SHERWIN-WILLIAMS.

Coating System Specification	
Date:	06/05/2019
System:	Epoxy / Polysiloxane / Polysiloxane
Prepared for:	City of LaGrange
Attention:	Mr. Jason Clifton Water Division Superintendent
Prepared By:	Richard Pickering Sr. Protective Coatings Specialist
Area or Equipment:	Area 69 Pipe Gallery / Walls / Handrails and Walkway

Surface Preparation: All surfaces to be coated shall be clean, dry and in sound condition. Remove all oil, dust, grease, dirt, loose rust and other foreign material to ensure adequate adhesion. Remove all oil and grease by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Brush-Off Wet Abrasive Blast Cleaning per SSPC-SP 7 (WAB)/NACE WAB-4. Primer coat shall be applied after blasting and the substrate is blown down with clean air and substrate free of any contaminants/bond breakers.

CT	Product Name	Volume Solids	Recommended DFT Range		Theoretical Coverage per SF/Gal.
			Min	Max	
1.	**Macropoxy 920 PrePrime** (B58T101/B58V10)	**100%**	**1.5**	**2.0**	**See product data sheets**
2.	**Sher-Loxane 800** (B80-500/B80V500)	**90%**	**4.0**	**6.0**	**See product data sheets**
3.	**Sher-Loxane 800** (B80-500/B80V500)	**90%**	**4.0**	**4.0**	**See product data sheets**

Additional Notes:

1) **Please review Product Data Sheets and SDS for additional information that may be required.**
2) **Special care shall be taken to follow all minimum/maximum recoat windows for all specified products.**
3) **Please consult with the City of LaGrange project engineer/manager for finish coat color.**

SSPC: The Society for Protective Coatings/NACE International

Joint SSPC Surface Preparation Standard/ NACE Standard Practice

SSPC-SP 7 (WAB)/NACE WAB-4
Brush-Off Wet Abrasive Blast Cleaning

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FOREWORD

This SSPC/NACE joint standard defines the process for preparing a carbon steel surface to the Brush-Off 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.

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 Brush-Off WAB cleaning. The five degrees of WAB cleaning are as follows:

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

Brush-off WAB cleaning provides a lesser degree of cleaning than Industrial WAB cleaning SSPC-SP 14 (WAB)/ NACE WAB-8.

The difference between a Brush-Off WAB cleaning and an Industrial WAB cleaning is that the objective of a Brush-Off WAB cleaning is to allow as much of an existing tightly adherent coating to remain as possible and to roughen the surface prior to coating application. Industrial WAB Cleaning allows tightly adherent paint, mill scale and rust to remain on no more than 10% of each unit area of surface.

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

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 Paragraph A1 in Appendix A and in Appendix C.

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

In SSPC/NACE standards, the terms *shall, must, should,* and *may* are used in accordance with the definitions of these terms in the *SSPC/NACE 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.

1. GENERAL

1.1 A wet abrasive blast-cleaned (WAB) 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 Brush-Off Wet Abrasive Blast Cleaning (SSPC-SP 7 [WAB]/NACE WAB-4]) 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 found 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.

2. DEFINITION

2.1 BRUSH-OFF WAB CLEANED SURFACE: A brush-off WAB cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose coating. Tightly adherent mill scale, rust, and coating may remain on the surface. Mill scale, rust, and coating are considered tightly adherent if they cannot be removed by lifting with a dull putty knife after abrasive blast cleaning has been performed.

2.1.1 The entire surface shall be subjected to the wet abrasive blast. The remaining mill scale, rust, or coating shall be tight. Flecks of the underlying steel need not be exposed whenever the original substrate consists of intact coating.

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 in 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 in 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.

3.1.6 NOTE: When performing the wipe test mentioned in Paragraphs 3.1.2, 3.1.3, and 3.1.4 and described in Paragraph C2 of Appendix C, the angular profile that results from surface preparation using WAB cleaning can pull lint from a cloth. The pressure sensitive tape pull test, which is an alternate technique for determining the level of flash rust that does not involve cloth and will not deposit lint on a WAB-cleaned surface, is described in Appendix C.

3.2 APPEARANCE VARIATIONS

3.2.1 Acceptable variations in appearance that do not affect the degree of surface cleanliness defined in Paragraph 2.1 include variations caused by composition of the metallic substrate, original surface condition, thickness of the metal, weld metal, mill or fabrication marks, heat treating, heat-affected zones, and differences resulting from the abrasive blast pattern.

3.2.2 The visual appearance of WAB-cleaned surfaces is not necessarily the same as the visual appearance of DAB cleaned surfaces. Visual guides or reference photographs, such as SSPC-VIS 1, prepared as a guide to the amount of material or staining allowed to remain on the cleaned surface for the various degrees of DAB cleaning, do not depict the appearance of the flash rust that often occurs with WAB cleaning.[10] Visual guides or reference photographs prepared for DAB cleaned surfaces must not be used as inspection or judgment criteria for WAB-cleaned surfaces. Direct correlation to existing dry abrasive blasting standards and visual comparators may be inaccurate, inappropriate, or both.

3.3 SSPC-VIS 5/NACE VIS-9 or other visual guide or comparator may be specified to supplement the written definition.[11] In any dispute, the written standard shall take precedence over the visual guide or comparator. Additional information is provided in Paragraph A6 of Appendix A and in Appendix B.

4. ASSOCIATED DOCUMENTS

4.1 Documents cited in the mandatory sections of this standard include:

Document	Title
SSPC-AB 1[12]	Mineral and Slag Abrasives
SSPC-SP 1[13]	Solvent Cleaning
ASTM[(1)] D4285[14]	Method for Indicating the Presence of Oil or Water in Compressed Air

[1]4.2 The latest issue, revision, or amendment of the documents listed in Paragraph 4.1 in effect on the date of invitation to bid shall govern unless otherwise specified.

4.3 If there is a conflict between the requirements of any of the documents listed in Paragraph 4.1 and this standard, the requirements of this standard shall prevail.

5. PROCEDURES BEFORE WET ABRASIVE BLAST CLEANING

5.1 PRECLEANING: Visible deposits of oil, grease, or other contaminants shall be removed in accordance with SSPC-SP 1 or as specified. Additional information about nonvisible contaminants is provided in Paragraph A2 of Appendix A.

