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Item No. 21197

Standard Practice

SSPC Surface Preparation Standard
NACE WAB-2/SSPC-SP 10 (WAB)
Near-White Metal Wet Abrasive Blast Cleaning

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Foreword

This NACE/SSPC joint standard defines the process for preparing a carbon steel surface to the Near-White Metal degree of surface cleanliness using a wet abrasive blast (WAB) method of cleaning. This standard is intended for use by coating or lining specifiers, applicators, inspectors, or others whose responsibility is to define a standard degree of surface cleanliness for carbon steel surfaces to be achieved by wet abrasive blast cleaning.

Degree of Surface Cleanliness	Designation
White Metal WAB	**NACE WAB-1/SSPC-SP 5 (WAB)[1]**
Near-White Metal WAB	**NACE WAB-2/SSPC-SP 10 (WAB)**
Commercial WAB	**NACE WAB-3/SSPC-SP 6 (WAB)[2]**
Industrial WAB	**NACE WAB-8/SSPC-SP 14 (WAB)[3]**
Brush-Off WAB	**NACE WAB-4/SSPC-SP 7 (WAB)[4]**

WAB cleaning is a process using a mixture of water and abrasive that can produce various levels of surface cleanliness and surface profile (roughness) similar to those obtained with dry abrasive blast (DAB) cleaning. WAB cleaning may be specified when dust suppression is desired, and may also be a means for reducing soluble salt contamination. The WAB cleanliness level specified should be the same as the corresponding degree of cleaning specified if DAB cleaning were the process being used.

The focus of this standard is Near-White Metal WAB cleaning. The five degrees of WAB cleaning are as follows:

Near-White Metal WAB cleaning provides a greater degree of cleaning than Commercial WAB cleaning (NACE WAB-3/SSPC-SP 6 [WAB]) but less than White Metal WAB cleaning (NACE WAB 1/SSPC- SP 5 [WAB]).

Near-White Metal WAB cleaning is used when the objective is to remove all rust and other corrosion product, coating, and mill scale, but when the extra effort required to remove all stains of these materials is determined to be unwarranted.

Near-White Metal WAB cleaning allows staining on no more than 5% of each unit area of surface, while commercial WAB cleaning allows staining on no more than 33% of each unit area of surface. White Metal WAB cleaning does not permit any staining to remain on the surface.

This standard references the three levels of flash rust as defined in the NACE/SSPC joint standards for waterjetting (see Paragraph 3.1 in this standard).[5-8] Nonmandatory Appendixes A, B, and C offer additional information regarding flash rust.

Steel surfaces prepared by WAB cleaning can develop flash rust within minutes after the cleaning is completed. The project specification often contains requirements for the permissible level of flash rust before coating application (Additional information is provided in Appendix A, Paragraph A1 and Appendix C.)

This standard was prepared in 2015 by NACE/SSPC Joint Task Group (TG) 350A "Surface Preparation by Wet Abrasive Blast Cleaning." TG 350A is administered by NACE Specific Technology Group (STG) 04, "Coatings and Linings, Protective: Surface Preparation"; and SSPC C.2 Surface Preparation Group Committee. This joint standard is issued by NACE/SSPC under the auspices of NACE STG 04 and SSPC C.2. This standard is one of a set of five standards on the degrees of surface cleanliness to be achieved by WAB cleaning.

In NACE/SSPC standards, the terms *shall, must, should,* and *may* are used in accordance with the definitions of these terms in the *NACE/SSPC Joint Publications Style Manual*, Paragraph 2.2.1.8. *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.

Joint NACE Standard Practice/SSPC Surface Preparation Standard
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Section 1: General

1.1 A WAB-cleaned surface is one prepared by combining water and abrasive in a blast cleaning operation by one of several methods, including 1) injection of water into the abrasive stream either internally or externally as the abrasive stream exits the blast nozzle; 2) injection of abrasive into pressurized water; or 3) use of an abrasive slurry under pressure to achieve the specified WAB degree of cleanliness.

1.2 This standard defines the Near-White Metal Wet Abrasive Blast Cleaning (NACE WAB-2/SSPC-SP 10 [WAB]) degree of visible surface cleanliness of uncoated or coated steel surfaces achieved by the use of wet abrasive blast cleaning. The requirements include the end condition of the surface as determined by visual inspection, and materials and procedures used to achieve and verify the end condition.

1.3 This standard is limited to requirements for visible surface contaminants. Additional information on nonvisible contamination is provided in Paragraph A2 of Appendix A. Additional information on soluble salt testing is provided in SSPC-Guide 15.[9]

1.4 Information about the function of WAB cleaning is provided in Paragraph A3 of Appendix A.

1.5 Information about use of this standard in maintenance coating work is provided in Paragraph A4 of Appendix A.

Section 2: Definition

2.1 Near-White Metal WAB Surface: A near-white metal WAB-cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, corrosion products, and other foreign matter. Random staining shall be limited to no more than 5% of each unit area of the surface (approximately 5,000 mm^2 [9.0 in^2]; i.e., a square 76 mm x 76 mm [3.0 in x 3.0 in]), and may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied coating.

Section 3: Additional Technical Considerations

3.1 Flash Rust: Flash rust is an oxidation product that forms as a wetted carbon steel substrate dries. Flash rust is an additional consideration when a carbon steel substrate is subjected to WAB cleaning. Additional information is provided in Section 8. Degrees of flash rust may be qualitatively described as follows:

3.1.1 No flash rust: A carbon steel surface that, when viewed without magnification, exhibits no visible flash rust.

3.1.2 Light (L) flash rusted surface: A carbon steel surface that, when viewed without magnification, exhibits small quantities of a rust layer through which the carbon steel substrate may be observed. The rust or discoloration may be evenly distributed or present in patches, but it is tightly adherent and not easily removed by lightly wiping with a cloth. (Table C1 in Appendix C provides flash rust evaluation criteria if the tape pull test is specified for assessing the degree of flash rust.)

3.1.3 Moderate (M) flash rusted surface: A carbon steel surface that, when viewed without magnification, exhibits a layer of rust that obscures the original carbon steel surface. The rust layer may be evenly distributed or present in patches, but it is reasonably well adherent and leaves light marks on a cloth that is lightly wiped over the surface. (Table C1 Appendix C provides flash rust evaluation criteria if the tape pull test is specified for assessing the degree of flash rust.)

3.1.4 Heavy (H) flash rusted surface: A carbon steel surface that, when viewed without magnification, exhibits a layer of heavy rust that hides the original carbon steel surface completely. The rust may be evenly distributed or present in patches, but it is loosely adherent, easily comes off, and leaves significant marks on a cloth that is lightly wiped over the surface. (Table C1 Appendix C, provides flash rust evaluation criteria if the tape pull test is specified for assessing the degree of flash rust.)

3.1.5 Additional information is provided in Paragraphs A3, A5, A6, and A7 of Appendix A. Additional information on methods of assessing the degree of flash rust is provided in Appendix C.