



ADDENDUM #1

ITB/RFP NUMBER: 2016017-PU-B

Park View Tank 0.5 MG Elevated Water Tank ITB

DATE: February 25, 2016

TO: All Potential Bidders/Offerors

City of Harrisonburg's Park View Tank 0.5 MG Elevated Water Tank ITB, is modified as follows:

On Tuesday, February 23, 2016 at 2:00pm a non-mandatory pre-bid meeting was held for the above-referenced solicitation. The agenda from the meeting is attached and made part of this addendum. Below are the meeting minutes from the pre-bid meeting as well as questions received prior to the meeting and during the meeting.

Meeting Minutes:

- Background on the project: The overall project includes three (3) components, which the City is in the process of completing – tank, waterline and pump station. Each of the three (3) components was separated out and the tank is the only component included in this solicitation.
- Baseline schedule used to establish contract time:
 - 6 +/- weeks for design work
 - 6 +/- weeks for foundation construction
 - 3 +/- months for pedestal to be completed
 - 3 +/- months for bowl to be raised and completed
 - 9 +/- months construction required prior to painting
 - 6 +/- weeks for painting
- A revised bid form has been included in Addendum #1. The bid form includes a revised contract schedule that is intended to be favorable for the following:
 - The contract times have been changed to accommodate the site becoming available for the tank contractor by July 1, 2016.
 - The contract times have been changed to accommodate a final painting schedule being completed by May 15, 2017. This is also a milestone date to remove equipment and restore the site to meet stakeholder requirements for on campus activities.
 - The contract times have been changed to add an additional thirty (30) days beyond painting to achieve substantial completion.
 - The contract times have been changed to add an additional thirty (30) days beyond substantial completion to achieve closure.
- Most of the work in this solicitation is the tank, however some electrical and some HVAC work will be needed inside of the tank. In addition, there is also a stairwell, landing and small heated closet/room inside of the tank.
- The plans include special site management notes specifically as pertains to site access road.
- Note that there is a geotechnical report at the end of the ITB in the Appendix section.
- The City has refined what the Eastern Mennonite University (EMU) logo looks like. See detail attached to this addendum for the updated logo for the exterior of the tank. The logo is no longer optional and

will be a required part of the base bid. The Bid Form has been modified to reflect this change and is attached and made part of this addendum. This color scheme detail now includes two (2) EMU lettering blocks on opposite sides of the tank.

- The City stakeholders are interested in an architectural look of the pedestal of the tank. Additive alternate bid options have been clarified on the revised Bid Form attached to this addendum.
- A reminder to contact the Contract Administrator, Dave Gray, at 540-434-9959 to request a site visit in advance. The City will have to coordinate all site visits with EMU.
- The access road to the site through EMU is tight, but has enough radius for a fire truck to turn. The most difficult turn will likely be at Hillcrest Drive and Dogwood Drive. The City will accept requests for better access routes to the site for special circumstances
- The City will construct the connecting underground waterline to the tank site. Contractors are directed to review page 4 of the drawings for this ITB, which will show the demarcation and break point where the contractor is required to complete piping up to and where the City will take over the construction/connection. All interior piping to be completed by the Contractor.
- The City has a SCADA contractor that will provide the tank contractor the SCADA enclosure box to install. (mount at denoted location)
- Contractor shall provide conduits only to and from the SCADA enclosure box to the designated termination points as specifically detailed on drawings. The City will be installing the SCADA wiring within the Contractor installed conduits.

Questions & Answers:

1. Question: Is there demolition of any existing steel tanks included in this project? If not at this time, would there be in the future?

Answer: No, there is no tank demolition included in the current project. Future plans for demolition of the existing tank are to be determined.

2. Question: While a SCADA panel and Instrumentation are referenced in the plans and drawings, I did not see a specification for Instrumentation and Control. And the SCADA panel is noted as NIC (not in contract) and “future.” Will there be a separate I&C bid for the SCADA?

Answer: No, the City’s SCADA system is proprietary equipment and will be installed with in-house forces.

3. Question: Sherwin-Williams Protective & Marine Coatings would like to be considered as a supplier for the above-mentioned project. After reviewing the specification issued out to bid, I have listed the Sherwin Williams equivalent products below. If you could please review these products, to be an “Approved Equal” for this project.

Specification	Tnemec	Sherwin Williams
<i>Interior Tank Coating System</i>		
Prime Coat	Series 91-H20 Hydro- Zinc	Corothane I Galvapak 1k or 2k
Intermediate Coat	Series N140	Macropoxy 646 PW
Finish Coat	Series N140	Macropoxy 646 PW
<i>Exterior Tank Coating System</i>		
Prime Coat	Series 91-H20 Hydro- Zinc	Corothane I Galvapak 1k or 2k
Intermediate Coat	Series N140	Macropoxy 646 PW
Finish Coat	Series 1074 Endura-shield	Acrolon 218 HS Urethane
Logo Area	Series 76 Endura-clear*	Fluoro-Kem HS in logo color
<i>Alternate Exterior Tank Coating</i>		
Prime Coat	Series 91-H20 Hydro- Zinc	Corothane I Galvapak 1k or 2k
Intermediate Coat	Series 1075 Endura-shield	Acrolon 218 HS Urethane
Finish Coat	Series 700 Hydro-Flon	Fluoro-Kem HS
*Product has been discontinued		

Answer: Yes, coating systems referenced by Sherwin-Williams may be considered approved equals. See attached additional specifications.

4. Question: What is the design strength for the concrete foundation?

Answer: Please reference page 330910-8 (section 2.2 & 2.3) of the ITB.

5. Question: Drawing C-201 (page 4 of the drawings) in the upper left corner request the “Contractor to provide three standard architectural rustication options for concrete finish as part of base bid”. The lines on the pedestal (rustication patterns) are standard for each manufacturer, and vary slightly. Generally each firm has one base standard (not three) and anything above that is additional. How would you like this priced?

Answer: We have clarified that base bid includes standard manufacturer rustication details and additive alternate bid items have now been included in the bid form to enable supplemental pricing for higher end finishes to the exterior of the tank.

6. Question: For the architectural rustication options for the concrete finish, do you want brick or placed windows, etc. in it?

Answer: We have clarified that base bid includes standard manufacturer rustication details and additive alternate bid items have now been included in the bid form to enable supplemental pricing for higher end finishes to the exterior of the tank. Contractors may supplement this base and additive alternate systems as appropriate in accordance with contract documents. Aesthetic considerations are very important to adjacent land owners and local site setting; the City has structured the bid to enable provision of higher-end finishes for team consideration based on affordability and competitive sourcing as part of bid process. Although award of the project is based upon evaluation of base bid amount contractors are required to submit pricing for each additive/deductive alternate as part of bid.

7. Question: Do you have a budget for this project?

Answer: Per Code of Virginia 2.2-4342 B, the City will not be providing a cost estimate or budget for this project.

8. Question: The clear coat over the logo is a discontinued product now. Additionally, this is a system that is no longer used in industry standards. Would you consider doing a fluoropolymer on the logo instead?

Answer: Yes, use of higher grade products such as fluoropolymer coating systems are encouraged, specification section has been updated to reflect this and is attached as part of this addendum.

9. Question: For the staircase on the interior of the tank, we recommend attaching the staircase in circular and tied off in the concrete so it is more solid, as opposed to independent of the tower. Is this acceptable to attach to the wall of the tank in the concrete instead?

Answer: We have updated bid form to include a deductive alternate for provision of interior circular/spiral winder stair along the interior wall of the tank. The base bid still requires the stair tower structure.

10. Question: Will this project be tax exempt?

Answer: Pricing at bid should reflect application of full local, state and federal taxes applicable to the project. The awarded Contractor should be prepared to disclose the amount of tax in the bid and to discuss options for eliminating the tax burden by alternative purchasing arrangements. This arrangement will most likely be applicable to concrete and steel.

11. Question: Will the Contractor be able to work on weekends (Saturdays and Sundays)?

Answer: Yes.

12. Question: Will the bid form be revised?

Answer: Yes, updated Section 00100 BID FORM attached to this addendum.

All other requirements, terms and conditions of the ITB/RFP remain unchanged.

Addendum page must be signed and returned with your bid/proposal to acknowledge receipt of this addendum.

Authorized Signature

By: Pat Hilliard, CPPB
Procurement Manager

AGENDA FOR NON-MANDATORY PRE-BID MEETING

NON-MANDATORY PRE-BID CONFERENCE AGENDA

City of Harrisonburg - Parkview Tank Replacement 0.5 Million Gallon Elevated Water Tank

City Project ITB 2016017-PU-B/HPU No. 474-12-13 Wiley|Wilson Comm. No. 215192.00

Date/Time: February 23, 2016 at 2:00 PM

Location: Department of Public Utilities
2155 Beery Road, Harrisonburg, VA 22801

Introductions: David Gray, P.E. Engineering Superintendent, Department of Utilities

1. Review Bid Submission Requirements:
 - a. All sections from Section 00100 Bid Form are required to be completed for bids to be accepted. Refer to the checklist on page 3 of the Bid Form for bidder requirements.
 - b. Bid Option 1 is required to be completed for a tank Graphic Logo.
 - c. Three standard color scheme options shall be provided as part of the base bid for concrete and steel finishes.
 - d. Three standard architectural rustication/form finish options shall be provided as part of the base bid for the tank concrete base.
 - e. Bid Security – 5% of Bidder's maximum bid price. Bid security shall be submitted in the form of certified check, cashier's check, or a bid bond.
 - f. No questions will not be received after 12 PM on Tuesday, March 1st.
 - g. Bid closing shall be Tuesday, March 8th @ 3PM; late bids will not be accepted.
2. Notice of Award
 - a. The City will award the Contract to the lowest bidder who bid and conforms with all the materials terms and conditions of the Instructions to Bidders.
 - b. If the awarded bidder fails to execute and deliver the contract documents and furnish the required contract security within 15 days after Notice of Award, the City may annul the Notice of Award and the bid security of that bidder will be forfeited.
3. Construction Schedule
 - a. Bid to Award: Less than 90 days
 - b. Notice to Proceed: To be issued on or before May 15th, 2016
 - c. Substantial Completion: 330 days from NTP
 - d. Closure: 365 days from NTP
4. The Contractor is responsible for obtaining all licensing and permits as required for the project.
5. The Contractor is responsible for furnishing all labor, equipment, materials, and services to perform all operations necessary to execute and complete the work required for this project in strict accordance with the Drawings and Project Manual along with the addenda issued during the bidding period.
6. The City will appoint a construction manager for the project. The appointed site manager will be responsible for overseeing and approval of any deviations from the approved design. The

site manager will be the City's representative responsible for ensuring coordination between the tank contractor and outside project stakeholders.

7. A Geotechnical investigation has been performed for confirming the tank site suitability and a copy of this report is included in the Appendix of the Bid documents; the contractor shall conduct independent geotechnical investigations as required for design of tank foundation system; design of tank foundation system shall be integral component of tank system design.
8. Testing and Certifications (copies to be provided to owner for approval).
 - a. The Contractor shall hire independent testing and inspection agencies for:
 - b. Cast-in-place concrete
 - c. Radiographic inspection of welded joints
 - d. Foundation geotechnical testing
 - e. Special inspections testing required by current Virginia uniform building code
9. Site Access
 - a. Drive access on Park Rd., Dogwood Dr., and Hillcrest Dr. are two lane roads and will require small radius turns to and from the site; these may require special access permits/temporary modifications to accommodate large items of equipment or material.
 - b. A gravel access road will be provided into the tank site as part of early site grading completed by others. The tank contractor is responsible for maintaining the access road in good condition throughout the project and shall return the road to the City in the same condition as when the project began.
 - c. Access to the site will only be permitted through the designated access road.
10. Project Description:
 - a. Construction of a 500,000 gallon elevated composite water storage tank and related appurtenances and controls.
 - b. Tank internal mixing system as described in the project drawings.
 - c. The site will be prepared for the construction with an access road from Hillcrest Drive; access and site operations will require close coordination with the adjacent landowners and EMU officials to avoid disruption and safety hazards to students and on-going university operations.
 - d. The grading of the road, and tank site preparatory grading will be performed by separate contract prior to initiation of tank construction.
11. The City will construct the connecting underground utilities to the tank site (water lines and drainage piping).
12. The Contractor shall be responsible for:
 - a. Construction of all water piping within the tank and to the exterior connection points.
 - b. Construction of all interior/exterior electrical, mechanical, and HVAC systems
 - c. Rough in conduit and wiring for the SCADA equipment to be installed by others.
 - d. Installation and connection of all City furnished SCADA devices and cabinets
 - e. Interior electrical systems and connection points for future corrosion control system.
 - f. Shop design, fabrication and installation of tank pedestal stair tower.