5.2 Before beginning WAB cleaning, surface imperfections such as sharp edges, weld spatter, or burning slag shall be removed from the surface to the extent required by the procurement documents (project specification). Additional information is provided in Paragraph A8 of Appendix A.

5.3 If a visual guide or reference photographs are specified to supplement the written standard, the condition of the steel before WAB cleaning should be determined before the WAB

[(1)]ASTM International (ASTM), 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.

cleaning commences. Additional information about reference photographs and comparators is provided in Paragraph A6 of Appendix A.

6. WET ABRASIVE BLAST CLEANING METHODS

6.1 Any of the following WAB cleaning methods can be used to achieve the SSPC-SP 7 (WAB)/NACE WAB-4, Brush-Off degree of cleanliness. SSPC-TR 2/NACE Publication 6G198[15] provides detail about WAB cleaning equipment, nozzles, flow rates, and operating pressures. Hazardous materials may be present. Additional information is provided in Paragraph A9 of Appendix A.

6.1.1 Pressurized-air systems that use conventional dry abrasive blasting equipment and add water. Oil-free compressed air shall be used for WAB systems. Cleanliness of the compressed air shall be verified in accordance with the procedure described in ASTM D4285.

6.1.2 Systems that use conventional waterjetting equipment and add abrasive.

6.1.3 Pressurized water abrasive blasting (slurry blasting) systems that accelerate a water/abrasive mixture.

7. WET ABRASIVE BLAST CLEANING MATERIALS

7.1 During selection of the abrasive, the size and type shall be based on the type, grade, and surface condition of the steel to be cleaned, the type of blast cleaning system used, the finished surface to be produced, and cleanliness and surface profile (roughness).

7.2 The WAB cleaning abrasive shall be free of oil, grease, and other contaminants as determined by the test methods in SSPC-AB 1, or as required by the procurement documents (project specification).

7.3 The abrasive must comply with any additional specified requirements or limitations. Additional information on abrasive selection is provided in Paragraph A10 of Appendix A

7.4 When a coating is specified, the selected abrasive shall roughen the cleaned surface to produce the surface profile specified in the procurement documents (project specification). If the surface profile is not specified in the procurement documents (project specification), the selected abrasive shall roughen the cleaned surface to the degree required by the product data sheet for the coating to be applied. Additional information on surface profile and the film thickness of the coating applied over the surface profile is provided in Paragraphs A11 and A12 of Appendix A.

7.5 SURFACE PREPARATION WATER (SP WATER): Water of sufficient purity and quality that it does not prevent the surface being cleaned from achieving the specified degree of surface cleanliness or nonvisible contaminant criteria if contained in the procurement documents (project specification). SP water should not contain sediments or other impurities that are destructive to the proper functioning of the cleaning equipment. Additional information is provided in Paragraph A13 of Appendix A.

8. PROCEDURES FOLLOWING WET ABRASIVE BLAST CLEANING AND IMMEDIATELY BEFORE COATING

8.1 Visible deposits of oil, grease, or other contaminants shall be removed in accordance with SSPC-SP 1 or as specified. Additional information is provided in Paragraphs A1, A2.6, and A2.7 of Appendix A.

8.2 Immediately before coating application, the entire surface to be coated shall comply with the degree of cleanliness defined by this standard and the level of flash rust specified in the procurement documents (project specification). Information on rust-back (re-rusting) and the effect of dew point (surface condensation) is provided in Paragraphs A15 and A16 of Appendix A.

8.3 Flash rust shall be mitigated in accordance with the requirements of the procurement documents (project specification). An example of a specification statement is provided in Paragraph A5.1 of Appendix A. It is common practice to remove heavy flash rust by low-pressure water cleaning (LP WC), high-pressure water cleaning (HP WC), or dry abrasive sweep blasting.

8.4 Wetted abrasives stick to the surface and lengthen the time of drying. The key to the amount of flash rust that forms on a surface is the length of time the surface remains wet and the quality of the water being used. The wet abrasive should be physically removed as soon after blast cleaning as feasible, before the surface and abrasive have dried. Wet abrasive is typically removed by pressure washing.

8.5 Dust and loose residues shall be removed from cleaned surfaces by brushing; blowing off with clean, dry compressed air; vacuum cleaning; or other specified methods. Additional information is provided in Paragraph A14 of Appendix A. Moisture separators, oil separators, traps, or other equipment may be necessary to achieve this requirement. Cleanliness of the compressed air must be verified in accordance with the procedure described in ASTM D4285.

8.6 If dust and loose residues are removed by wet methods, drying the surface as quickly as possible after removal may be necessary to meet the level of flash rust found in the requirements of the procurement documents (project specification.) Additional information is provided in Paragraph B2 of Appendix B.

8.7 After WAB cleaning, any remaining surface imperfections (e.g., sharp edges, weld spatter, burning slag, scabs, slivers) shall be removed to the extent required in the procurement documents (project specification). After removal

of surface imperfections, the surface shall be reprofiled to meet the requirements of the procurement documents (project specification). Additional information on surface imperfections is provided in Paragraph A8 of Appendix A.

REFERENCES

1. SSPC-SP 5 (WAB)/NACE WAB-1 (latest revision), "White Metal Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

2. SSPC-SP 10 (WAB)/NACE WAB-2 (latest revision), "Near-White Metal Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

3. SSPC-SP 6 (WAB)/NACE WAB-3 (latest revision), "Commercial Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

4. SSPC-SP 14 (WAB)/NACE WAB-8 (latest revision), "Industrial Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

5. SSPC-SP WJ-1/NACE WJ-1 (latest revision), "Waterjet Cleaning of Metals—Cleaning to Bare Substrate" (latest revision), (Pittsburgh, PA: SSPC and Houston, TX: NACE).

