Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MONOKO, LLC

1037 Peninsula Avenue
Tarpon Springs, FL 34689-2125
E-mail Address: MonokoLLC@aol.com

(727) 940-3244
(727) 279-8795 Fax

Submittal No.: 01: Quality Control Plan (Site Specific)

Date: October 30, 2015

Vermont Department of Transportation
Southwest Regional Construction Office
Attn: Mr. Mark H. Mackintosh, P.E., Regional Construction Engineer
61 Valley View
Mendon, VT 05701
(Phone) (802) 773-1384; (Fax) (802) 786-5894
Mark.Mackintosh@Vermont.gov

Description: Proposal/Contract Number: Bennington-Mt Tabor BF BPNT (16)
Letting Date: 06/05/15; Award Date: 07/01/15
Project Description: Bridge Painting of Five Bridges
In the Towns of Bennington & Mt. Tabor, VT
Contract Amount: $2,122,323.00; Completion Date: 09/02/16

Contractor: **MONOKO, LLC**

Reviewed & Approved By: *Keri Monokandilos*
Keri Monokandilos, Manager

Date: **10/30/2015**

Engineer: Tim Pockette, P.E., Resident Engineer
61 Valley View
Mendon, VT 05701
802-773-1384
802-793-4027 cell

Revision:

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MONOKO LLC
1037 Peninsula Avenue
Tarpon Springs, Florida 34689
(727) 940-3244

QUALITY CONTROL PLAN

For

Vermont Agency of Transportation
Project Bennington-Mount Tabor BF BPNT(16)
Bridge Painting of Five Bridges in Bennington & Rutland

Prepared: March 22, 2015
by:
MB Environmental Consulting, Inc.
13362 Irving Street
Alden, NY 14004
(716) 902-4253

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

TABLE OF CONTENTS

SECTION A: QUALITY CONTROL OVERVIEW AND MANAGEMENT. . . . . Page 5
1.0 PURPOSE. . . . . Page 5
2.0 REFERENCES. . . . . Page 5
3.0 ORGANIZATION. . . . . Page 5
4.0 RESPONSIBILITIES. . . . . Page 5
4.1 PRESIDENT. . . . . Page 5
4.2 QUALITY CONTROL MANAGER. . . . . Page 6
4.2.1 RESPONSIBILITIES. . . . . Page 6
4.2.2 QUALIFICATIONS. . . . . Page 6
4.3 SUPERINTENDENT/ PROJECT FOREMAN. . . . . Page 6
4.4 QUALITY CONTROL INSPECTORS. . . . . Page 7
4.4.1 RESPONSIBILITIES. . . . . Page 7
4.4.2 QUALIFICATIONS. . . . . Page 7
5.0 QUALITY CONTROL INSPECTOR'S LETTER OF AUTHORITY. . . . . Page 7
FORM A-1 QUALITY CONTROL INSPECTOR'S/ PROJECT TEST AUTHORITY. . . . . Page 8
FORM A-2 QUALITY CONTROL INSPECTOR'S QUALIFICATIONS. . . . . Page 9

SECTION B: QUALITY CONTROL INSPECTION EQUIPMENT. . . . . Page 10
1.0 SLING PSYCHROMETER. . . . . Page 10
2.0 SURFACE TEMPERATURE GAUGE. . . . . Page 11
3.0 VISUAL STANDARDS. . . . . Page 11
4.0 ANCHOR PROFILE. . . . . Page 11
5.0 CHLORIDE TESTING. . . . . Page 12
6.0 WET FILM THICKNESS. . . . . Page 12
7.0 DRY FILM THICKNESS GAUGES. . . . . Page 12
8.0 TYPICAL DRY FILM THICKNESS GAGES. . . . . Page 13
9.0 PROJECT SPECIFICATIONS FOR DRY FILM THICKNESS READINGS. . . . . Page 13
FORM B-1 CALIBRATION OF QUALITY CONTROL EQUIPMENT. . . . . Page 14

SECTION C: INSPECTION OF EQUIPMENT. . . . . Page 15
1.0 COMPRESSED AIR CLEANLINESS. . . . . Page 15

SECTION D: COATING REMOVAL OPERATIONS. . . . . Page 16
1.0 SURFACE PREPARATION. . . . . Page 16
2.0 PRESSURE WASHING. . . . . Page 16
3.0 ATMOSPHERIC CONDITIONS FOR ABRASIVE BLAST. . . . . Page 16
4.0 PROJECT STANDARDS. . . . . Page 16
5.0 ABRASIVE BLASTING. . . . . Page 17