- g. Construction of heated closet/room at the upper landing.
 - h. Detailing and fabrication of overflow channel and pipe connection
 - i. Detailing and fabrication of tank drain and overflow structure within the tank base
 - j. The City will install the interior tank cathodic protection system and SCADA systems/programming under separate contract.
13. On request, site access will be provided to Bidders by the City. If site access is gained after March 1st no questions will be answer during the site visit. To schedule a visit contact the Department of Public Utilities Engineering Superintendent, David Gray, at (540) 434-9959.
 14. Contract addendum addressing inquiries to date and pre-bid meeting minutes and list of attendees will be distributed via EVA and City website on or before March 3, 2016.
 15. Contact for the bidding process: Pat Hilliard, City of Harrisonburg, Procurement Manager, Fax: 540.432.7779 or Purchasing@harrisonburgva.gov.
 16. Contact engineer of record, Thomas L. Fitzgerald, P.E.; Project Manager, Wiley|Wilson, Inc. tfitzgerald@wileywilson.com
 17. Additional Comments/Questions

SIGN-IN SHEET FOR NON-MANDATORY PRE-BIDD MEETING

LIST OF PRE-BID CONFERENCE ATTENDEES

City of Harrisonburg

Parkview Tank Replacement 0.5 Million Gallon Elevated Water Tank

February 23, 2016, 2:00 pm

Company Name: Anderson Const. Inc. General Contractor Subcontractor Supplier
 Address: 2400 Sackett St, Lynchburg, VA, 24501
 Telephone Number: 434-239-4917 Fax Number: 434-237-2186
 Attendee Name: SAM SULLIVAN Email: deTolle@Andersonconst.com

Company Name: SHERWIN-WILLIAMS General Contractor Subcontractor Supplier
 Address: 2100 FORT AVE LYNCHBURG, VA 24501
 Telephone Number: 434-665-9186 Fax Number: _____
 Attendee Name: BRENT HAYNES Email: william.b.haynes@sherwin.com

Company Name: ECS Mid-Atlantic General Contractor Subcontractor Supplier
 Address: 4004 Hunterstand Court, Suite 102 Charlottesville VA 22911
 Telephone Number: 434-973-3232 Fax Number: 434-973-3230
 Attendee Name: Scott Gresham Email: sgresham@ecslimited.com

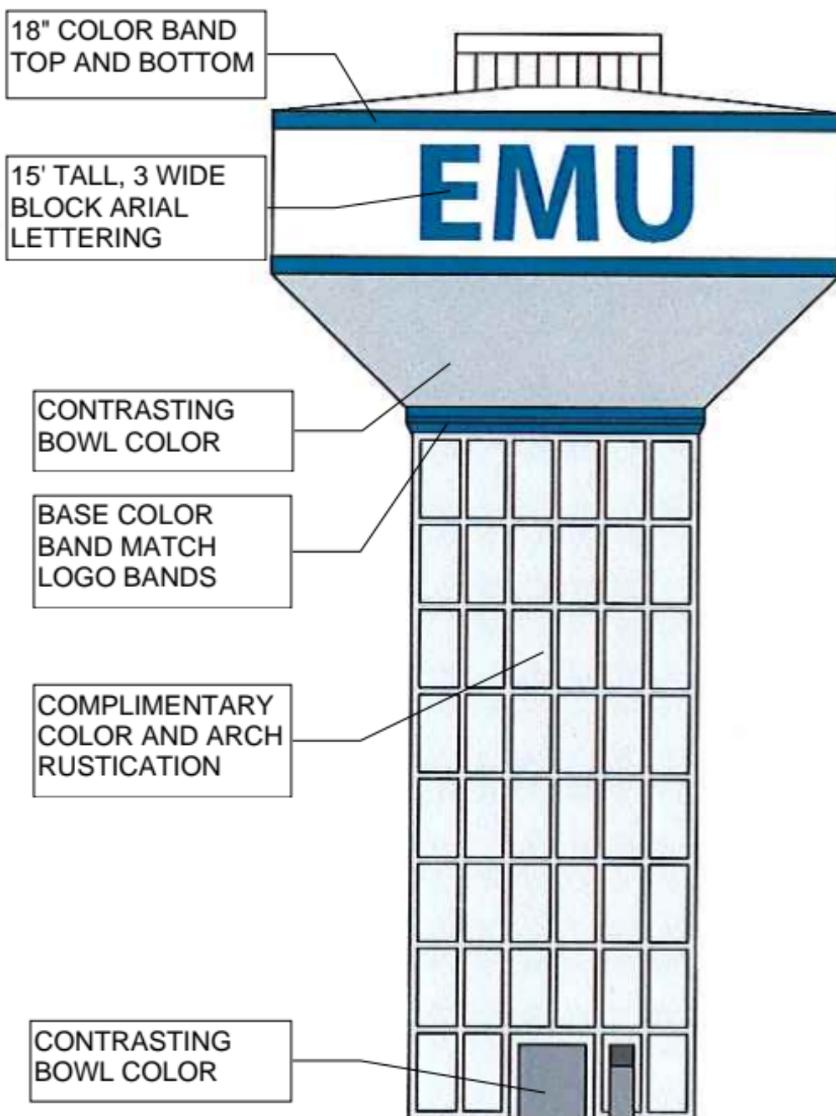
Company Name: Landmark Structures General Contractor Subcontractor Supplier
 Address: 1665 Harmon Rd, Fort Worth, TX 76177
 Telephone Number: 817-439-8888 Fax Number: 817-230-2070
 Attendee Name: Bob Werling Email: estimating@teamlandmark.com

Company Name: _____ General Contractor Subcontractor Supplier
 Address: _____
 Telephone Number: _____ Fax Number: _____
 Attendee Name: _____ Email: _____

Company Name: _____ General Contractor Subcontractor Supplier
 Address: _____
 Telephone Number: _____ Fax Number: _____
 Attendee Name: _____ Email: _____

REVISED LOGO

LOGO SCHEME #1



SECTION 00100 BID FORM

City of Harrisonburg Financing/Purchasing Office
Pat Hilliard, Procurement Manager
409 South Main St., 3rd Floor City Hall
Harrisonburg, VA 22801

The undersigned, having visited and examined the site and having carefully studied the Drawings and Project Manual for the Harrisonburg Parkview 0.5 Million Gallon Elevated Tank Project (ITB 2016017-PU-B / HPU NO. 474-12-13), hereby proposes to furnish all labor, equipment, materials, and services and to perform all operations necessary to execute and complete the Work required for the Project, in strict accordance with the Drawings and Project Manual prepared by Wiley|Wilson, dated January 21, 2016, together with the addenda issued during bidding period and acknowledged below subject to the terms and conditions of the agreement for the sum of

PART 1 – TOTAL BASE BID

\$ _____, WHICH INCLUDES \$ _____ FOR LOGO SCHEME 1.
(numerals)

\$ _____
(written)

This scope shall include all general, civil, architectural, mechanical, and electrical work shown in the drawings and detailed in the accompanying manual for the project as defined above. This base bid option shall include all work required to provide tank manufacturer’s standard rectangular waffle architectural rustication pattern on the exterior of the concrete pedestal using form inserts to provide an aesthetically uniform finish which matches wall curvature and compliments horizontal and vertical form joints to provide a uniform finish on the exterior of the tank. Rustication pattern inserts shall form a bias-relief pattern of rectangular dimension and shall include final brush-blast with additional hand rubbing and finishing of the interior and exterior of the tank upon stripping of formwork to provide a smooth, level finish suitable for application of architectural concrete finish system. Depth of architectural finish pattern shall be independent of structural requirements for tank. All exterior bug holes, cracks, blemishes and rustication details shall be hand filled, repaired and restored to provide a uniform consistent architectural pattern. Base bid shall include coating the exterior of concrete pedestal with a concrete finishing system to provide a uniform, waterproof finish that seals all hairline cracks and provides a uniform color and finish to exterior of the concrete pedestal per specifications.

Logo Scheme 1: Base bid shall include installation of two EMU block letter logos, complimentary color bands and tank underside painting in up to two contrasting colors to the base color of tank shell per detail. This cost is to be broken out separately in bid form above.

Items which are not included in base bid or alternates described below are limited to:

- The site work so denoted on Drawing C-101
- SCADA hardware and software (power and control wiring conduit is included).

**Part 2 – Additive Alternate Bid Item #1
Enhanced Smooth Architectural Finish on Pedestal (Option 1)**

\$ _____
(numerals)

\$ _____
(written)

This scope shall include all work required to provide an enhanced smooth architectural rustication pattern on the exterior of the concrete pedestal in lieu of standard base finish (Option 1). Option 1 shall provide a smooth aesthetically uniform finish which matches wall curvature and compliments horizontal and vertical form joints to provide a uniform finish on the exterior of the tank. Form and finish shall be uniform and smooth with no flat spots, bulges or other defects in plumb or circular form. Finish shall include final brush-blast with additional hand rubbing and finishing of the interior and exterior of the tank upon stripping of formwork to provide a smooth, level finish suitable for application of architectural concrete finish system. Depth of the smooth architectural finish shall be independent of structural requirements for tank. All exterior bug holes, cracks, blemishes and details shall be hand filled, repaired and restored to provide a uniform consistent architectural surface prior to final finish coating. Final coating shall include a concrete finishing system to provide a uniform, waterproof finish that seals all hairline cracks and provides a uniform color and finish (monolithic) to exterior of the concrete pedestal per specifications.

**Part 2 – Additive Alternate Bid Item #2
Enhanced Brick-Column Architectural Finish on Pedestal (Option 2)**

\$ _____
(numerals)

\$ _____
(written)

This scope shall include all work required to provide an enhanced architectural rustication pattern of Faux Brick Columns on the exterior of the concrete pedestal in lieu of standard finish using form inserts to provide an aesthetically uniform finish which matches wall curvature and compliments horizontal and vertical form joints to provide a uniform finish on the exterior of the tank (Option 2). Rustication pattern inserts shall form a bias-relief pattern of four brick columns (matching adjacent university building structure color and lay pattern (faux soldier coursing used to form around inset) with contrasting smooth inlay panels with circular arched tops, to be distributed uniformly around the exterior of the tank pedestal. Rustication pattern finish shall include final brush-blast with additional hand rubbing and finishing of the interior and exterior of the tank upon stripping of formwork to provide a smooth, level finish suitable for application of architectural concrete finish system. Depth of architectural finish pattern shall be independent of structural requirements for tank. All exterior bug holes, cracks, blemishes and rustication details shall be hand filled, repaired and restored to provide a uniform consistent architectural pattern prior to final finish coating. Final coating shall include a concrete finishing system to provide a uniform, waterproof finish that seals all hairline cracks and provides a faux brick color and finish for columns and contrasting color scheme for smooth inlays, faux brick color to match adjacent building colorations per specifications.

Part 2 - Additive Alternate Bid Item #3
Enhanced Stone Architectural Finish on Pedestal (Option 3)

\$ _____
(numerals)

\$ _____
(written)

This scope shall include all work required to provide an enhanced architectural rustication pattern (Faux Stone on the exterior of the concrete pedestal in lieu of standard form finishes using form inserts to provide an aesthetically uniform finish which matches wall curvature and compliments horizontal and vertical form joints to provide a uniform finish on the exterior of the tank (Option 3). Rustication pattern inserts shall form a bias-relief pattern replicating local dimension stone masonry construction (Dark Ashlar Limestone) distributed randomly around the exterior of the tank pedestal replicating local area native stone masonry. Rustication pattern finish shall include final brush-blast with additional hand rubbing and finishing of the interior and exterior of the tank upon stripping of formwork to provide a smooth, level finish suitable for application of architectural concrete finish system. Depth of architectural finish pattern shall be independent of structural requirements for tank. All exterior bug holes, cracks, blemishes and rustication details shall be hand filled, repaired and restored to provide a uniform consistent architectural pattern prior to final finish coating. Final coating shall include a concrete finishing system to provide a uniform, waterproof finish that seals all hairline cracks and provides a variegated stone masonry color with contrasting grout lines matching local stone architecture per specifications.

