inspectors to assess the quality of surface preparation and coating application, and by thermal spray contractors to develop project work plans.



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Foreword

This AWS/NACE/SSPC joint standard contains requirements for the application of zinc and aluminum alloys to steel substrates by melting feedstock with heat from combustion or electric arc and propelling the molten metal particles onto the substrates using compressed air or another gas. This process is called thermal spray, often referred to as “metalizing,” and the metal coatings are referred to as metalized or “thermal spray coatings” (TSCs).

This standard is intended for use by facility owners and specifiers who develop project specifications for the application of thermally sprayed coatings for the preservation and maintenance of steel structures and components. It also may be used by thermal spray coating inspectors to assess the quality of surface preparation and coating application, and by thermal spray contractors to develop project work plans.

This joint standard was originally published in 2003 by AWS⁽¹⁾ C2 Committee, NACE⁽²⁾ Task Group (TG) 146, and SSPC⁽³⁾ committee C.1.14 (formerly C.1.2.B). It was revised in 2016 by SSPC C.1.14, “Committee on Thermal Spray Coatings”; AWS C2 Committee on Thermal Spraying; and NACE TG 146, “Coatings, Thermal Spray,” and administered by NACE Specific Technology Group (STG) 02, “Protective Coatings and Linings—Atmospheric”; and sponsored by NACE STG 39, “Process Industry—Materials Applications.” It is published by NACE International under the auspices of STG 02.

In AWS/NACE/SSPC standards, the terms shall, must, should, and may are used in accordance with Paragraph 2.2.1.8 of the Agreement between SSPC: The Society for Protective Coatings and NACE International. The terms shall and must are used to state mandatory requirements. The term should is used to state something considered good and is recommended but is not mandatory. The term may is used to state something considered optional.

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² NACE International, 15835 Park Ten Place, Houston, TX 77084-5145.

³ SSPC: The Society for Protective Coatings, 800 Trumbull Drive, Pittsburgh, PA 15205.

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