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Soluble Salt Testing Frequency and Locations on Previously Coated Surfaces

ABSTRACT

This NACE International standard designates where, how often, and the most likely places to test for the presence of surface soluble salts before application of a coating system. This standard establishes industry best practices for soluble salt testing frequencies and locations. It provides a consistent method of soluble salt testing for inclusion in written directions and specifications prepared by asset owners, engineers, consultants, coating contractors, inspectors, and others who are specifying allowable levels of surface soluble salts to prevent premature coating failures. This standard applies only to previously coated substrates and replacement substrate material, and does not include allowable limits of soluble salts.

KEYWORDS

abrasive blast cleaned, chalking, coating failure, coating system, flanges, flash rust, girth weld, NACE Publication 6G186, nonvisible contaminants, nonvisible salts, oxide, oxidization, pipelines, salt contaminants, soluble salts, testing frequencies, TG 518 weld.

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Foreword

In NACE standards, the terms shall, must, should, and may are used in accordance with the definitions of these terms in the NACE Publications Style Manual. The terms shall and must are used to state a requirement, and are considered mandatory. The term should is used to state something good and is recommended, but is not considered mandatory. The term may is used to state something considered optional.

This NACE International standard designates where, how often, and the most likely places to test for the presence of soluble salts. Asset owners, engineers, consultants, coating contractors, inspectors and others are specifying allowable levels of surface soluble salts to prevent premature coating failures.

This standard reflects an industry consensus for establishing best practices. This standard provides consistency to allow the inclusion of soluble salt testing in written directions and specifications. It provides requirements for all parties in an effort to increase consistency and reduce subjective interpretation.

This standard was prepared in 2016 by Task Group (TG) 518, "Soluble Salt Testing Frequency and Locations on Previously Coated Surfaces." This task group is administered by NACE Specific Technology Group (STG) 04, "Protective Coatings and Linings—Surface Preparation." This standard is issued by NACE under the auspices of STG 04.

Soluble Salt Testing Frequency and Locations on Previously Coated Surfaces

Section 1: General

1.1 The purpose of this standard is to establish requirements for soluble salt testing frequencies and locations before application of a coating system. This standard applies only to previously coated substrates and replacement substrate material, and does not include allowable limits of soluble salts. See procurement documents or coating manufacturer's documentation for allowable limits of soluble salts. This standard includes visible indicators to identify the most likely locations of soluble salts.[1] All surfaces to be coated shall be tested as defined in this standard. See Appendix A (nonmandatory) for supplemental information.

1.2 In the coatings and linings industry, the terms soluble salt, salt contaminants, nonvisible salts, and nonvisible contaminants are used interchangeably. Commonly used field test methods are described in SSPC[(1)]-Guide 15.[2]

1.3 Soluble salts usually are not visible to the naked eye, but there are many visible indicators of their presence. Unusual or unexplained rust patterns and nonuniform rusting suggests a high probability of the presence of soluble salts. Salt contaminated areas usually take on a darker or black appearance. (See Section 3 for locations.)

Section 2: Frequency of Tests

2.1 Each element of the structure shall be considered a separate area, which can impact the frequency of tests. Tests shall be performed in locations as described in Section 3. The frequency requirements are described in the following paragraphs:

2.1.1 Perform five tests in the first 305 m^2 (1,000 ft^2) area. Two tests shall then be performed in the second 305 m^2 (1,000 ft^2) area, and then one test in every additional 305 m^2 (1,000 ft^2) area thereafter, unless otherwise specified in the procurement documents. If any test exceeds the specified limit, then that area is considered noncompliant. After decontamination procedures have been performed, the area shall be retested and the testing frequency shall start over.

2.1.2 For spot repairs, test frequency shall be one test per spot for the first five spots, then one test per five spots thereafter. If any test exceeds the specified limits, that spot is considered noncompliant. After decontamination procedures have been performed, the spot shall be retested. After any noncompliant tests, the next five spots shall be tested because the testing frequency starts over. The term "spot" shall be defined in the procurement documents.

2.1.3 Spot repairs on pipelines, (e.g., girth weld repair). Tests shall be at locations as described in Section 3. If there are no visible indicators, then tests shall be performed between the 4 o'clock and the 8 o'clock positions. If any test exceeds the specified limit, then that area is considered noncompliant. After decontamination procedures have been performed, the area shall be retested.

2.1.3.1 One test per weld for pipe up to 0.30 m (12 in) in diameter

2.1.3.2 Two tests per weld for pipe up to 0.60 m (24 in) in diameter

2.1.3.3 Three tests per weld for pipe 0.60 m and more (24 in) and above

[(1)]SSPC: The Society for Protective Coatings, 800 Trumbull Drive, Pittsburgh, PA 15205.