Part 2 – Deductive Alternate Bid Item #4
Alternative Interior Stair System (Option 4)

\$(_____)
(numerals)

\$ _____
(written)

This scope shall include all work required to provide alternative spiral/circular access stair anchored to the interior wall of the tank (manufacturer’s standard stair system) in lieu of the custom stair tower detailed on plans (Option 4). Upper pedestal access floor and room enclosure shall remain per design. Alternative stair system shall comply with all life-safety accessibility and occupational safety and health code requirements. Contractor shall submit basis-of-design drawings and specifications for this item upon request or with bid submittal.

Part 1 shall be the basis of contract award, the City may select either of the additive-alternates or deductive bid item by Change Order after award of the Bid as dictated by their exclusive interest.

Failure to provide a bid value for the base bid or any option will render the base bid non-responsive; all bidders must complete a quotation for these items including breaking out the cost of Color Logo Scheme separately in the base bid to aid in internal City apportionment of project costs and selection of final architectural finish of the structure.

The base bid is founded upon furnishing equipment and materials of specified manufacturers. Equipment or materials of other manufacturers are offered as "or equals" or "Substitutes" as shown on Section 00400.2 Proposed "Or Equal" and/or "Substitute" Equipment and are not part of the base Bid Form. Owner will determine after Contract Award which, but before Contract execution if any, "or equals" or "substitutes" that will be included in the Contract.

The Bidder agrees to furnish and install, in accordance with the Contract Documents, all items of equipment specified in the Major Equipment and Product Schedule. The equipment required under each section of the Specifications is to be furnished and installed in strict compliance with the requirements of the Contract Documents for the lump sum base bid price stated by the Bidder.

It is understood and agreed that the Owner, in protecting his best interest, reserves the right to:

Reject any or all bids,

In the event of discrepancy between bid price in words and bid price in numerals, the words shall govern.

Accept any bid whereupon the Contractor shall furnish equipment and materials as specified, or

Accept any bid at the Base Bid price and, if equipment or materials of substitute manufacturers are offered, to accept any, none, or all of such offered "or equal" and/or "substitutes", which are approved, the Contract price being adjusted accordingly.

We are properly equipped to execute work of the character and extent indicated by the Bidding Documents and so covered by this Bid and will enter into agreement for the execution and completion of the Work in accordance with the Drawings and Project Manual and this bid; and we further agree that if awarded the Contract, we will commence the Work on the date stated in "Notice to Contractor to Proceed".

The following documents are attached to and made a condition of this Bid. Failure to comply with the submission of appropriate documentation may result in determination of a bidder as non-responsive and shall be cause for the bid to be rejected.

Bidder Required Documentation Checklist			
#	Description	Completed	Attached
1	ITB Cover Page		
2	Bid Security		
3	Section 00100.1 Proposed "Or Equal" and/or "Substitute" Equipment		
4	Section 00100.2 Contractor Qualifications		
5	Section 00100.3 State Corporation Commission Form		
6	Section 00100.4 Propriety/Confidential Information Identification		
7	Section 00100.5 Insurance Requirements Form		
8	Section 00100.6 Certification Regarding Dيارment Primary Care Transactions		
9	Section 00100.7 Certification Regarding Dيارment Lower Tier Covered Transactions		
10	Section 00100.8 Exceptions to Terms & Conditions		
11	Section 00100.9 Certification of Non-Collusion		
12	List of Proposed Subcontractors		
13	List of Proposed Suppliers		
14	Escrow Form for ITB/RFP		
15	Contractor's License No.: _____		

Contractor is responsible for obtaining a City business license for the project as appropriate according to state and local regulations.

Enclosed herewith is the following security, offered as evidence that the undersigned will enter into agreement for the execution and completion of the Work in accordance with the Drawings and Project Manual:

Complete One as Applicable

Cashiers Check for the Sum of _____
 Name of Bank _____

OR

Bidder's Bond in Amount of _____
 Bond Issued by _____

OR

Certified Check for the Sum of _____
 Name of Bank _____

The undersigned further agrees that in case of failure on his part to execute the said agreement within the fifteen (15) consecutive calendar days after written notice being given on the award of the Contract, the moneys payable by the securities accompanying this bid shall be paid to the Harrisonburg Department of

Public Utilities as Bid Bond will be forfeited for such failure; otherwise, the securities accompanying this Bid shall be returned to the undersigned.

Bid-Award/Agreement/Notice to Proceed:	To be issued on or before May 15, 2016
Site Availability for Construction:	On or before July 1, 2016
Completion of Exterior Tank Painting, removal of all major equipment and site restoration:	On or before May 15, 2017
Substantial Completion:	On or before June 15, 2017
Closure:	On or before August 15, 2017

This Bid is subject to acceptance within a period of 90 days from this date.

Respectfully submitted,

Contractor

by _____

Address

Telephone number

Date _____

Contractor's current Virginia license number _____ Code _____

**** This form must be completed & returned with the bid submission. ****

SECTION 00100.1 BID ATTACHMENTS
PROPOSED “OR EQUAL” AND/OR “SUBSTITUTE” EQUIPMENT

Or equals and/or substitutes are offered for the Owner's consideration in accordance with the Modified Standard General Conditions.

The tank manufacturer shall note architectural finish for the tank pedestal included with the base bid by denoting it with “B”. The tank manufacturer shall provide the owner with multiple architectural finish options with pricing per additive-alternate bid item descriptions noting them each as Option 1, Option 2 and Option 3 respectively. Deductive alternate for stair system configuration shall be noted as Option 4.

If a proposed “or equal” and/or “substitute” manufacturer/supplier is allowed by the Owner, the associated “deduct” will be subtracted from the amount of the successful bidder’s base bid to determine the contract price.

Determination of the low bidder will be based on the base bid without consideration of any deductions resulting from bidder-proposed “or equal” or “substitute” equipment. Allowance of an “or equal” and/or a “substitute” manufacturers/suppliers does not constitute a waiver of the specifications or of any other requirements of the Contract Documents.

Unless otherwise stated, all proposed deducts for “or equal” and/or “substitute” manufacturers/suppliers are deducts for the equipment associated with the base bid only.

Upon request, within 7 days after bid opening, the apparent low bidder shall provide a “qualifications” package for all proposed “or equal” and/or “substitute” items proposed by Bidder. The qualification packages will be used solely by the Owner to evaluate, on an administrative level, proposed “or equal” and/or substitute items. If Owner elects to allow specific “or equal” and/or “substitute” item(s), this action does not constitute a waiver of the specifications or of any other requirements of the contract documents, and formal submittal and acceptance of said items will be in accordance with the Modified Standard General Conditions and the Contract Documents.

Project Name: Harrisonburg Parkview Tank

Equipment Specification Name And Number	Indicate As “B” For Base Bid “E” For Equal Or “S” For Substitute*	Manufacturers Name, Catalog Or Model No. Of “Or Equal” Or “Substitute” Offered	Amount Of Add Or Deduct From Base Bid Price
1.			\$
2.			\$
3.			\$
4.			\$

5.			\$
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*** Failure to indicate “E” or “S” will result in that item being treated as a proposed substitute.**

The above listed “or equal” and/or “substitute” items are hereby guaranteed to perform in all respects the functions of the items of specified manufacturers and in accordance with the Modified Standard General Conditions, and it is fully understood that approval of such items is contingent upon this guarantee.

Contractor’s Name: _____

Contractor’s Signature: _____

Date: _____

SECTION 00100.2 BID ATTACHMENTS CONTRACTOR QUALIFICATIONS

The Bidder shall state here what previous municipal type work he has performed similar to that contemplated in this contract, and give references that will afford the Harrisonburg Public Utilities an opportunity to judge experience and skill of proposed Contractor and all subcontractor(s). The Contractor shall list five (5) projects of similar size and dollar value completed within the last ten (10) years where bidder was the General Contractor. If proposing to use subcontractors or joint partners to complete more than 20 percent of the work by partnership, joint venture, or subcontract means, then provide project experience information as outlined above for all contractors, partners, or subcontractors.

Submittal of this information on other standard forms containing all the information noted below is acceptable.

Failure to provide satisfactory evidence of experience may cause the Bid to be rejected.

Location	Dollar Value	Estimated Completion Date	Owner/ Engineer	Phone No.	Contact Person	Type and Size of Tank

Current work under contract (per Article 3, p.00200-2).

Location	Dollar Value	Estimated Completion Date	Owner/ Engineer	Phone No.	Contact Person	Type and Size of Tank

**** This form must be completed & returned with bid submission. ****

SECTION 00100.3 BID ATTACHMENTS STATE CORPORATION COMMISSION FORM

Virginia State Corporation Commission (“SCC”) registration information: The undersigned Offeror:

is a corporation or other business entity with the following SCC identification number: _____ **-OR-**

is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust **-OR-**

is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and

customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the Offeror in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from bidder’s out-of-state location) **-OR-**

is an out-of-state business entity that is including with this bid an opinion of legal counsel which accurately and completely discloses the undersigned Offeror’s current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia. **Attach opinion of legal counsel to this form.**

****NOTE**** >> Check the following box if you have not completed any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for proposals (the City reserves the right to determine in its sole discretion whether to allow such waiver):

Signature: _____ **Date:** _____

Name: _____
(Print)

Title: _____

Name of Firm: _____

**** This form must be completed & returned with bid submission. ****

SECTION 00100.4 BID ATTACHMENTS
PROPRIETY/CONFIDENTIAL INFORMATION IDENTIFICATION FORM

Name of Firm/Bidder _____

Trade secrets or proprietary information submitted by an bidder shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the bidder must invoke the protections of §2.2-4342F of the Code of Virginia, in writing, either before or at the time the data or other material is submitted. The written notice must specifically identify the data or materials to be protected, including the section of the bid in which it is contained, as well as the page number(s), and state the reasons why protection is necessary. The proprietary or trade secret material submitted must be identified by some distinct method such as highlighting or underlining and must indicate only the specific words, figures, or paragraphs that constitute a trade secret or proprietary information. In addition, a summary of proprietary information provided shall be submitted on this form. The designation of an entire bid document, line item prices, and/or total bid prices as proprietary or trade secrets is not acceptable. If, after being given reasonable time, the bidder refuses to withdraw such a classification designation, the bid will be rejected.

SECTION/TITLE	PAGE NUMBER(S)	REASON(S) FOR WITHHOLDING FROM

Check this box if there are none.

[Note: If proprietary/confidential information is identified, Bidder is required to submit a redacted copy of their bid in addition to the required number of bids requested.](#)

**** This form must be completed & returned with bid submission. ****

SECTION 00100.5 BID ATTACHMENTS INSURANCE REQUIREMENTS FORM

By signing and submitting a bid or proposal the vendor certifies that if awarded the contract, they will have the following insurance coverages at the time the contract is awarded.

- 1) The contractor will maintain a general liability policy with \$2,000,000 combined single limits, including completed operations. Completed operations shall remain in effect for two years after final payment. These limits can be attained through one primary policy or a combination of primary and excess policies. Coverage is to be on an occurrence basis with an insurer licensed to conduct business in the Commonwealth of Virginia. The insurer must have an A. M. Best rating of A- or better. **The insurer must list the City of Harrisonburg and Wiley/ Wilson as an additional insured. The endorsement must be issued by the insurance company. A notation on the certificate of insurance is not sufficient.**
- 2) The contractor will maintain workers’ compensation coverage in compliance with the laws of the Commonwealth of Virginia. The coverage must have statutory limits and be with an insurer licensed to conduct business in the Commonwealth of Virginia. The insurer must have an A. M. Best rating of A- or better. As an alternative, it is acceptable for the contractor to be insured by a group self insurance association that is licensed by the Virginia Bureau of Insurance. The contractor will also carry employers liability insurance with a limit of at least \$100,000 bodily injury by accident/\$500,000 bodily injury by disease policy limit/\$100,000 bodily injury by disease each employee.
- 3) The contractor will maintain automobile liability insurance with limits of at least \$1,000,000. The coverage is to be written with a symbol “1”. The insurer must be licensed to conduct business in the Commonwealth of Virginia. The insurer must have an A. M. Best rating of A- or better.
- 4) Contractor shall provide Builders Risk Insurance which shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, materials, equipment on site and equipment in transit.