SECTION E: COATING OPERATIONS. . . . . Page 18
1.0 MANUFACTURER'S SPECIFICATIONS. . . . . Page 18
2.0 ATMOSPHERIC CONDITIONS. . . . . Page 18
3.0 COATINGS OPERATIONS. . . . . Page 18

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION F: QUALITY CONTROL INSPECTIONS AND REPORTS. . . . . Page 19
1.0 HOLD POINT INSPECTIONS. . . . . Page 19
2.0 REMOVAL/ REPAIR OF DEFECTIVE COATINGS. . . . . Page 19
3.0 NON-CONFORMANCES. . . . . Page 20

SECTION G: COATINGS AND ABRASIVE MATERIAL CONTROL. . . . . Page 21
1.0 COATING MATERIAL RECEIPT. . . . . Page 21
2.0 COATING MATERIAL STORAGE. . . . . Page 21
3.0 COATING MATERIAL ISSUE. . . . . Page 21
4.0 ABRASIVE MATERIAL RECEIPT. . . . . Page 21
5.0 ABRASIVE MATERIAL STORAGE. . . . . Page 21

SECTION H: CONCRETE RUST REMOVAL. . . . . Page 22
1.0 CONCRETE RUST REMOVAL. . . . . Page 22
2.0 CONTAINMENT. . . . . Page 22
3.0 DISPOSAL OF WASTE. . . . . Page 22

APPENDIX A: PROJECT PAPERWORK. . . . . Page 23
APPENDIX B: SHERWIN-WILLIAMS PRODUCT DATA SHEETS (PDS). . . . . Page 24
APPENDIX C: SHERWIN-WILLIAMS MATERIAL SAFETY DATA SHEETS (MSDS). . . . . Page 25

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

QUALITY COMMITMENT

It is the policy of Monoko that all supplies and services which are to be used on projects will conform to contract specification requirements and that all inspections and tests required to substantiate product conformance will be performed prior to submission of supplies or services for acceptance.

While specific quality functions and responsibilities are assigned to the Quality Control Manager and Quality Control Inspector, Monoko policy directs that all management and supervisory personnel will share the responsibility for product quality and will provide total support of the quality control effort and the implementation of this inspection system.

The Quality Control manager has the authority and responsibility for the implementation of this inspection system and has direct access to the Operations Manager and President in all matters pertaining to quality control and quality assurance.

This quality control manual will be reviewed annually or as necessary by the Quality Control Manager.

Drosso Monokandilos
Quality Control Manager

10-30-15
Date

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION A: QUALITY CONTROL OVERVIEW AND MANAGEMENT

1.0 PURPOSE The purpose of this manual is to establish procedures and assign responsibilities to insure the performance of inspections, tests, measurements and observations in compliance project specifications.

This project requires pressure washing the surface followed by abrasive blasting using recyclable steel grit to achieve a SSPC SP-10, then coating the steel with a three coat Sherwin-Williams paint system.

Monoko will notify the Vtrans representative when all Hold Point inspections will occur so that they representative may perform quality assurance inspections.

2.0 REFERENCES

2.1 SSPC Good Painting Practices Volume I
2.2 SSPC Systems and Specifications Volume
2.3 The Inspection of Coatings and Linings
2.4 NACE
2.5 ASTM
2.6 VTRANS 2011 Standard Specifications and project specification

3.0 ORGANIZATION Monoko management includes

3.1 President - Keri Monokandilos
3.2 Quality Control Manager - Drosso Monokandilos
3.3 Superintendent/ Foreman - Manoli Patatoukos and Michael Monokandilos
3.4 Quality Control Inspector - Gary Magriplis
3.6 Test Supervisor - Gary Magriplis and Michael Monokandilos

4.0 RESPONSIBILITIES AND QUALIFICATIONS

4.1 PRESIDENT

4.1.1 Supply the Quality Control manager with the necessary budget to purchase the appropriate equipment for each project.
4.1.2 Support each project.
4.1.3 Conduct an annual review of Quality Control procedures with the Quality Control Manager.
4.1.4 Conduct at least one unannounced site visit each year and review the Quality Control process at the project.
4.1.5 Ensure the Quality Control Manager has the appropriate personnel and equipment for each project.