6. SSPC-SP WJ-2/NACE WJ-2 (latest revision), "Waterjet Cleaning of Metals—Very Thorough Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

7. SSPC-SP WJ-3/NACE WJ-3 (latest revision), "Waterjet Cleaning of Metals—Thorough Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

8. SSPC-SP WJ-4/NACE WJ-4 (latest revision), "Waterjet Cleaning of Metals—Light Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

9. SSPC-Guide 15 (latest revision), "Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates" (Pittsburgh, PA: SSPC).

10. SSPC-VIS 1 (latest edition), "Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC).

11. SSPC-VIS 5/NACE VIS 9 (latest revision), "Guide and Reference Photographs for Steel Surfaces Cleaned by Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

12. SSPC-AB 1 (latest revision), "Mineral and Slag Abrasives" (Pittsburgh, PA: SSPC).

13. SSPC-SP 1 (latest revision), "Solvent Cleaning" (Pittsburgh, PA: SSPC).

14. ASTM D4285 (latest revision), "Standard Test Method for Indicating Oil or Water in Compressed Air" (West Conshohocken, PA: ASTM)

15. SSPC-TR 2/NACE Publication 6G198 (latest revision), "Wet Abrasive Blast Cleaning" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

16. NACE Publication 6G186 (latest revision), "Surface Preparation of Soluble Salt Contaminated Steel Substrates Prior to Coating" (Houston, TX: NACE).

17. SSPC-PA Guide 4 (latest revision), "Guide to Maintenance Repainting with Oil Base or Alkyd Painting Systems" (Pittsburgh, PA: SSPC).

18. SSPC-VIS 4/NACE VIS 7 (latest revision), "Guide and Visual Reference Photographs for Steel Cleaned by Waterjetting" (Pittsburgh, PA: SSPC and Houston, TX: NACE).

19. SSPC-SP COM (latest revision), "Surface Preparation Commentary for Steel and Concrete Substrates" (Pittsburgh, PA: SSPC).

20. NACE SP0178 (latest revision), "Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service" (Houston, TX: NACE).

21. ASTM D4417 (latest revision), "Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel" (West Conshohocken, PA: ASTM).

22. ASTM D7127 (latest revision), "Standard Test Method for Measurement of Surface Roughness of Abrasive Blast Cleaned Metal Surfaces Using a Portable Stylus Instrument" (West Conshohocken, PA: ASTM).

23. SSPC-PA 2 (latest revision), "Procedure for Determining Conformance to Dry Coating Thickness Requirements" (Pittsburgh, PA: SSPC).

24. Recommended Guidelines for Evaluating Flash Rust (Charleston, SC: National Shipbuilding Research Program[2] [NSRP], 2009) (Available from SSPC and NACE).

25 ISO 8502-3 (latest revision), "Preparation of steel substrates before application of paints and related products—Tests for the assessment of surface cleanliness—Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)" (Geneva, Switzerland: ISO).

[2] National Shipbuilding Research Program (NSRP), Advanced Technology International (ATI), 5300 International Blvd., Charleston, SC 29418-6937.

26. ASTM D3359 (latest revision), “Standard Test Methods for Measuring Adhesion by Tape Test” (West Conshohocken, PA: ASTM).

APPENDIX A
EXPLANATORY NOTES
(NONMANDATORY)

This appendix is considered nonmandatory, although it may contain mandatory language. It is intended only to provide supplementary information or guidance. The user of this standard is not required to follow, but may choose to follow, any or all of the provisions herein.

A1 FLASH RUST: An oxidation product that forms as a wetted carbon steel substrate dries. With the exception of stainless steel surfaces, any steel surface may show flash rust within 30 minutes or longer while the substrate is drying (water evaporation) after WAB cleaning, depending on environmental conditions. Flash rust has the appearance of rust bloom. Flash rust quickly changes the appearance of the WAB-cleaned surface and may be reduced or eliminated by physical or chemical methods. The color of the flash rust may vary depending on the age and composition of the steel and the time-of-wetness of the substrate before drying. With time, the flash rust changes from a yellow-brown, well adherent, light rust to a red-brown, loosely adherent, heavy rust. Additional information on methods of assessing the degree of flash rust is provided in Appendix C.

A2 NONVISIBLE CONTAMINATION (NV)

A2.1 Nonvisible contamination (NV) is the presence of organic matter, such as thin films of oil and grease, and inorganic and/or soluble ionic materials such as chlorides, ferrous salts, nitrates, or sulfates that may be present on the substrate.

A2.2 Steel contaminated with water-soluble salts (e.g., sodium chloride and potassium sulfate) rapidly develops rust-back. Rust-back can be minimized by removing these salts from the steel surface and eliminating sources of recontamination during and after cleaning. These contaminants, along with their concentrations, may be identified using laboratory and field tests as described in SSPC-Guide 15. Information regarding methods commonly used in removal of these contaminants can be found in NACE Publication 6G186.[16]

A2.3 Other nonvisible contaminants (e.g., oil, acid, base, silicone, wax) may have an effect on coating performance. Coating manufacturers should be consulted for recommendations of maximum surface contamination allowed. The specifier should determine what level of nonvisible contaminants may remain.

A2.4 The test method or procedure to be used for determining the level of remaining nonvisible contaminants should be addressed in the procurement documents (project specification).

A2.5 The level of nonvisible contaminants found in an extraction from the surface that may remain on the surface is usually expressed as mass per unit area; for example, $\mu g/cm^2$ or mg/m^2 (1 $\mu g/cm^2$ = 10 mg/m^2).

A2.6 The following is an example specification for salt contamination based on concentration measurements:

> “Immediately before the application of the coating, the surface extract shall not contain more than xx $\mu g/cm^2$ of the specific contaminant (e.g., chloride) when tested in accordance with *[a specified method]*.”

A2.7 The following is an example specification for salt contamination based on conductivity measurements:

> “Immediately before the application of the coating, the conductivity of the surface extract shall not exceed xx $\mu S/cm$ when tested in accordance with *[a specified method]*.”