With all policies listed above, the insurer or agent of the insurer must issue a certificate of insurance and endorsement to show evidence of coverage.

This form and its requirements supersedes any and all references to insurance elsewhere in this document.

BIDDER STATEMENT

We understand the Insurance Requirements of these specifications and will comply in full if awarded this contract.

Signature: _____ Date: _____

Name: _____

Name of Firm: _____

**** This form must be completed & returned with bid submission. ****

SECTION 00100.8 BID ATTACHMENTS EXCEPTIONS TO TERMS & CONDITIONS

Comments and exceptions substantially altering the terms and conditions will not be considered after conclusion of the bid process and the award of a contract. Failure to submit a marked-up copy of the terms and conditions with a bid will be interpreted by City as the Bidder's acceptance of the terms and conditions provided herein.

List exceptions to any portions of Bid (General Terms & Conditions, Special Terms & Conditions, etc.):

Check this box if there are none.

**** This form must be completed & returned with bid submission. ****

SECTION 00100.9 BID ATTACHMENTS NON-COLLUSION AFFIDAVIT

Under oath, I hereby affirm under penalty of perjury:

- (1) That I am the bidder or a partner of the bidder, or an officer or employee of the bidding corporation with authority to sign on its behalf;
- (2) That the attached bid or bids have been arrived at by the bidder and have been arrived at and submitted without collusion or any design to limit bidding or competition;
- (3) That the contents of the bid or bids have not been communicated to any person not an employee or agent of the bidder on any bid furnished with the bid or bids, and will not be communicated to any such person prior to the official opening of the bid or bids; and
- (4) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed _____

Title _____

Firm Name _____

CITY/COUNTY OF _____,

STATE OF _____, to wit:

I, _____, a Notary Public, do certify that

_____ whose name is signed to the foregoing has

this date acknowledged the same before me in my City foresaid.

Given under my hand this _____ day of _____, 20____.

My Commission expires _____.

Notary Public

**** This form must be completed & returned with bid submission. ****



**Protective
&
Marine
Coatings**



MACROPOXY® 646 PW POTABLE WATER EPOXY

PART A	B58WX610	MILL WHITE
PART A	B58LX600	LIGHT BLUE
PART A	B58RX610	RED
PART A	B58HX610	BUFF
PART B	B58VX600	HARDENER
PART B	B58VX605	OAP HARDENER

Revised: Feb. 11, 2016

PRODUCT INFORMATION

4.56

PRODUCT DESCRIPTION

MACROPOXY 646 PW EPOXY is a high solids, high build, fast drying, polyamide epoxy classified by UL to ANSI/NSF 61 as a tank lining for potable water storage tanks. The high solids content ensures adequate protection of sharp edges, corners, and welds. B58VX605 Hardener contains Opti-Check OAP pigment technology for rapid holiday detection with safe blue light inspection lamps.

- Low VOC
- Low odor
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Mill White, Light Blue, Buff, and Red
Volume Solids:	72% ± 2%, mixed
Weight Solids:	85% ± 2%, mixed
VOC (EPA Method 24):	Unreduced: <250 g/L; 2.08 lb/gal mixed Reduced 10%: <300 g/L; 2.50 lb/gal
Mix Ratio:	1:1 by volume

Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
Wet mils (microns)	7.0	175	13.5	340
Dry mils (microns)	5.0	125	10*	250*
Coverage sq ft/gal (m²/L)	116	2.8	232	5.6
Theoretical coverage sq ft/gal (m²/L) @ 1 mil/25 micron dft	1152 (28.2)			

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

* See Recommended Systems on reverse side

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure for			
immersion:	14 days	7 days	4 days

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

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-Time:	30 minutes	30 minutes	15 minutes

For Potable Water Service, allow a minimum cure time of 7 days at 77°F (25°C) prior to placing in service. Sterilize and rinse per AWWA C652.

Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	91°F (33°C), TCC, mixed
Reducer/Clean Up:	Reducer R7K15

RECOMMENDED USES

Potable Water Tank Restrictions

Water Contact Temp: 23°C
7 Day Cure; Tanks ≥ 1,500 gallons: 2-3 cts
Maximum DFT: 20.0 mils (up to 10 mils/ct)
21 Day Cure; Pipes ≥ 15", 2 cts
Maximum DFT: 8 mils/ct

- Conforms to AWWA D102 ICS #1, #2, and #5, and OCS #5***

***Refer to respective systems

Acceptable for use as a primer in an ablatives antifouling system.

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Macropoxy 646 PW Fast Cure @ 6.0 mils (150 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	84 mg loss
Adhesion	ASTM D4541	1,037 psi
Corrosion Weathering¹	ASTM D5894, 36 cycles, 12,000 hours	Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 per rusting
Direct Impact Resistance	ASTM D2794 Modified	*120 in. lb.
Dry Heat Resistance	ASTM D2485	250°F (121°C)
Flexibility	ASTM D522, 180° bend, 3/4" mandrel	Passes
Humidity Resistance	ASTM D4585, 6000 hours	No blistering, cracking, or rusting
Immersion²	5 year potable water	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Immersion	18 months fresh and salt water	Passes, no rusting, blistering, or loss of adhesion
Pencil Hardness	ASTM D3363	3H
Water Vapor Permeance	ASTM D1653, Method B	1.16 grains/day

* Performed on 1/16 inch blasted steel

Epoxy coatings may darken or discolor following application and curing.

Footnotes:

¹ Zinc Clad II Plus Primer

² Galvapak/2 cts Macropoxy 646 PW



Protective & Marine Coatings



MACROPOXY® 646 PW POTABLE WATER EPOXY

PART A	B58WX610	MILL WHITE
PART A	B58LX600	LIGHT BLUE
PART A	B58RX610	RED
PART A	B58HX610	BUFF
PART B	B58VX600	HARDENER
PART B	B58VX605	OAP HARDENER

Revised: Feb. 11, 2016

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
Immersion, Steel:		
*AWWA D102: Inside Coating System No. 1		
minimum AWWA	8.0	(200)
1 ct. Macropoxy 646 PW	3.0	(75)
1 ct. Macropoxy 646 PW	5.0	(125)
*AWWA D102: Inside Coating System No. 2		
minimum AWWA	12.0	(300)
1 ct. Macropoxy 646 PW	3.0	(75)
1 ct. Macropoxy 646 PW	4.0	(100)
1 ct. Macropoxy 646 PW	5.0	(125)
*AWWA D102: Inside Coating System No. 5		
minimum AWWA	10.0	(250)
1 ct. Corothane I Galvapac	2.0	(50)
2 cts. Macropoxy 646 PW	4.0	(100)
Steel, forced cure (100 gallon minimum tank size or 15" or greater pipe diameter):		
2 cts. Macropoxy 646 PW	5.0-6.0	(125-150)
•12 mils maximum film thickness •Curing requirements		
•Flash 2 hours @ 75°F (24°C)		
•24 hours @ 150°F (66°C)		
•24 hours @ 75°F (24°C)		
Atmospheric, Steel:		
*AWWA D102: Outside Coating System No. 5		
minimum	6.0	(150)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
*AWWA D102: Outside Coating System No. 6		
minimum	6.0	(150)
1 ct. Corothane I GalvaPac PW	2.0	(50)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
Concrete/Masonry, smooth:		
2 cts. Macropoxy 646 PW	3.0-6.0	(75-150)

Refer to UL.com for maximum dft restrictions

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.

City of Harrisonburg, VA - Park View Tank 0.5 MG Elevated Water Tank ITB (2016017-PU-B) - Addendum #1

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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	
Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
Concrete & Masonry	
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 1-3

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	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Do not Tint.

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 110°F (43°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:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Part B:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Weight:	12.7 ± 0.2 lb/gal ; 1.5 Kg/L mixed, may vary by color

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® 646 PW POTABLE WATER EPOXY

PART A	B58WX610	MILL WHITE
PART A	B58LX600	LIGHT BLUE
PART A	B58RX610	RED
PART A	B58HX610	BUFF
PART B	B58VX600	HARDENER
PART B	B58VX605	OAP HARDENER

Revised: Feb. 11, 2016

APPLICATION BULLETIN

4.56

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.

Carbon Steel, Immersion Service:

Clean and degrease the surface prior to abrasive blasting per SSPC-SP 1 Solvent Cleaning. Methods described in SSPC-SP 1 include solvents, alkali, detergent/water, emulsions, and steam. The surface shall be abrasive blasted to SSPC-SP10/NACE No. 2 Near-White Blast Cleaning with a 2-3 mil (50-75 micron) profile. The anchor pattern shall be sharp with no evidence of a polished surface. The finished surface shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter with no more than 5% staining. After blasting, all dust and loose residue should be removed from the surface by acceptable means. Coat steel the same day as it is prepared and prior to the formation of rust.

Iron & Steel, Atmospheric Service:

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 (2 mils / 50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

Ductile Iron, Immersion Service:

Refer to National Association of Pipe Fabricators Surface Preparations Standard NAFP 500-03 as follows:

- NAFP 500-03-01 "Solvent Cleaning"
- NAFP 500-03-02 "Hand Tool Cleaning"
- NAFP 500-03-03 "Power Tool Cleaning"
- NAFP 500-03-04 "Abrasive Blast Cleaning of Ductile Iron Pipe".

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.

Concrete, Immersion Service:

For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 1-3.

Previously Painted Surfaces:

If in sound condition, clean the surface of all foreign material. Scarify the surface to create the desired surface profile. Apply coatings on a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary.

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 10	3
Brush-Off Blast	Sa 1	Sa 1	SP 10	4
Hand Tool Cleaning	OC St 2	OC St 2	SP 3	-
Rusted	OC St 2	OC St 2	SP 3	-
Pitted & Rusted	OC St 2	OC St 2	SP 3	-
Rusted	OC St 2	OC St 2	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 110°F (43°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/Clean UpReducer R7K15

Airless Spray

Pump.....	30:1
Pressure.....	2800 - 3000 psi
Hose.....	1/4" ID
Tip.....	.017" - .023"
Filter.....	60 mesh
Reduction.....	As needed up to 10% by volume

Brush

Brush.....	Nylon/Polyester or Natural Bristle
Reduction.....	As needed up to 10% by volume

Roller

Cover.....	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume

Recommended Spreading Rate per coat:

	Standard	AWWA
Wet mils (microns):	7.0 (175) - 13.5 (340)	4.2 (105) - 8.3 (208)
Dry mils (microns):	5.0 (125) - 10.0* (250)	3.0 (75) - 6.0* (150)
Coverage:	116 (2.8) - 232 (5.6) sq ft/gal (m ² /L)	192 (4.7) - 384 (9.4)

*See recommended systems on Product Information page

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



**Protective
&
Marine
Coatings**



MACROPOXY® 646 PW POTABLE WATER EPOXY

PART A	B58WX610	MILL WHITE
PART A	B58LX600	LIGHT BLUE
PART A	B58RX610	RED
PART A	B58HX610	BUFF
PART B	B58VX600	HARDENER
PART B	B58VX605	OAP HARDENER

Revised: Feb. 11, 2016

APPLICATION BULLETIN

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

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

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

Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
Wet mils (microns)	7.0	175	4.2	105
Dry mils (microns)	5.0	125	3.0	75
~Coverage sq ft/gal (m ² /L)	116	2.8	192	4.7
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil/25 micron dft	1152 (28.2)			

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

* See Recommended Systems on reverse side

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure for			
immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life: 10 hours 4 hours 2 hours

Sweat-in-Time: 30 minutes 30 minutes 15 minutes

For Potable Water Service, allow a minimum cure time of 7 days at 77°F (25°C) prior to placing in service. Sterilize and rinse per AWWA C652.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer R7K15. Clean tools immediately after use with Reducer R7K15.