SSPC The Society For Protective Coatings

MONOKO, LLC

of

Tarpon Springs, FL

SSPC CERTIFIED CONTRACTOR SSPC QP1

has met or exceeded the requirements set forth in the SSPC Painting Contractor Certification Program for

FIELD APPLICATION OF COATINGS COMPLEX STRUCTURES SSPC-QP1

President, SSPC

March 31, 2015– March 31, 2016

Validation Period

Owners are advised to contact SSPC at 412-2[illegible]331 ext. 2235 or ext. 2209 to verify authenticity of certification.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

page 5a

SSPC The Society For Protective Coatings

MONOKO, LLC

of

Tarpon Springs, FL

has met or exceeded the requirements set forth in the SSPC Painting Contractor Certification Program for

SSPC CERTIFIED CONTRACTOR SSPC QP2

INDUSTRIAL HAZARDOUS PAINT REMOVAL
SSPC-QP2

"A"

Category

President, SSPC

March 31, 2015 – March 31, 2016

Validation Period

Owners are advised to contact SSPC at 412-7[illegible]331 ext. 2235 or ext. 2209 to verify authenticity of certification.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

page 5B

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

4.2 QUALITY CONTROL MANAGER

4.2.1 Responsibilities

4.2.1.1 Responsible to the President and of Monoko for all Quality Control/ Quality Assurance matters and has direct access to Superintendents, Foreman and Quality Control inspectors.

4.2.1.2.Determine inspections, tests, measurements and documentation required by the specification work items and those considered necessary for quality assurance to assure product conformance and compliance with contract specification requirements.

4.2.1.3.Assign authorized Quality Control Inspectors who are authorized to witness and signs for tests, inspections, measurements and observations. The Quality Control Inspectors will be designated in writing.

4.2.1.4.Maintain records required to document planned inspections and tests. Records may be available to the Owner or their representatives upon request..

4.2.1.5 Periodic in-progress review of Monoko work site to ensure proper equipment is in place and inspections are being conducted according to contract specification requirements..

4.2.1.6 Coordinate and maintain records of qualified quality control inspectors.

4.2.1.7 Implement the calibration system.

4.2.1.8 Review project paperwork for completeness.

4.2.1.9 Where changes or revisions are made to the contract specification requirements, ensure that quality control inspectors receive the changes and any necessary equipment.

4.2.2 Qualifications

4.2.2.1 Have a minimum of 3 years experience in the steel structures industry in one or more of the following areas: quality control inspector, foreman or project manager.

4.2.2.2 Have worked with Monoko for at least three years or have five documented years of experience with another painting contractor prior to employment as the Quality Control Manager for Monoko.

4.2.2.3 Have formal training meeting a minimum of NACE Level II.

4.2.2.4 Have completed the SSPC Quality Control Supervisor class.

4.3 SUPERINTENDENT/ PROJECT FOREMAN

4.3.1 Responsible to the Quality Control Manager for inspections and reports of initial condition of equipment and the quality of work accomplished.

4.3.2 Order products that meet the contract specification requirements and verify the products received meet these requirements.

4.3.3 Forward all certification paper work and receipts to the Quality Control Manager.

4.3.4 Allow Quality Control Inspectors to conduct inspections as required by the Quality Control Manager and contract specification requirements.

4.3.5 Conduct, evaluate and document training of paint removal and coatings applicators when designated by the Quality Control Manager.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SSPC The Society For Protective Coatings

AUTHORIZED IACET PROVIDER

IACET Provider #3375

CERTIFICATE OF COMPLETION

Drosso Monokandilos

has successfully completed a course and exam

Quality Control Supervisor (QCS)

and is awarded

1.5 Continuing Education Units

Executive Director

President

QCS Course

Location

May 21, 2012

Date

QCS Course- SSPC

Instructor(s)