A3 FUNCTION

A3.1 WAB cleaning may be specified whenever DAB cleaning would be specified, except that dust suppression is desired. WAB cleaning can also be an effective means of reducing soluble salt contamination. This standard is intended to be used in conjunction with one of the DAB cleaning standards, which specify the degree of cleaning of rust, old coatings, mill scale, etc. The hierarchy of levels of cleanliness for surfaces prepared using wet abrasive blast cleaning is as follows: SSPC-SP 5 (WAB)/NACE WAB-1, “White Metal WAB Cleaning;” SSPC-SP 10 (WAB)/NACE WAB-2, “Near-White Metal WAB Cleaning;” SSPC-SP 6 (WAB)/NACE WAB-3, “Commercial WAB Cleaning”; SSPC-SP 14 (WAB)/NACE WAB-8, “Industrial WAB Cleaning;” and SSPC-SP 7 (WAB)/NACE WAB-4, “Brush-Off WAB Cleaning.” The primary functions of blast cleaning before coating application are:

(a) to remove material from the surface that can cause early failure of the coating system;

(b) to obtain a suitable surface profile (roughness) to enhance the adhesion of the new coating system; and

(c) to reduce or remove nonvisible contaminants.

A3.2 Brush-Off Wet Abrasive Blast Cleaning (NACE WAB-4/SSPC-SP 7 [WAB]), provides a lesser degree of cleaning than Industrial WAB Cleaning (SSPC-SP 14 [WAB]/NACE WAB-8). Brush-Off Wet Abrasive Blast Cleaning (SSPC-SP 7 [WAB]/NACE WAB-4) allows any tightly adherent materials that cannot be lifted with a dull putty knife to remain

on the surface. It should be used when the service environment is mild enough to permit tight mill scale, coating, rust, and other foreign matter to remain on the surface. White Metal Wet Abrasive Blast Cleaning (SSPC-SP 5 [WAB]/NACE WAB-1), removes all visible contaminants from the surface. Near-White Metal Wet Abrasive Blast Cleaning (SSPC-SP 10 [WAB]/NACE WAB-2), is used when the objective is to remove all visible contaminants from the surface, and allows random staining on no more than 5% of each unit area of surface. Commercial Wet Abrasive Blast Cleaning (SSPC-SP 6 [WAB]/NACE WAB-3) removes all visible contaminants from the surface and allows random staining on no more than 33% of each unit area of surface. Industrial Wet Abrasive Blast Cleaning (SSPC-SP 14 [WAB]/NACE WAB-8) allows traces of tightly adherent materials that cannot be lifted with a dull putty knife to remain on up to 10% of each unit area of surface.

A4 MAINTENANCE COATING WORK: When this standard is used in maintenance coating work, specific instructions should be provided on the extent of surface to be WAB-cleaned or spot-WAB cleaned to the specified degree of cleanliness. In these cases, the surface cleanliness should be achieved across the entire area specified. For example, if all weld seams are to be cleaned in a maintenance operation, the specified degree of cleanliness applies to 100% of all weld seams. If the entire structure is to be cleaned, the specified degree of cleanliness applies to 100% of the entire structure. SSPC-PA Guide 4 provides a description of accepted practices for retaining old, sound coating; removing unsound coating; feathering; and spot cleaning.[17]

A5 SPECIFICATION STATEMENT

A5.1 The specifier should use the degree of surface cleanliness and one of the degrees of flash rust to specify the required end condition. The following are examples of a specification statement:

> "All surfaces to be recoated shall be cleaned in accordance with SSPC-SP 7 (WAB) M/NACE WAB-4/M, Brush-Off Wet Abrasive Blast Cleaning, Moderate Flash Rust."

> "At the time of the recoating, the degree of flash rust shall be no greater than moderate (M)."

A5.2 In addition, the specifier should consider whether a surface should be cleaned as required to achieve a particular, not to exceed maximum, level of nonvisible contamination (NV) before recoating. Suggested specification statements for NV are given in Paragraphs A2.6 and A2.7 of Appendix A.

A6 REFERENCE PHOTOGRAPHS: SSPC-VIS 5/NACE VIS 9 provides color photographs for two grades of surface cleanliness: WAB-10 and WAB-6 and for two initial conditions of the steel (Conditions C and D). In addition, the series C WAB 10 is depicted with light, moderate, and heavy flash rust. Similarly, the series D WAB-6 is depicted with light, moderate, and heavy flash rust. An example of streaking appears in C WJ-3 L and C WJ-2 M of SSPC-VIS 4/NACE VIS 7.[18] Other available visual guides and reference photographs, including SSPC-VIS 1, are described in SSPC-SP COM.[19]

A7 USE OF CORROSION INHIBITORS OR ADDITIVES: The formation of visible rust can be temporarily delayed by adding corrosion inhibitors or other additives to the SP water or applying them to the surface immediately after WAB cleaning. The coatings manufacturer should be consulted to ensure that the proposed inhibitor or additive will not interfere with the performance of the coating system.

A8 SURFACE IMPERFECTIONS

A8.1 Surface imperfections that can cause premature coating failure are often present. Coatings tend to pull away from sharp edges and projections, leaving little or no coating to protect the underlying steel. Other features that are difficult to properly cover and protect include crevices, weld porosities, and laminations.

A8.2 Poorly adhering fabrication defects, such as weld slag residues, loose weld spatter, and surface laminations may be removed during the WAB cleaning operation. Other surface defects such as steel laminations, weld porosities, or deep corrosion pits may not be evident until the surface preparation has been completed. Therefore, advance planning for such surface repair work should be conducted because the timing of the repairs may occur before, during, or after the WAB cleaning operation. SSPC-SP COM and NACE SP0178[20] contain additional information on surface imperfections.

A8.3 The high cost of the methods to remedy surface imperfections (e.g., edge rounding and weld spatter removal) should be compared with the benefits of preventing premature coating failure and subsequent corrosion damage to the substrate. Therefore, those responsible for establishing the requirements and those responsible for performing the work should agree on the procedures to be used to repair surface imperfections to the extent required in the procurement documents (project specification).

A9 HAZARDOUS MATERIAL: The presence of hazardous material in the coatings, cleaning media, or in the work area itself can place restrictions on the methods of cleaning permitted. WAB cleaning is often used to remove coatings with hazardous components. Because the particles are wetted, respiratory protection requirements for WAB cleaning may be less stringent than for other methods of surface preparation. However, the wetted particles tend to stay on the skin. Applicable industrial hygiene tests should be performed to determine the disposition of the wetted particles. Sound industrial hygiene practices should be followed.

A10 ABRASIVE SELECTION

A10.1 Most WAB cleaning systems can use the same wide variety of abrasive as conventional dry abrasive blast

systems. Wet abrasive is more difficult to recycle than dry abrasive and in some cases, recycling of wet abrasive may prove impractical.