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

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

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, over thinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, adhesion and UL ANSI/ NSF 61 approval.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K15.

Tinting is not recommended for immersion service.

Quik-Kick Epoxy Accelerator is acceptable for atmospheric use.

Do not use Quik-Kick Epoxy Accelerator for immersion service when UL certification is required.

Insufficient ventilation, incomplete mixing, miscatalyzation, and external heaters may cause premature yellowing.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

For Immersion Service: (if required) Holiday test in accordance with ASTM D5162 for steel, or ASTM D4787 for concrete.

Guidance on techniques and required equipment to inspect a coating system incorporating Opti-Check OAP Technology can be found in SSPC-TU 11.

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



COROTHANE® I GALVAPAC 2K ZINC PRIMER

PART A
PART F

B65G10
B69D210

BINDER
ZINC DUST

Revised: Nov 18, 2015

PRODUCT INFORMATION

5.11

PRODUCT DESCRIPTION

COROTHANE® I GALVAPAC 2K ZINC PRIMER is a two component, moisture curing urethane zinc-rich primer that contains micaceous iron oxide. Designed for low temperature application to blast cleaned or power tool cleaned steel surfaces.

- Low temperature application - down to 20°F (-7°C)
- Easy to apply and recoat
- Resistant to mudcracking
- Abrasion and chemical resistant
- Meets Class B requirements for Slip Coefficient and Creep Resistance, .54
- Enhanced coating strength and edge protection with micaceous iron oxide addition

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray
Volume Solids:	67% ± 2%, mixed
Weight Solids:	91.7% ± 2%
VOC (calculated):	<340 g/L; 2.8 lb/gal, mixed
Mix Ratio:	2 components; premeasured 2.75 gallon mix

Zinc Content in Dry Film: 83% ± 2% by weight

Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min	Max	Min	Max
Wet mils (microns)	4.5 (112)	6.8 (170)	3.0 (75)	6.0 (150)
Dry mils (microns)	3.0 (75)	4.0 (100)	2.0 (50)	4.0* (100*)
~Coverage sq ft/gal (m²/L)	268 (6.5)	358 (8.8)	268 (6.5)	536 (13)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1072 (26.2)			

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.
See Recommended Systems on Product Information page

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	45 minutes	20 minutes	10 minutes
To recoat (min.): atmospheric service	8 hours	4-6 hours	1 hour
To recoat (min.): immersion service	24 hours	12 hours	10 hours
To recoat (max.):	12 months	12 months	12 months
To cure: atmospheric service	5 days	3 days	1 day
To cure: immersion service	14 days	7 days	5 days

*If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.
For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.*

Shelf Life:	Part A - 12 months, unopened Part F - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	94°F (34°C), PMCC
Reducer/Clean Up:	Reducer #15, R7K15

RECOMMENDED USES

- **Immersion Service - potable water:** Meets NSF Standard 61 for use in potable water storage.
 - 250,000 gallon untopcoated
 - 20,000 gallon minimum topcoated
- Meets requirements of SSPC Paint Spec No. 40 for zinc rich moisture cure urethane primer
- As a primer in a urethane coating system for bridges, tanks, chemical, and marine structures
- Wind Towers - onshore and offshore
- Ideal for priming water assisted abrasive blasted surfaces where flash rusting or blooming limits the use of conventional zinc rich coatings
- Acceptable for use with cathodic protection with select topcoats
- Conforms to AWWA D102 Inside Coating System #3 (ICS-3), Inside Coating System #5 (ICS-5), Outside Coating System #2 (OCS-2), Outside Coating System #3 (OCS-3), Outside Coating System #4 (OCS-4), and Outside Coating System #6 (OCS-6)
- A component of INFINITANK

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP5

System Tested*:

- 1 ct. Corothane I GalvaPac 2K Zinc Primer @ 3.5 mils (88 microns) dft
 - 1 ct. Corothane I MIO-Aluminum @ 3.0 mils (75 microns) dft
- *unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	45 mg loss
Adhesion (Zinc only)	ASTM D4541	1943 psi
Corrosion Weathering	ASTM D5984, 15 cycles, 5000 hours	Rating 10 per ASTM D610 Rusting (field); Rating 10 per ASTM D714 Blistering
Direct Impact Resistance (Zinc only)	ASTM D2794	160 in. lb.
Dry Heat Resistance	ASTM D2485	300°F (149°C) continuous, 350°F (177°C) intermittent
Flexibility	ASTM D522, 180° bend, 1/4" mandrel	Passes
Immersion (Galvapac/2 cts Macropoxy 646 NSF)	5 year potable water	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Moisture Condensation Resistance (Zinc only)	ASTM D4585, 100°F (38°C), 4000 hours	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Pencil Hardness	ASTM D3363	2H (zinc only)
Salt Fog Resistance (Zinc only)	ASTM B117, 5000 hours	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Slip Coefficient* (Zinc only)	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class B, .54
Wet Heat Resistance	Non-immersion	190°F (88°C)

Complies with ISO 12944-5 C5I and C5M requirements.

*Refer to Slip Certification document



**Protective
&
Marine
Coatings**



COROTHANE® I GALVAPAC 2K ZINC PRIMER

**PART A
PART F**

**B65G10
B69D210**

**BINDER
ZINC DUST**

Revised: Nov 18, 2015

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
Immersion Service, Potable Water, Steel:		
1 ct. Corothane I GalvaPac 2K Zinc Primer	3.0-4.0	(75-100)
2 cts. Macropoxy 646 PW	5.0-10.0	(125-250)
Immersion Service (Non-Potable Water), Steel:		
1 ct. Corothane I GalvaPac 2K Zinc Primer	3.0-4.0	(75-100)
2 cts. Corothane I Coal Tar	5.0-7.0	(125-175)
Atmospheric Service, Steel:		
*AWWA D102 Outside Coating System No. 2 minimum AWWA	7.5	(188)
1 ct. Corothane I GalvaPac 2K Zinc Primer	3.0	(75)
1 ct. Corothane Ironox B	3.0	(75)
1 ct. Corothane I HS	1.5	(40)
*AWWA D102: Outside Coating System No. 6 minimum AWWA	6.0	(150)
1 ct. Corothane I GalvaPac 2K Zinc Primer	2.0	(50)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
Steel, Rapid Return to Service:		
1 ct. Corothane I GalvaPac 2K Zinc Primer	3.0-4.0	(75-100)
1 ct. Fast Clad Urethane	6.0-9.0	(150-225)
ISO 12944 C5M System:		
1 ct. Corothane I GalvaPac 2K Zinc Primer	3.0-4.0	(75-100)
1 ct. Fast Clad Urethane	6.0-9.0	(150-225)

Acceptable for use over Zinc Clad PCP Ultra. Topcoat required.

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

DISCLAIMER

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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
Atmospheric: SSPC-SP6/NACE 3, 2 mil (50 micron) profile preferred

Immersion, with recommended topcoat:
SSPC-SP10, 2 mil (50 micron) profile

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	C St 2	C St 2	SP 2	-
Pitted & Rusted	C St 2	C St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature:
air and surface: 20°F (7°C) minimum
120°F (49°C) maximum
material: 45°F (7°C) minimum

Do not apply over surface ice

Relative humidity: 30% minimum, 99% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:
Part A: 1.73 gallons (6.5L) in a 3 gallon (11.3L) container
Part F: 60 lb zinc dust, 7.2 Kg/L
Weight: 28.5 ± 0.2 lb/gal, 3.42 Kg/L

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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WARRANTY

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**Protective
&
Marine
Coatings**



COROTHANE® I GALVAPAC 2K ZINC PRIMER

**PART A
PART F**

**B65G10
B69D210**

**BINDER
ZINC DUST**

Revised: Nov 18, 2015

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 (immersion service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Iron & Steel (atmospheric service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

APPLICATION CONDITIONS

Temperature:
air and surface: 20°F (-7°C) minimum
120°F (49°C) maximum
material: 45°F (7°C) minimum

Do not apply over surface ice

Relative humidity: 30% minimum, 99% 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/Clean Up Reducer #15, R7K15

Airless Spray

Pump.....30:1
Pressure.....1800-2000 psi
Hose.....1/4" ID
Tip......015" - .019"
Filter.....60 mesh
Reduction.....As needed up to 10% by volume

Conventional Spray

Unit.....	Graco	Binks
Gun	900	95
Fluid Nozzle	070	66/65
Air Nozzle.....	947	63PR
Atomization Pressure.....	60-70 psi	60-70 psi
Fluid Pressure.....	15-20 psi	15-20 psi
Reduction.....	As needed up to 10% by volume	

Brush

Brush.....Natural bristle
Reduction.....As needed up to 10% by volume

Roller

Cover3/8" natural or synthetic with
solvent resistant core
Reduction.....As needed up to 10% by volume

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

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	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-



Protective
&
Marine
Coatings



COROTHANE® I GALVAPAC 2K ZINC PRIMER

PART A
PART F

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Corothane I - GalvaPac Zinc Primer comes in 2 premeasured containers which when mixed provides 2.75 gallons (10.4L) of ready-to-apply material.

Mixing Instructions: Thoroughly agitate Binder Part A. Using continuous air driven agitation, slowly mix all 60 lbs. of Zinc Dust, B69D210, Part F into Binder Part A until mixture is completely uniform. After mixing, pour mixture through 30-60 mesh screen. Mixed material must be used within 8 hours. Do not mix previously mixed material with new.

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

Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min	Max	Min	Max
Wet mils (microns)	4.5 (112)	6.8 (170)	3.0 (75)	6.0 (150)
Dry mils (microns)	3.0 (75)	4.0 (100)	2.0 (50)	4.0* (100*)
~Coverage sq ft/gal (m ² /L)	268 (6.5)	358 (8.8)	268 (6.5)	536 (13)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1072 (26.2)			

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

*See Recommended Systems on Product Information page

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C	@ 100°F/38°C
	50% RH		
To touch:	45 minutes	20 minutes	10 minutes
To recoat (min.): atmospheric service	8 hours	4-6 hours	1 hour
To recoat (min.): immersion service	24 hours	12 hours	10 hours
To recoat (max.):	12 months	12 months	12 months
To cure: atmospheric service	5 days	3 days	1 day
To cure: immersion service	14 days	7 days	5 days

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

For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #15, R7K15. Clean tools immediately after use with Reducer #15, R7K15. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

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PERFORMANCE TIPS

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

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.

Excessive reduction of material can affect film build, appearance, adhesion, and NSF 61 approval.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15.

Pour a small amount of Reducer #15, R7K15 over the top of the paint in the can to prevent skinning or gelling.

Place a temporary cover over the pail to keep excessive moisture, condensation, fog, or rain from contaminating the coating.

Do not use continuous agitation.

It is recommended that partially used cans not be sealed/closed for use at a later date.

An intermediate coat is recommended to provide a uniform appearance of the topcoat.

Corothane I KA Accelerator is acceptable for use (except NSF applications). See data page 5.98 for details.

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

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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WARRANTY

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Protective & Marine Coatings

FLUOROKEM™ HS GLOSS FLUOROPOLYMER URETHANE

Part A	B65-560	Satin
Part A	B65-570	Semi-Gloss
Part A	B65-580	Gloss
Part B	B65V580	Hardener

Revised: Nov. 25, 2015

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

FLUOROKEM HS is a premium, ultra-durable ambient cured high solids fluoropolymer urethane finish. Provides unparalleled color and gloss performance, even in the most severe exposures.

- Superior exterior durability
- Fast dry
- Graffiti resistant
- Chemical and abrasion resistant
- Airless, conventional spray, and brush and roll application
- Ambient temperature cure

PRODUCT CHARACTERISTICS

Finish: Satin, 15-25 units @ 60 degrees
Semi-Gloss, 50-60 units @ 60 degrees
Gloss, 80+ units @ 60 degrees

Color: Wide range of colors available

Volume Solids: 60% ± 2%
(mixed, may vary by color)

Weight Solids: 77% ± 2%
(mixed, may vary by color)

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

Mix Ratio: 4:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	3.5 (90)	5.0 (125)
Dry mils (microns)	2.0 (50)	3.0 (75)
~Coverage sq ft/gal (m ² /L)	321 (7.9)	481 (11.8)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	960 (23.5)	

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

Drying Schedule @ 4.0 mils wet (100 microns):

	@ 50°F/10°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	6 hours	2 hours	1 hour
To handle:	24 hours	4 hours	2 hours
To recoat:			
minimum:	24 hours	4 hours	2 hours
maximum:	45 days	45 days	45 days
Pot Life:	4 hours	2 hours	30 minutes
Sweat-in-Time:	None required		

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

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

Flash Point: <60°F (16°C), PMCC, mixed

Reducer: R7K111(VOC exempt), as needed up to 5%

Clean Up: R7K15

RECOMMENDED USES

Interior or exterior exposure where extreme weather durability is required.

- Water tanks
- Storage tank exteriors
- Bridges
- Marine
- Municipal building
- Fascias
- A component of INFINITANK
- Stadiums
- Sports complexes
- Museums
- Schools
- High visibility areas

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

Primer: Macropoxy 646 @ 6.0 mils (150 microns) dft
Finish: FluoroKem HS @ 2.5 mils (63 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Adhesion	ASTM D4541	2,655 psi
Direct Impact Resistance (topcoat only)	ASTM G14	80 in. lbs.
Dry Heat Resistance	ASTM D2485	200°F (93°C)
Flexibility (topcoat only)	ASTM D522, 180° bend, 1/8" mandrel	Passes
Pencil Hardness (topcoat only)	ASTM D3363	HB



Protective & Marine Coatings

FLUOROKEM™ HS GLOSS FLUOROPOLYMER URETHANE

Part A	B65-560	Satin
Part A	B65-570	Semi-Gloss
Part A	B65-580	Gloss
Part B	B65V580	Hardener

Revised: Nov. 25, 2015

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
Recommended Primers:			
Steel:			
1 ct.	Duraplate 235	4.0-8.0	(100-200)
or			
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
or			
1 ct.	Epoxy Mastic Aluminum II	4.0-6.0	(100-150)
1 -2 cts.	FluoroKem HS	2.0 -3.0	(50-75)
Concrete/Masonry-smooth:			
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1- 2 cts.	FluoroKem HS	2.0-3.0	(50-75)
Steel Tank Exteriors-AWWA D102 OCS No. 4			
1 ct.	Corothane I- Galvapac	2.0	(50)
1 ct.	Acrolon 218 HS	3.0	(75)
1 ct.	FluoroKem HS	2.0	(50)

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

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-SP6/NACE 3
- *Concrete & Masonry: SSPC-SP13/NACE 6 or ICRI No. 310.2R, CSP 1-3
- *Prime with recommended primers as needed.

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	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

TINTING

Do not tint.

Color: Wide range of colors available

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: 1 gallon (3.78L) and 5 gallon (18.9L) containers
Part B: Quart (0.94L) and 1 gallon (3.78L) containers
Premeasured components.

Weight (varies by color): 9.7-12.9 ± 0.2 lb/gal ; 1.16-1.55 Kg/L

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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WARRANTY

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Protective & Marine Coatings

FLUOROKEM™ HS GLOSS FLUOROPOLYMER URETHANE

Part A	B65-560	Satin
Part A	B65-570	Semi-Gloss
Part A	B65-580	Gloss
Part B	B65V580	Hardener

Revised: Nov. 25, 2015

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

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs. Primer Required.

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. Primer required.

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.

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	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	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:	R7K111, as needed up to 5%
Clean Up:	R7K15

Conventional Spray

Gun.....	Model 95 Binks
Tip.....	67
Needle.....	667
Air Cap.....	67PB
Atomization Pressure.....	45 – 55 psi
Fluid Pressure.....	15 - 20 psi

HVLP (Spray Pot)

Gun.....	Binks Mach 1 SL
Tip.....	92
Needle.....	ABSS
Air Cap.....	95 AP
Atomization Pressure.....	50 psi
Fluid Pressure.....	20 psi

Air Assisted Airless

Pump.....	Graco 30:1 President
Gun.....	Graco Air-Assisted Gun
Tip.....	411
Atomization Pressure.....	30 psi
Fluid Pressure.....	60 psi

Airless Spray

Pressure.....	1500 – 2200 psi
Hose.....	¼ in D
Tip.....	013 " - .015"
Filter.....	60 mesh

Brush

Brush.....	Natural Bristle
------------	-----------------

Roller

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

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



Protective & Marine Coatings

FLUOROKEM™ HS GLOSS FLUOROPOLYMER URETHANE

Part A	B65-560	Satin
Part A	B65-570	Semi-Gloss
Part A	B65-580	Gloss
Part B	B65V580	Hardener

Revised: Nov. 25, 2015

APPLICATION BULLETIN

5.37

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part A with 1 part by volume of Part B. Thoroughly agitate the mixture with slow speed power agitation for 2-3 minutes.

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)	3.5 (90)	5.0 (125)
Dry mils (microns)	2.0 (50)	3.0 (75)
~Coverage sq ft/gal (m ² /L)	321 (7.9)	481 (11.8)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	960 (23.5)	

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

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 50°F/10°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	6 hours	2 hours	1 hour
To handle:	24 hours	4 hours	2 hours
To recoat:			
minimum:	24 hours	4 hours	2 hours
maximum:	45 days	45 days	45 days
Pot Life:	4 hours	2 hours	30 minutes
Sweat-in-Time:	None required		

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

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with R7K15. Clean tools immediately after use with R7K15. Follow manufacturer's safety recommendations when using solvent.

DISCLAIMER

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City of Harrisonburg, VA - Park View Tank 0.5 MG Elevated Water Tank ITB (2016017-PU-B) - Addendum #1

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www.sherwin-williams.com/protective

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, over thinning, climate conditions, and excessive film build.

Excessive reduction of material 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 down time with R7K15.

Drying time is temperature, humidity, and film thickness dependent.

Always test adhesion by applying a test patch of 2-3 square feet. Allow to dry one week before checking adhesion.

This product is moisture sensitive. Avoid moisture contamination

Temperatures above 77°F (25°C) will shorten pot life.

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**



Certified to
NSF/ANSI 61

COROTHANE® I GALVAPAC 1K ZINC PRIMER

B65G11

GRAY

Revised: April 2, 2015

PRODUCT INFORMATION

5.14

PRODUCT DESCRIPTION

COROTHANE I GALVAPAC 1K ZINC PRIMER is a low VOC, moisture curing urethane zinc-rich primer. Designed for low temperature application to steel surfaces.

- Low temperature application - down to 20°F (-7°C)
- NSF approved to Standard 61 for potable water
- Abrasion and chemical resistant
- Easy to apply and recoat
- Usable for immersion service with recommended topcoat
- Resistant to mudcracking
- Meets Class B requirements for Slip Coefficient and Creep Resistance, .54
- Enhanced coating strength and edge protection with micaceous iron oxide addition

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray
Volume Solids:	67% ± 2%
Weight Solids:	91.7% ± 2%
VOC (calculated):	<300 g/L; 2.5 lb/gal
Zinc Content in Dry Film:	85% by weight

Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
Wet mils (microns)	4.5	112	6.8	170
Dry mils (microns)	3.0	75	4.0	100
-Coverage sq ft/gal (m²/L)	268	6.5	358	8.8
Theoretical coverage sq ft/gal (m²/L) @ 1 mil/25 micron dft	1072 (26.2)			

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

*See Recommended Systems on reverse side

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C	@ 100°F/38°C
	50% RH		
To touch:	45 minutes	20 minutes	10 minutes
To recoat (minimum), atmospheric service:	8 hours	4-6 hours	1 hour
To recoat (minimum), immersion service:	24 hours	12 hours	10 hours
To recoat (maximum):	12 months	12 months	12 months
To cure, atmospheric service:	5 days	3 days	1 day
To cure, immersion service:	14 days	7 days	5 days

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

For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.

Shelf Life:	12 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	94°F (34°C), PMCC
Reducer/Clean Up:	Reducer #15, R7K15 (or) Reducer #111, R7K111 for non-NSF, VOC exempt applications

RECOMMENDED USES

- **Immersion Service - potable water:** Meets NSF Standard 61 for use in potable water storage.
 - 250,000 gallon untopcoated
 - 20,000 gallon minimum topcoated
- Meets requirements of SSPC Paint Spec No. 40 for zinc rich moisture cure Urethane primer
- As a primer in a urethane coating system for bridges, tanks, chemical, and marine structures
- Ideal for priming water assisted abrasive blasted surfaces where flash rusting or blooming limits the use of conventional zinc rich coatings
- Acceptable for use with cathodic protection with select topcoats
- Conforms to AWWA D102 Inside Coating System #3 (ICS-3), Inside Coating System #5 (ICS-5), Outside Coating System #2 (OCS-2), Outside Coating System #3 (OCS-3), Outside Coating System #4 (OCS-4), and Outside Coating System #6 (OCS-6)
- A component of INFINITANK

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP5

System Tested*:

- 1 ct. Corothane I GalvaPac 1K Zinc Primer @ 3.5 mils (88 microns) dft
 - 1 ct. Corothane I MIO-Aluminum @ 3.0 mils (75 microns) dft
- *unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	45 mg loss
Adhesion (GalvaPac only)	ASTM D4541; ASTM D3359	1943 psi (ASTM D4541); 5B (ASTM D3359)
Corrosion Weathering	ASTM D5894, 15 cycles, 5000 hours	Rating 10 per ASTM D610 Rusting (field); Rating 10 per ASTM D714 Blistering
Direct Impact Resistance (Galva-Pac only)	ASTM G14	160 in. lb.
Dry Heat Resistance	ASTM D2485	300°F (149°C) continuous, 350°F (177°C) intermittent
Flexibility	ASTM D522, 180° bend, 1/4" mandrel	Passes
Immersion (Galvapac/2 cts Macropoxy 646 NSF)	5 year potable water	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Moisture Condensation Resistance (GalvaPac only)	ASTM D4585, 100°F (38°C), 4000 hours	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Pencil Hardness	ASTM D3363	2H (zinc only)
Salt Fog Resistance (GalvaPac only)	ASTM B117, 5000 hours	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Slip Coefficient* (GalvaPac only)	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class B, .54, tension and creep <.005"
Wet Heat Resistance	Non-immersion	190°F (88°C)

*Refer to Slip Certification document



**Protective
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COROTHANE® I GALVAPAC 1K ZINC PRIMER

B65G11

GRAY

Revised: April 2, 2015

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

Dry Film Thickness / ct.
Mils (Microns)

Immersion Service (Potable Water), Steel:

*AWWA D102: Inside Coating System No. 5 minimum AWWA	10.0	(250)
1 ct. Corothane I GalvaPac 1K Zinc Primer	2.0	(50)
2 ct. Macropoxy 646 PW	4.0	(100)

Immersion Services, Potable Water, Steel:

1 ct. Corothane I GalvaPac 1K Zinc Primer	3.0-4.0	(75-100)
2 cts. Macropoxy 646 PW	5.0-10.0	(125-250)

Immersion Service (Non-Potable Water), Steel:

1 ct. Corothane I GalvaPac 1K Zinc Primer	3.0-4.0	(75-100)
2 cts. Corothane I Coal Tar	5.0-7.0	(125-175)

Atmospheric Service, Steel:

*AWWA D102 Outside Coating System No.2 minimum AWWA	7.5	(188)
1 ct. Corothane I GalvaPac 1K Zinc Primer	3.0	(75)
1 ct. Corothane Ironox B	3.0	(75)
1 ct. Corothane I HS	1.5	(40)

*AWWA D102: Outside Coating System No. 6 minimum AWWA	6.0	(150)
1 ct. Corothane I GalvaPac 1K Zinc Primer	2.0	(50)
1 ct. Macropoxy 646 NSF	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)

Steel: Rapid Return to Service

1 ct. Corothane I GalvaPac 1K Zinc Primer	3.0-4.0	(75-100)
1 ct. Fast Clad Urethane	6.0-9.0	(150-225)

Acceptable for use over Zinc Clad PCP Ultra. Topcoat required.