A10.2 Types of metallic and nonmetallic abrasive are discussed in SSPC-SP COM. Blasting abrasive may become embedded in, or leave residues on, the surface of the steel during cleaning. Although such embedment or residues normally are not detrimental, care should be taken to ensure that the abrasive is free from detrimental amounts of water-soluble, solvent-soluble, acid-soluble, or other soluble contaminants (particularly if the cleaned steel is to be used in an immersion environment). Increasing the abrasive particle size can reduce the accumulation of wet abrasive in corners and tight spots where the accumulation might prevent cleaning of the underlying substrate. Criteria for the selection and evaluation of abrasive are included in SSPC-AB 1.

A11 SURFACE PROFILE

A11.1 Surface profile is the roughness of the surface that results from abrasive blast cleaning. The profile height is dependent on the size, shape, type, and hardness of the abrasive, particle velocity and angle of impact, hardness of the surface, amount of abrasive recycling, and the proper maintenance of working mixtures of grit and/or shot.

A11.2 The allowable minimum/maximum height of profile is usually dependent on the thickness of the coating to be applied. Large particle-sized abrasive (particularly metallic) can produce a surface profile that may be too high to be covered adequately by a single thin-film coat. Accordingly, the use of larger abrasive should be avoided in these cases. However, larger abrasive may be needed to create a higher profile for thick-film coatings or to facilitate removal of thick coatings, heavy mill scale, or rust. If control of surface profile (minimum/maximum) is deemed to be significant to coating performance, it should be addressed in the procurement documents (project specification). Typical surface profile heights achieved with commercial abrasive are in Table 6 of SSPC-SP COM. The surface profile should be measured in accordance with ASTM D4417[21] or ASTM D7127.[22]

A12 FILM THICKNESS: It is essential that ample coating be applied after blast cleaning to adequately cover the peaks of the surface profile. The dry film thickness of the coating above the peaks of the surface profile should equal the thickness required for the desired protection. If the dry film thickness over the peaks is inadequate, premature rust-through or failure will occur. To ensure that coating thicknesses are properly measured, the procedures in SSPC-PA 2 for verification of accuracy of Type 1 and Type 2 dry film thickness gauges should be used.[23]

A13 QUALITY OF WATER: SP water used by WAB cleaning equipment should be clean and free of erosive silts or other contaminants that could damage pump valves and/or prevent the surface from achieving the specified degree of surface cleanliness. A general rule is the cleaner the water, the longer the service life of the WAB cleaning equipment. The use of deionized water may be detrimental to some water pumps and care should be taken to ensure compatibility. Better quality water usually generates less flash rust than a lesser quality water.

A14 ABRASIVE DUST CONTAMINATION: Wet abrasive can stick to tarpaulins, other enclosures, and their support structures. Once the wet abrasive dries, a fine dust forms that can be dislodged by wind or personnel working in the area, thus leading to contamination of the surface to be coated.

A15 RUST-BACK (RERUSTING): Dry steel contaminated with water-soluble salts (e.g., chlorides and sulfates) develops rust-back. Rust-back can be minimized by removing these salts from the steel surface and eliminating sources of recontamination during and after WAB cleaning. SSPC-Guide 15 describes field and laboratory tests for measuring total ion concentrations using conductivity methods, as well as methods for measuring concentrations of specific ionic contaminants. Information regarding methods commonly used in removal of these contaminants can be found in NACE Publication 6G186. Additional information is provided in Paragraphs A2.6 and A2.7 of Appendix A.

A16 DEW POINT: Moisture condenses on any surface that is colder than the dew point of the surrounding air. Therefore, the temperature of the steel surface should be at least 3 °C (5 °F) above the dew point during blast cleaning operations. It is advisable to visually inspect for moisture and periodically check the surface temperature and dew point before coating application, and to avoid the application of coating over a damp surface.

APPENDIX B: PROCEDURES AND PROCESS CONTROLS (NONMANDATORY)

This appendix is considered nonmandatory, although it may contain mandatory language. It is intended only to provide supplementary information or guidance. The user of this standard is not required to follow, but may choose to follow, any or all of the provisions herein.

It is often beneficial for those responsible for specifying the work, those responsible for inspecting the work, and those responsible for completing the work to agree on specific procedures and controls that describe the process that will be used on a project. These processes may include the following steps:

B1 WET ABRASIVE BLAST CLEANLINESS LEVEL: Immediately after completion of WAB cleaning of any section or area, use low-pressure water cleaning (LP WC) to remove any remaining abrasive residue from the surface. Immediately after removal of the abrasive residue, and before any rust has developed, inspect the surface to determine compliance with the WAB cleanliness level specified in the procurement documents (project specification). If the required WAB

cleanliness level has not been obtained, continue WAB cleaning until the surface meets the required cleanliness level.

B2 MINIMIZING FLASH RUST

B2.1 The key to the amount of flash rust that forms on the surface is the length of time the surface remains wet. Prevent water from pooling and air drying on the WAB-cleaned substrate. Towel, vacuum, or mop up any standing water to prevent deposition of additional soluble contaminants on the surface as the pool of water dries. Additional information is provided in Section 8 of this standard and Paragraph A13 of Appendix A.

B2.2 Ensure that the entire surface complies with the level of flash rust specified in the procurement documents (project specification) within two hours after the surface has dried.

B3 TREATMENT OF FLASH RUST LEVELS THAT EXCEED THE PROJECT-SPECIFIED LEVEL BEFORE COATING APPLICATION

B3.1 The current flash rust level descriptions include both a visual assessment and an assessment of the amount of loose rust dust on the surface (by the wipe test or tape test). It is possible for a surface to meet the visual criteria for a given level but exceed the permissible amount of loose rust dust for that level when evaluated by the wipe test or tape test.

B3.2 EXAMPLE: The project specification requirement may state, “At the time of recoating, the amount of flash rust shall be no greater than light (L).” A visual inspection reveals that the inspected surface exhibits small quantities of a rust layer through which the steel substrate may be observed (and therefore meets the [L] visual criterion for the amount of rust), but the rust is loose, and therefore does not meet the adherence criteria of (L). In such cases, it is common practice to remove the loose rust by brushing, blowing off with clean, dry air; vacuum cleaning, or low-pressure water cleaning to reduce the amount of loose rust to the (L) level. If wet methods are used, the surface should be dried as soon as possible to limit reformation of flash rust.