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

DISCLAIMER

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City of Harrisonburg, VA - Park View Tank 0.5 MG Elevated Water Tank ITB (2016017-PU-B) - Addendum #1

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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	
Atmospheric:	SSPC-SP6, 2 mil (50 micron) profile preferred
Immersion, with recommended topcoat:	SSPC-SP10/NACE 2, 2 mil profile

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	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature:	
air and surface	20°F (-7°C) minimum, 120°F (49°C) maximum
material:	45°F (7°C) minimum

Do not apply over surface ice

Relative humidity: 30% minimum, 99% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	3 gallon (11.3L) container
Weight:	28.5 ± 0.2 lb/gal ; 3.42 Kg/L

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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WARRANTY

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COROTHANE® I GALVAPAC 1K ZINC PRIMER

B65G11

GRAY

Revised: April 2, 2015

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 (immersion service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Iron & Steel (atmospheric service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

APPLICATION CONDITIONS

Temperature:
air and surface 20°F (-7°C) minimum, 120°F (49°C) maximum
material: 45°F (7°C) minimum
Do not apply over surface ice
Relative humidity: 30% minimum, 99% 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/Clean Up Reducer #15, R7K15 (or) Reducer #111, R7K111 for non-NSF, VOC exempt applications

Airless Spray

Pump.....30:1
Pressure.....2500 - 3000 psi
Hose.....1/4" ID
Tip0.017" - .019"
Filter60 mesh
Reduction.....As needed up to 10% by volume

Conventional Spray

Unit.....	Graco	Binks
Gun	900	95
Fluid Nozzle	070	66/65
Air Nozzle.....	947	66PR
Atomization Pressure.....	60-70 psi	60-70 psi
Fluid Pressure.....	15-20 psi	15-20 psi
Reduction.....	As needed up to 10% by volume	

Brush

Brush.....Natural bristle
Reduction.....As needed up to 10% by volume

Roller

Cover3/8" natural or synthetic with solvent resistant core
Reduction.....As needed up to 10% by volume

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

Surface Preparation Standards

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



Protective
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Coatings



COROTHANE® I GALVAPAC 1K ZINC PRIMER

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Revised: April 2, 2015

APPLICATION BULLETIN

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix material thoroughly prior to use with a low speed power agitator until completely uniform. After mixing, pour through a 50 mesh filter.

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

	Standard		AWWA	
	Min.	Max.	Min.	Max.
Wet mils (microns)	4.5	112	6.8	170
Dry mils (microns)	3.0	75	4.0	100
~Coverage sq ft/gal (m ² /L)	268	6.5	358	8.8
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil/25 micron dft	1072 (26.2)			

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance. *See Recommended Systems on reverse side*

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C	@ 100°F/38°C
	50% RH		
To touch:	45 minutes	20 minutes	10 minutes
To recoat (minimum), atmospheric service:	8 hours	4-6 hours	1 hour
To recoat (minimum), immersion service:	24 hours	12 hours	10 hours
To recoat (maximum):	12 months	12 months	12 months
To cure, atmospheric service:	5 days	3 days	1 day
To cure, immersion service:	14 days	7 days	5 days

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

For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #15, R7K15 or R7K111. Clean tools immediately after use with Reducer #15, R7K15 or R7K111. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

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City of Harrisonburg, VA - Park View Tank 0.5 MG Elevated Water Tank ITB (2016017-PU-B) - Addendum #1

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PERFORMANCE TIPS

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

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.

Excessive reduction of material can affect film build, appearance, and adhesion.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15 or R7K111.

Pour a small amount of Reducer #15, R7K15 or R7K111 over the top of the paint in the can to prevent skinning or gelling.

Place a temporary cover over the pail to keep excessive moisture, condensation, fog, or rain from contaminating the coating.

It is recommended that partially used cans not be sealed/closed for use at a later date.

An intermediate coat is recommended to provide a uniform appearance of the topcoat.

Not for use with cathodic protection except as indicated under the recommended systems.

Corothane I KA Accelerator is acceptable for use (except NSF applications). See data page 5.98 for details.

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

SAFETY PRECAUTIONS

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Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

PRODUCT INFORMATION

5.22

PRODUCT DESCRIPTION

ACROLON 218 HS is a polyester modified, aliphatic, acrylic polyurethane formulated specifically for in-shop applications. Also suitable for industrial applications. A fast drying, urethane that provides color and gloss retention for exterior exposure.

- Can be used directly over organic zinc rich primers (epoxy zinc primer and moisture cure urethane zinc primer)
- Color and gloss retention for exterior exposure
- Fast dry
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Gloss or Semi-Gloss
Color:	Wide range of colors available
Volume Solids:	65% ± 2%, mixed, may vary by color
Weight Solids:	78% ± 2%, mixed, may vary by color
VOC (EPA Method 24):	Unreduced: <300 g/L; 2.5 lb/gal mixed Reduced 10% with R7K15: <340 g/L; 2.8 lb/gal mixed Reduced 9% with MEK, R6K10: <340 g/L; 2.8 lb/gal
Mix Ratio:	6:1 by volume, 1 gallon or 5 gallon mixes premeasured components

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m²/L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1040 (25.5)	

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

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
<i>(reduced 5% with Reducer R7K15)</i>			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent. Paint temperature must be at least 40°F (4.5°C) minimum.

Shelf Life:	Part A* - 36 months, unopened Part B - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
--------------------	---

*Aluminum (Part A, Rex # B65SW655) has a shelf life of 24 months.

Flash Point: 55°F (13°C), Seta, mixed

Reducer/Clean Up:

Spray: Reducer R7K15, MEK R6K10, or R7K111

Brush / Roll: Reducer #132, R7K132 or R7K111

RECOMMENDED USES

Specifically formulated for in-shop applications. For use over prepared metal and masonry surfaces in industrial environments such as:

- Structural steel
- Rail cars and locomotives
- Conveyors
- Bridges
- Wind Towers - onshore and offshore
- Offshore platforms - exploration and production
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102 Outside Coating Systems #4 (OCS-4), #5 (OCS-5) & #6 (OCS-6)
- Acceptable for use in high performance architectural applications
- Acceptable for use over and/or under Loxon S1 and Loxon H1 Caulking
- A component of INFINITANK
- Over FIRETEX® hydrocarbon systems
- Suitable for use in the Mining & Minerals Industry

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Macropoxy 646 @ 6.0 mils (150 microns) dft

1 ct. Acrolon 218 HS Gloss @ 4.0 mils (100 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance¹	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	43 mg loss
Adhesion³	ASTM D4541	1976 psi
Corrosion Weathering³	ASTM D5894, 27 cycles, 9072 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Direct Impact Resistance¹	ASTM D2794	50 in. lb.
Dry Heat Resistance¹	ASTM D2485, Method A	200°F (93°C)
Flexibility¹	ASTM D522, 180° bend, 1/8" mandrel	Passes
Humidity Resistance²	ASTM D4585, 100°F (38°C), 1500 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance³	ASTM B117, 15,000 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering

Meets the requirements of SSPC Paint No. 36, Level 3 for white and light colors. Dark colors may require a clear coat.

Complies with ISO 12944-5 C5I and C5M requirements.

Footnotes:

¹ Finish coat only tested

² Primer Zinc-Clad II Plus

Intermediate Macropoxy 646

Finish Acrolon 218 HS

³Primer Zinc-Clad III HS



Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A **B65-600** **GLOSS SERIES**
PART A **B65-650** **SEMI-GLOSS SERIES**
PART B **B65V600** **HARDENER**

Revised: Sept. 29, 2015

PRODUCT INFORMATION

5.22

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
Steel:			
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad II Plus	3.0-5.0	(75-125)
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Corothane I-GalvaPac Zinc Primer	3.0-4.0	(75-100)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Epoxy Mastic Aluminum II	6.0	(150)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Concrete/Masonry:			
1 ct.	Kem Cati-Coat HS Epoxy Filler/Sealer	10.0-20.0	(250-500)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Aluminum/Galvanizing:			
1 ct.	DTM Wash Primer	0.7-1.3	(18-32)
1-2 cts.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
ISO 12944 C5M System:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Tower Guard Epoxy	5.0-11.5	(125-287.5)
1 ct.	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)

FIRETEX ONLY:

Finish Coat for FIRETEX Hydrocarbon Systems:

1 ct. Acrolon 218 HS Polyurethane*
 *Consult FIRETEX PFP Specialist for recommended dft range

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

DISCLAIMER

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City of Harrisonburg, VA - Park View Tank 0.5 MG Elevated Water Tank ITB (2016017-PU-B) - Addendum #1

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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-SP6/NACE 3, 1-2 mil (25-50 micron) profile
- * Galvanizing: SSPC-SP1
- * Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3

* Primer required

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 3	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

TINTING

Tint Part A with Maxitoner Colorants.

- Extra white tints at 100% tint strength
- Ultradeep base tints at 150% tint strength

Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature: 35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface)
 40°F (4.5°C) minimum, 120°F (49°C) maximum (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: 1 gallon (3.78L) mix: 5 gallon (18.9L) mix:
 Part A: .86 gal (3.25L) 4.29 gal (16.2L)
 Part B: .14 gal (0.53L) 0.71 gal (2.7L)
 (premeasured components)

Weight: 11.2 ± 0.2 lb/gal ; 1.3 Kg/L
 mixed, may vary with color

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

ACROLON™ 218 HS ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised: Sept. 29, 2015

APPLICATION BULLETIN

5.22

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

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs. Primer required.

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. Primer required.

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.

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:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (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/Clean Up:

Spray.....	Reducer R7K15, MEK R6K10, or R7K111
Brush/Roll	Reducer #132, R7K132, or R7K111
If reducer is used, reduce at time of catalyzation.	

Airless Spray

Pressure.....	2500 - 2800 psi
Hose.....	3/8" ID
Tip013" - .017"
Filter	60 mesh
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Conventional Spray

Gun	Binks 95
Cap	63P
Atomization Pressure.....	50 - 70 psi
Fluid Pressure.....	20 - 25 psi
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Brush

Brush.....	Natural Bristle
Reduction.....	As needed up to 10% by volume*

Roller

Cover	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume*

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

* Note: Reducing more than maximum recommended level will result in VOC exceeding 340g/L



Protective & Marine Coatings

ACROLON™ 218 HS ACRYLIC POLYURETHANE

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Revised: Sept. 29, 2015

APPLICATION BULLETIN

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine six parts by volume of Part A with one part by volume of Part B (premeasured components). Thoroughly agitate the mixture with power agitation. Re-stir before using.

If reducer 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)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m ² /L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1040 (25.5)	

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

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
<small>(reduced 5% with Reducer R7K15)</small>			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent. Paint temperature must be at least 40°F (4.5°C) minimum.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #132, R7K132. Clean tools immediately after use with Reducer #132, R7K132. Follow manufacturer's safety recommendations when using any solvent.

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PERFORMANCE TIPS

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

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.

Excessive reduction of material 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 #15, R7K15 or MEK, R6K10.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

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

SAFETY PRECAUTIONS

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SECTION 099100 - WATER STORAGE TANK PAINTING

PART 1-GENERAL

1.1 DESCRIPTION

- A. Elevated steel tank painting shall be provided for interior and exterior surfaces, and accessories.

1.2 REFERENCE SPECIFICATIONS AND STANDARDS ARE REFERRED TO BY ABBREVIATION AS FOLLOWS:

- A. American Water Works Association..... AWWA
- B. National Sanitation Foundation.....NSF
- C. Steel Structures Painting Council.....SSPC

1.3 SUBMITTALS: provide the following in a timely manner in accordance with the approved submittals schedule as specified in division 01 - general requirements.

- A. Submittal: submittal data on paint system
- B. Submittal: complete preparation and painting schedule. Include adequate instructions for both the tank fabricator and coatings applicator. State pot life, recoat time, and lowest permitted application temperature each coat.
- C. Submittal: manufacturer's certificates and test reports as applicable including the one-year inspection report.
- D. Submittal: manufacturer's certificate that a qualified representative is familiar with the project and the exposures requiring coating, and that the proposed coating systems are suitable for the respective purposes.
 - 1. Notify the Engineer if prevailing conditions conflict with said certification, and proceed only upon their instructions.
- E. Submittal: Contractor's Affidavit, in accordance with Section 1.4 of AWWA D102, stating that the work and materials furnished under this contract are in compliance with AWWA D102, and the provisions of this specification.
- F. Submittal: Contractor's report at the conclusion of dry film thickness (DFT) testing, in accordance with Section 8.5 of AWWA D102.
- G. Submittal: Contractor's report covering the first anniversary coatings inspection. The report shall set forth the number and type of failures observed, the percentage of surface area where failure has occurred, and the names of the persons making the inspection and the Contractor's approach to correcting any deficiencies in accordance with Section 9.3 of AWWA D102. Include color photographs in the report illustrating each type of failure.

1.4 QUALITY ASSURANCE

- A. Coating applicator shall be approved by the coating manufacturer. Owner will require qualification of applicator, which shall include satisfactory completion of at least two projects of this general nature.
- B. When manufacturer's recommendation indicates that the tank's initial prime coat may be applied in the shop and allows at least a 4-month delay until a thorough patch prime is field applied, such procedure will be acceptable.
- C. Lead-free interior and exterior coatings: the tank interior and exterior paint systems shall be certified lead-free (contain less than 0.06 percent total lead in the dry film paint thickness).
- D. A testing firm engaged by Owner may subject painting work and products to tests for pinholes. The Contractor shall supply the equipment for the Holiday testing as directed by the inspection company or by the Engineer, number of coats, dry mil thickness, and formulation. Material samples will be selected at random by the Engineer or the testing firm if required.
- E. Label of each container shall include manufacturer's name, type of material, stock number, label analysis, and instructions for use.
- F. All coatings, sealants, etc., in contact with potable water must be listed in NSF Standard 61.
- G. Preapplication conference and site inspection: after set-up for painting but before commencing work, conduct a preapplication conference at the site among representatives of the paint manufacturer, Contractor, painting subcontractor, and the Owner's representatives to inspect the tank and review procedures recommended by the manufacturer for the prevailing conditions.
- H. Before expiration of the 1-year guarantee period, the tank shall be subject to draining and inspection by representatives of the Owner, paint manufacturer, and Contractor. All areas indicating evidence of failure shall be properly repaired at no additional cost to owner. Comply with AWWA D102, Section 9.0 "First Anniversary Inspection." Contractor will be responsible for disinfection after "First Anniversary Inspection". Contractor shall supply all rigging for the inspection.

1.5 PRODUCTS DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, labeled containers, unopened.
- B. Store painting materials only where designated by the Owner or insurance agency having jurisdiction, and restrict the storage to painting materials and related equipment for the project. Storage shall be clean, orderly, and accessible.

- C. Comply with health and fire regulations, recognizing the special hazards of painting work in addition to usual construction hazards.
- D. Cleaning solvents shall have a flash point of 100 degrees F or greater, and M.A.C. of 100 ppm or greater.

2. PRODUCTS

- 2.1 Paint shall be a unified water tank painting system supplied by one of the following manufacturers or approved equal.
 - A. Induron Coatings, Inc.
 - B. Sherwin-Williams Inc.
 - C. Tnemec, Inc.
- 2.2 Colors for exterior of tank: match color chips selected by owner from the approved manufacturer's standard paint colors.
- 2.3 Secondary products not specified by name and required for the job such as oils and thinners shall be in original labeled containers, identifiable as the manufacturer's best grade, and suitable for the use intended.

3. EXECUTION

- 3.1 Painting operations shall be in accordance with AWWA D102 using NSF 61 certified products where applicable.
- 3.2 SURFACE PREPARATION
 - A. Caution: follow preparation with specified primer promptly. Deterioration or new rust shall require complete preparation again.
 - B. Welds and sharp edges: maintain on site at all times the NACE Standard RP0178, Item No. 53041 entitled "Standard Recommended Practice Fabrication Details, Surface Finish Requirements, and Proper Design for Tanks and Vessels to be Lined for Immersion Service," and fully comply with the provisions of this standard.
 - 1. Grind sharp edges and fillets to a smooth radius of at least 1/8-inch (3 millimeters); 1/4-inch (6 millimeters) is preferred.
 - 2. Tank surfaces to be coated shall contain no wax or grease pencil marks, gouges, handling marks, deep scratches, metal stamp marks, slivered steel, or other surface flaws. Repair flaws by solvent cleaning, welding, or grinding, as appropriate.
 - 3. Grind all rough welds to remove sharp edges, undercuts, pinholes, and other such irregularities. Chipping can be used to remove sharp edges if followed by grinding.

See NACE Standard Appendix C for written and graphic descriptions of five different degrees of surface finishing of welds that may be specified preparatory to the lining of tanks and vessels.

All interior tank bowl welds shall comply with NACE weld preparation designation "C".

All other welds shall comply with NACE weld preparation designation "D".

The amount of grinding performed shall be judicious and performed only to the extent necessary to prepare the weld surface and surrounding metal surfaces in accordance with the specification. Overgrinding, which would result in decreasing the wall thickness or the integrity of the weld beyond the limitations imposed by good welding practices, applicable welding codes, pressure vessel ratings, etc., shall be avoided.

4. Remove all weld spatter. The tank contractor shall be responsible to make sure that all weld spatter is removed. The paint subcontractor shall be responsible if any areas are missed in the inspection of such tank. Chipping may be used if followed by grinding or use of an abrasive disc.
5. An anti-spatter coating may be applied adjacent to the weld area prior to welding. The use of silicone, oil, or any other anti-spatter materials that would not be readily removed by abrasive blasting shall be avoided.
6. The use of oils or other foreign materials for checking weld continuity which would leave a contaminating residue not easily removed by abrasive blasting shall be prohibited.

C. Nonsubmerged steel:

1. SSPC-SP 6, Commercial Blast.

D. Submerged steel and all interior wet surfaces of tank and interior accessories.

1. SSPC-SP 10 Near White Blast.

E. Where steel in roof area will form mating surfaces upon assembly, or where the surface will be inaccessible for painting, apply zinc immersion rated prime coat (2.5-3.5 mils thickness) over surface preparation SSPC-SP10 "Near White Sandblast" before assembly. Do not weld on areas coated with zinc primers, as heating the steel substrate will release toxic fumes.

F. Tank components may be prepared and primed in the shop. Follow the coating system manufacturer's printed directions regarding selection and application of primer, mil thickness, minimum and maximum time between coats, further field preparation, and patch coat. Submit proposed data to Engineer for review and approval; particularly regarding brush-off blast of epoxy shop primer to create bond for field coat.

- G. Field welds and shop coat abrasions:
1. After field welding is completed, clean all weld areas and all areas on which the shop paint has been damaged.
 2. Clean outside surfaces and interior dry surfaces by SSPC-SP6 "Commercial Blast Cleaning", except SSPC-SP3 "Power Tool Cleaning" may be used when this is a satisfactory method of surface preparation for the primer that will be applied.
 3. Clean submerged and all interior wet surfaces by SSPC-SP10 "Near White Blast Cleaning."

3.3 APPLICATION

- A. Specified coatings differ sharply from general paint work and work shall be conducted in accordance with manufacturer's approved painting requirements as outlined in approved shop drawing submittal by certified application contractor with a minimum of 10-years' experience applying manufacturer's paint systems on water tank structures.
- B. Proceed with surface preparation and coating application only when air and surface temperatures are above the manufacturer's recommended minimum surface temperature in degrees F and below 95 degrees F, and surface temperature is at least 5 degrees above the dewpoint. Coating shall not be applied to dusty (the contractor shall use a dust collector to remove all dust from the tank while blasting and painting), wet, or damp surfaces, and shall not be applied in rain, snow, fog, mist, or when relative humidity exceeds 85 percent.
1. No coating shall be applied when it is expected that the relative humidity will exceed 85 percent or when the air temperature will drop below 40 degrees F within 8 hours after the application of the coating. If working conditions are questionable, Engineer, after review of field conditions, shall make the decision and the contractor shall accept Engineer's interpretation as final and binding.
- C. Submerged and interior wet steel:
1. The contractor shall brush apply a strip coating along welds, seams, edges, joints, angles, and other irregularities. This may require more than one strip coating as directed by the Engineer the Engineer or the inspection company before spraying.
- D. Nonsubmerged steel:
1. The contractor shall brush apply a strip coating along welds, seams, edges, joints, angles and other irregularities.
 2. Spray or roller-apply all coatings.
 3. Take necessary precautions to avoid paint fallout on, and the consequent damage to, any works, improvements, or properties of either the owner or of other parties, wherever located. The contractor shall be responsible for any and all damage resulting from drifting of the paint.

- E. Apply paint materials at the manufacturer's recommended rate, with no runs or sags. Each coat shall be smooth, free of imperfections, and holidays.
 - F. Finished metal surfaces shall be free of skips, voids, or pin holes in any coat when tested with a low voltage detector.
 - G. Drying time between succeeding coats shall be as recommended by the manufacturer.
 - H. Regardless of method used in the application of paint coats, the total dry film thickness specified shall be obtained, for each required coating system or additional coats shall be applied at no additional cost to the owner.
- 3.4 After structure has been erected, welded, and x-ray tested, all weld areas and all areas on which shop paint has been damaged shall be cleaned in accordance with SSPC surface preparation specification No. 6 "Commercial Blast Cleaning for Exterior Surfaces," and no. 10 "Near White Finish for Interior Surfaces."
- A. Spot prime all unprimed and abraded areas with one coat of the same primer to the same specified dry-film thickness. Allow minimum of 24 hours before recoating.
 - B. If recommended by the coating manufacturer to promote bonding of field coatings, brush blast the shop coating before application of field coatings.
- 3.5 The interior of the tank shall be continuously ventilated during surface preparation, painting, and drying periods by an explosion-proof ventilation (dust collector) system using size in relation to tank size. During drying periods, the hatches at the top and bottom of the tank shall remain open.
- A. After the final paint coat is applied, the coating shall be permitted to cure for at least 7 days at 75 degrees F before the tank is filled with water. Provide manufacturer's written recommendation for cure time at lower temperature if such prevails.
 - B. Subject cured interior tank finish to a 100 double rub solvent wipe test, and continue curing period until successful test achieved. Solvent is to be the thinner manufactured by the coating supplier for the applied coating system.
- 3.6 Exterior exposed piping shall be painted as specified for the tank exterior, except that fittings and specials furnished with asphaltic coating shall receive two coats of a suitable tar stop and 50-percent solids volume epoxy primer (6.0 mils DFT) prior to applying finish coats.
- 3.7 All other metal tank accessories, except stainless steel, shall receive the same preparation and paint system as approved for the tank exterior.
- 3.8 Finish Schedule
- A. Steel tank exterior paint system and systems epoxy polyurethane fluorourethane coatings, 7.5 dry mils minimum.

One prime coat series Zinc Primer, Type III, 2.5-3.5 dry mils

One intermediate coat series epoxy polyurethane, 3.0-4.0 dry mils

One finish coat series high-gloss UV resistant fluorourethane, 2.0-3.0 dry mils

- B. Steel water tank interior paint system with minimum 10.5 dry mils thickness; all products shall immersion duty rated and shall be NSF 61 certified.

One prime coat, grey zinc rich primer, 2.5-3.5 dry mils.

One intermediate coat series white, two-part epoxy, 4.0-6.0 dry mils.

One finish coat light-blue, two-part epoxy, 4.0-6.0 dry mils.

- C. Contractor shall submit paint manufacturer's color charts for interior and exterior paint systems for Owner to select colors. Prime, intermediate and finish coats shall contrast sufficiently to provide visual indication of coverage during application.

- D. Logo design and layout is included with project documents. The logo lettering shall be placed on either side of the tank (180-degrees opposed) so that it is visible from all directions. The Contractor shall coordinate with the Owner regarding the layout and color selection used for the tank logos.

END OF SECTION