B3.3 If the inspected surface exhibits a layer of rust that completely obscures the original substrate (and therefore exceeds the maximum visual criterion for [L]), it is common practice to remove the excessive rust by dry abrasive sweep blasting, low-pressure water cleaning, or high-pressure water cleaning to reduce the amount of rust to the (L) level. If wet methods are used, the surface should be dried as soon as possible to limit reformation of flash rust. *Recommended Guidelines for Evaluating Flash Rust*, issued by the NSRP, illustrates the appearance after recleaning with LP WC.[24] Additional information is provided in Paragraph C2 of Appendix C.

B3.4 After recleaning by LP WC or HP WC to mitigate flash rust, the steel surface visible through the flash rust will have a different appearance from the flash-rusted steel depicted in SSPC-VIS 4/NACE VIS 7 that has not been recleaned.

APPENDIX C: METHODS OF ASSESSING THE DEGREE OF FLASH RUST (NONMANDATORY)

This appendix is considered nonmandatory, although it may contain mandatory language. It is intended only to provide supplementary information or guidance. The user of this standard is not required to follow, but may choose to follow, any or all of the provisions herein.

The degree of flash rust is related to the quantity of loose, clean rust dust that is present on the surface. The tape pull test for flash rust is a technique that avoids lint deposition. The tapes on the page provide a permanent record. The wipe test described in Paragraph C2 is an alternative test for determining the degree of flash rust, but can leave lint residue on a WAB-cleaned surface.

C1 TAPE PULL TEST

The tape pull test is a modification of the pressure-sensitive tape method described in ISO 8502-3.[25] The procedure is as follows:

(a) Select a test area on the flash-rusted surface to perform the test.

TABLE C1
ASSESSMENT OF DEGREE OF FLASH RUST—TAPE PULL TEST

Degree of Flash Rust	Appearance of 10th Tape (after final pull from test area)	Appearance of Test Area (after 10th tape pull)
Light	No rust on tape	No change, or only slight change in test area appearance
Moderate	Slight, localized red-brown rust on tape	Significant change of test area appearance, showing localized areas of black rust
Heavy	Significant, uniform red-brown rust on tape, also showing grains of black rust	Significant change of test area appearance, showing localized areas of black rust

(b) Place a 50-mm (2-in) long piece of tape (as specified in ASTM D3359[26]) on the selected test area and rub it thoroughly with a fingertip (not a fingernail) or other means that assures a constant pressure, to ensure that the tape adheres firmly. Then peel the tape off of the surface and place it on a piece of white paper for reference.

(c) Repeat the procedure in (b) nine times (for a total of 10 times) using a fresh piece of tape applied to the same spot on the surface (selected test area) each time.

(d) Assess the appearance of the 10th tape and the appearance of the test area on the flash-rusted surface after the 10th tape is pulled off in accordance with Table C1.

C2 WIPE TEST

The following procedure is suggested to standardize the amount of pressure used to perform a wipe test on a flash-rusted surface:

(a) Neatly wrap a white, lint-free, woven cloth around a standard 100-mm (4-in) nylon bristle paint brush, and hold the cloth in place in a manner that prevents it from slipping.

(b) Swipe the cloth-wrapped paint brush across the flash-rusted surface in one motion, using pressure equivalent to that used to apply house paint to a door. The length of the swipe should be consistent (e.g., one pass covering 150 mm [6 in] in length).

(c) Remove the white cloth from the paint brush and evaluate the color and amount of rust on the cloth. Guidance for performing the evaluation of flash rust is provided in *Recommended Guidelines for Evaluating Flash Rust,* issued by the NSRP, available from SSPC and NACE.

Protective & Marine Coatings

MACROPOXY® 920 PRE-PRIME
PENETRATING EPOXY PRE-PRIMER

PART A B58T101 — **TRANSPARENT**
PART B B58V10 — **HARDENER**

Revised: May 28, 2019

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

MACROPOXY 920 PRE-PRIME is a 100% solids, penetrating epoxy primer designed for use over marginally prepared steel or concrete surfaces.

- A penetrating sealer for tight rusted surfaces
- A penetrating sealer for concrete and masonry surfaces
- Low viscosity
- Barrier coat for hot solvent topcoats

PRODUCT CHARACTERISTICS

Finish: Medium Sheen

Color: Transparent

Volume Solids: 100%, calculated, mixed
70%, ASTM D2697,
(Helium Pycnometer)

VOC (EPA Method 24): <340 g/L; 2.8 lb/gal, mixed

Mix Ratio: 2 components, 3:1 ratio

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**1.5** (40)	**2.0** (50)
Dry mils (microns)	**1.5** (40)	**2.0** (50)
~Coverage sq ft/gal (m^2/L)		
Steel	**800** (19.6)	**1050** (25.7)
Concrete	**400** (9.8)	**500** (13.0)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1600** (39.2)	

Drying Schedule @ 2.0 mils wet (50 microns):

	@ 40°F/4.5°C	@ 77°F/25°C *50% RH*	@ 120°F/49°C
To touch:	18 hours	9.5 hours	7 hours
Tack-free:	32 hours	17 hours	14 hours
To recoat:			
minimum:	36 hours	12 hours	12 hours
maximum:	30 days	30 days	30 days
Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	8-10 hours	4 hours	3-4 hours
Sweat-in-Time:		None required	

Shelf Life: 12 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C).

Flash Point: 152°F (67°C), PMCC, mixed

Reducer: Not recommended

Clean Up: Reducer #54, R7K54

RECOMMENDED USES

For use as a primer / sealer over prepared steel or concrete surfaces.

- Petrochem exploration and offshore platforms
- Over white rusted and zinc rich coatings
- Chalky surfaces in atmospheric conditions
- Industrial applications
- Marine applications
- Over marginally prepared steel when abrasive cleaning is not possible
- Suitable for use in USDA inspected facilities
- Nuclear Power Plants
- DOE Nuclear Fuel Facilities
- Nuclear fabrication shops
- DOE Nuclear Weapons Facilities
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.

* Nuclear qualifications are NRC license specific to the facility.

PERFORMANCE CHARACTERISTICS

- Designed for industrial and marine environments
- Penetrates existing, tightly adhered rust to provide a "tight" substrate prior to subsequent coats
- Can also be used as a high performance primer/sealer for masonry surfaces
- Not for immersion service
- Dry heat resistance up to 200°F (93°C)

Test Name	Test Method	Results
Critical Radiant Flux*	NFPA 253	1.02 W/cm^2
Surface Burning**	ASTM E84/NFPA 255	Flame Spread Index 15; Smoke Development Index 55
Surface Burning***	ASTM E84/NFPA 255	Flame Spread Index 20; Smoke Development Index 85

*System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1 mil (25 microns) dft
Cor-Cote HP Epoxy @ 51 mils (1,275 microns) dft

**System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1.1 mils (27.5 microns) dft
Macropoxy 646 @ 19.8 mils (495 microns) dft

***System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1.2 mils (30 microns) dft
Phenicon HS Epoxy Phenolic @ 18.8 mils (470 microns) dft

Epoxy coatings may darken or yellow following application and curing.

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Protective & Marine Coatings

MACROPOXY® 920 PRE-PRIME
PENETRATING EPOXY PRE-PRIMER

PART A B58T101 **TRANSPARENT**
PART B B58V10 **HARDENER**

Revised: May 28, 2019

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Steel:			
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)
2 cts.	Macropoxy HS	3.0-6.0	(75-150)
Steel, zinc rich primer:			
1 ct.	Zinc Clad IV	3.0-5.0	(75-125)
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)
1 ct.	Macropoxy HS	3.0-6.0	(75-150)
1 ct.	Acrolon 218 HS Acrylic Polyurethane	3.0-6.0	(75-150)
Masonry and Concrete:			
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)
1-2 cts.	Tile-Clad Hi-Solids	2.5-4.0	(63-100)
Previously Painted Surfaces:			
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)

Acceptable topcoats:
- Acrolon 218 HS
- Pro Industrial DTM Acrylic
- Epo-Plex Multi-Mil Epoxy
- Hi-Solids Polyurethane
- Macropoxy 646
- Macropoxy HS
- Polysiloxane XLE-80
- Sher-Cryl HPA
- Tile-Clad HS

FIRETEX M89/02, M90, M90/02, and M93/02:

Steel Substrates being primed for FIRETEX only:			
1 ct.	Zinc Clad IV	3.0-5.0	(75-125)
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)
Steel Substrates being primed for FIRETEX only:			
1 ct.	Zinc Clad II	2.0-4.0	(50-100)
1 ct.	Macropoxy 920 Pre-Prime	1.5-2.0	(40-50)

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel:	SSPC-SP2
Masonry / Concrete:	SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
Previously Painted:	SSPC-SP1

Surface Preparation Standards

Condition of Surface		ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

May be shaded with up to 2 oz of Maxitoner Colorants per gallon. Not controlled for tint strength.

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:

Part A: 3 quarts (2.8L) in a 1 gallon (3.78L) container
3 gallons (11.3L) in a 5 gallon (18.9L) container

Part B: 1 quart (0.94L) and 1 gallon (3.78L)
1 gallon (3.78L) and 4 gallons (15.1L) mixed

Weight: 8.47 ± 0.2 lb/gal ; 1.0 Kg/L, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

MACROPOXY® 920 PRE-PRIME
PENETRATING EPOXY PRE-PRIMER

PART A B58T101 **TRANSPARENT**
PART B B58V10 **HARDENER**

Revised: May 28, 2019

APPLICATION BULLETIN

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SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel
Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1.0-2.0 mils / 25-50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910.

Follow the standard methods listed below when applicable:
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Previously Painted Surfaces:
If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this products attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer .....Not recommended

Clean-Up .....Reducer #54, R7K54

Airless Spray (see note on next page)
Pressure.....2200 - 2500 psi
Hose.....1/4" ID
Tip .....015"
Filter.....60 mesh

Conventional Spray
Gun .....Binks 95
Tip 66
Cap .....63 PB
Atomization Pressure.....50 psi
Fluid Pressure.....10 psi

Brush
Brush.....Natural Bristle

Roller
Cover .....1/4"-3/8" woven with solvent resistant core

If specific application equipment is not listed above, equivalent equipment may be substituted.

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Protective & Marine Coatings

MACROPOXY® 920 PRE-PRIME
PENETRATING EPOXY PRE-PRIMER

PART A B58T101 **TRANSPARENT**
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APPLICATION BULLETIN

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Use low speed mechanical agitation to mix Part A and Part B separately, then add 1 part by volume of Part B to 3 parts by volume of Part A. Mix the combined parts using low speed power agitation for at least 5 minutes. Mixed material will generate heat and should be handled appropriately, using all material before pot life expiration, and cleaning lines and equipment immediately after use. Higher temperatures will decrease working pot life, while lower temperatures will increase it.

If reducer solvent is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**1.5** (40)	**2.0** (50)
Dry mils (microns)	**1.5** (40)	**2.0** (50)
~Coverage sq ft/gal (m^2/L)		
Steel	**800** (19.6)	**1050** (25.7)
Concrete	**400** (9.8)	**500** (13.0)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1600** (39.2)	

Drying Schedule @ 2.0 mils wet (50 microns):

	@ 40°F/4.5°C	@ 77°F/25°C *50% RH*	@ 120°F/49°C
To touch:	18 hours	9.5 hours	7 hours
Tack-free:	32 hours	17 hours	14 hours
To recoat:			
minimum:	36 hours	12 hours	12 hours
maximum:	30 days	30 days	30 days
Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	8-10 hours	4 hours	3-4 hours
Sweat-in-Time:		None required	

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #54, R7K54. Clean tools immediately after use with Reducer #54, R7K54. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

PERFORMANCE TIPS

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

No reduction of material is recommended as it can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #54, R7K54.

For better performance in severely corrosive environments, or over heavily rusted/pitted steel or pourous concrete and masonry, two coats may be required.

Roll out any puddles.

Airless spray is acceptable for application; however, the product should be back-rolled to eliminate excessive millage and puddles.

Gloss may vary depending on substrate and film thickness.

Can be used as a metalizing sealer. Consult Technical Bulletin - Sealers for Thermal Spray Metalizing, or your local Sherwin-Williams representative.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings
PRODUCT DATA SHEET

SHER-LOXANE® 800
TWO COMPONENT POLYSILOXANE

Revised: March 19, 2019

PRODUCT DESCRIPTION

SHER-LOXANE 800 is a versatile, high performance, two component polysiloxane (epoxy siloxane hybrid) that combines the properties of both a high performance epoxy and a polyurethane.

INTENDED USES

- Recommended for use on new construction, repair and field maintenance coating projects. It provides effective long-term corrosion control and weatherability.
- Can be applied directly over inorganic zincs
- <100 g/L VOC, no isocyanates

PRODUCT DATA

Finish: Gloss

Colors: Wide range of colors available

Volume Solids: 90% ± 3%, mixed

VOC (EPA Method 24): <100 g/L; 0.77 lb/gal

Mix Ratio: 4:1 by volume

Typical Thickness:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**5.0** (125)	**7.0** (175)
Dry mils (microns)	**4.0** (100)	**6.0** (150)
~Coverage sq ft/gal (m^2/L)	**240** (6.0)	**360** (9.0)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1443** (35.4)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Shelf Life: 12 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C).

Flash Point: Part A: >200°F (93°C), PMCC
Part B: 145°F (63°C), PMCC

Reducer: Not required (MEK or Oxsol 100)

Clean Up: MEK, MIBK, MAK, Oxsol 100

Weight: 10.90 ± 0.2 lb/gal ; 1.3 Kg/L, mixed
May vary by color

Average Drying Times @ 5.0 mils wet (125 microns):

	40°F (4.5°C) *50% RH*	77°F (25°C) *50% RH*	90°F (32°C) *50% RH*
Touch:	8 hours	2 hours	1.5 hours
Handle:	21 hours	6 hours	4 hours
Recoat:			
minimum:	16 hours	3 hours	1.5 hours
maximum:	1 year	1 year	1 year
Cure to service:	7-8 days	7 days	3 days
Pot Life*:		4 hours	
Sweat-in-time:		none required	

*Pot life is dependent upon temperature and mass

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.

Packaging:

1.25 gallons (4.7L) mixed
Part A: 1 gallon (3.8L) in a 1 gallon (3.8L) container
Part B: 1 quart (0.9L) container

5 gallons (18.9L) mixed
Part A: 4 gallons (15.1L) in a 5 gallon (18.9L) container
Part B: 1 gallon (3.78L) container

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Minimum recommended surface preparation:

Iron & Steel: Atmospheric: SSPC-SP6/NACE 3/ ISO8501-1:2007 Sa 2, 2-3 mil profile (50-75 microns)

Concrete & Masonry: Atmospheric: SSPC-SP13/NACE 6 - 4.3.1 or 4.3.2 or ICRI No. 310.2R CSP 2-3

Galvanized: Sweep blast to SSPC SP-16 with a blast profile of 1.5-3 mils (40-75 microns)

SHER-LOXANE® 800
TWO COMPONENT POLYSILOXANE

APPLICATION

Airless Spray
Pump.....35:1 minimum
Pressure.....2000 psi minimum (137 bar)
Tip .....015"-.019" (0.38-0.48 mm)

Conventional Spray
Gun .....Binks 95
Fluid Nozzle 67
Air Nozzle.....667
Atomization Pressure.....60 psi (4 bar)
Fluid Pressure.....20 psi (0.7 bar)

Plural Component Spray
Consult your SW sales or technical service representative

Brush
Brush.....Natural Bristle
Note: Required film thickness may not be achieved in one coat

Roller
Cover .....3/8" woven with solvent resistant core

If specific application equipment is not listed above, equivalent equipment may be substituted.

RECOMMENDED SYSTEMS

Dry Film Thickness / ct.		Mils	(Microns)
Steel, Inorganic Zinc/Polysiloxane Topcoat, Atmospheric			
1 Ct.	Zinc Clad II (85)	2.0-4.0	(50-100)
1 Ct.**	Sher-Loxane 800	4.0-6.0	(100-150)

**Use a mist coat/full coat technique. Up to 10% MEK or 5% Oxsol 100 reduction is recommended.

Steel, Organic Zinc/Polysiloxane, Atmospheric			
1 Ct.	Zinc Clad IV (85)	3.0-5.0	(75-125)
1 Ct.	Sher-Loxane 800	4.0-6.0	(100-150)
Steel, Atmospheric			
1*-2 Cts.	Sher-Loxane 800	4.0-6.0	(100-150)

*One coat acceptable in light industrial environments

Steel, Atmospheric			
1 Ct.	Macropoxy 267	5.0	(125)
1 Ct.	Sher-Loxane 800	4.0-6.0	(100-150)
Steel, Atmospheric			
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
1 Ct.	Sher-Loxane 800	4.0-6.0	(100-150)
Steel, Inorganic Zinc/Epoxy/Polysiloxane, Atmospheric			
1 Ct.	Zinc Clad II (85)	2.0-4.0	(50-100)
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
1 Ct.	Sher-Loxane 800	4.0-6.0	(100-150)
Steel, Epoxy/Epoxy/Polysiloxane, Atmospheric			
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
1 Ct.	Sher-Loxane 800	4.0-6.0	(100-150)

The systems listed above are representative of the product's use, other systems may be appropriate.

APPLICATION CONDITIONS

Temperature (air, surface, material):
40°F (4.5°C) minimum, 120°F (49°C) maximum
At least 5°F (2.8°C) above dew point

Relative humidity: 40-85% recommended
Note: <40% RH will increase dry times; >85% will decrease dry times

APPROVALS

- Meets USDA requirement for incidental contact
- Two coats of Sher-Loxane 800 @ 100 microns per coat applied direct-to-metal is in full accordance with the requirements of ISO 12944-6 (1998), Corrosivity Category C3 High.

ADDITIONAL NOTES

Tint 150% tint strength with Maxitoner Colorants only into Part A. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

Do not mix previously catalyzed material with new.

HEALTH AND SAFETY

Refer to the SDS sheet before use.
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DISCLAIMER

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