Page 6B

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

NACE INTERNATIONAL INSTITUTE

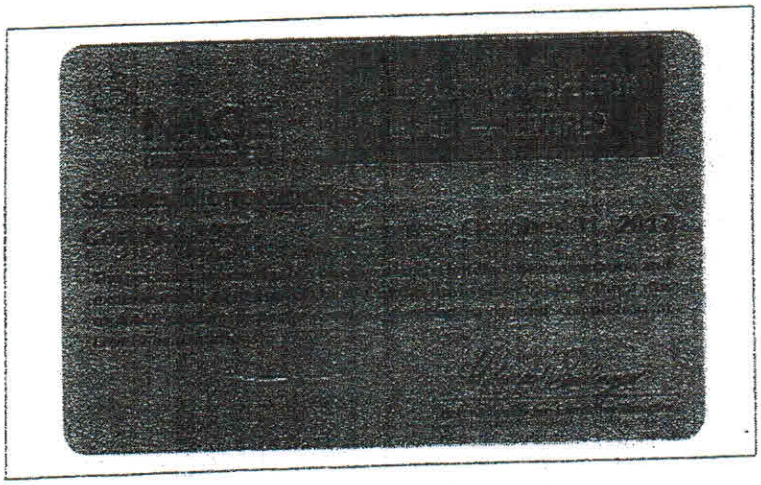
Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Your New Certification Card

Thank you for renewing your NACE International Institute certification. You are part of an elite group of certified professionals dedicated to protecting people, assets, and the environment from the effects of corrosion.

It is with great pleasure that we enclose your new NACE International Institute certification card. This important card includes your certification number and expiration date. If you ordered an embosser, plaque, or an update tag, it will be shipped separately. If you have any questions or need additional information regarding your certification, please call the First Service Department at 1-800-797-6223 (U.S. & Canada) or +1-281-228-6223 (Worldwide). Alternatively, you can e-mail us at FirstService@nace.org.

Thank you for choosing The NACE International Institute as your trusted source for corrosion information and expertise.



15835 Park Ten Place • Houston, TX 77084
www.naceinstitute.org

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

4.4 QUALITY CONTROL INSPECTORS

4.4.1 Responsibilities

4.4.1.1 Responsible to the Quality Control Manager for inspections and reports of initial condition of equipment and the quality of work accomplished.
4.4.1.2 Conduct calibrations of quality control inspection equipment as specified by the Quality Control Manager.
4.4.1.3 Inform Superintendent/ foreman results of each inspection and if corrective actions are required and what the corrections require.
4.4.1.4 Forward to Quality Control Manager copies of all quality control paperwork at the completion of each project.
4.4.1.5 Maintain relationship with the Owner's representative to help project run smoothly.
4.4.1.6 Conduct, evaluate and document training of paint removal and coatings applicators when designated by the Quality Control Manager.

4.4.2 Qualifications

4.4.2.1 Have a minimum of 2 year experience in the steel structures industry.
4.4.2.2 Efficient in filing out paperwork as specified by the Quality Control Manager.
4.4.2.3 Have training meeting a minimum of NACE Level I.
4.4.2.3 Will not be a routine member of the paint removal or painting crew.
4.4.2.4 The Quality Control Inspector will be physically capable of performing the required inspections.

5.0 QUALITY CONTROL INSPECTOR'S LETTER OF AUTHORITY

5.1 The Quality Control Manager will provide a letter of authority for each Quality Control Inspector assigned for each project using Form A-1.
5.2 The letter of authority will provide the Quality Control Inspector with the authority to stop non-conforming work.
5.3 The Quality Control Inspector will work with the superintendent/ foreman to correct non-conforming work.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

FORM A-1

QUALITY CONTROL INSPECTOR'S AUTHORITY

Project: Cleaning and Repainting of Bridges in Bradford and Newbury

Project #: IM BPNT(14)

To ensure the Owner is receiving the highest quality work and that Monoko is not using excessive materials and time, quality control inspections must be performed. These inspections will be done byMonoko's Quality Control Inspector at the job site.

1. You are responsible for the daily inspection reports as assigned by the Quality Control Supervisor.
2. You are responsible for the calibrations of your assign quality control inspection equipment.
3. You are responsible to ensure you have all project documents needed for you job.
4. You are responsible to have all requirements for the technical library for the project.
5. You will be required to be on time and to conduct inspections in a timely manner. Upon completion of an inspection, discuss your findings with the foreman. You are authorized to discuss your findings with the Owner's representative.
6. If you find any non-conforming work or unsafe acts at any time, the Quality Control Inspector has Managements full support to stop work and make corrective actions.
7. At least once a year, you will be required to conduct craft worker evaluations.
8. If you have any questions, contact the Quality Control Supervisor.
9. At the end of each project, forward all completed project paperwork to the Quality Control Supervisor.

The following personnel are being assigned as the Quality Control Inspectors for the above project:
Gary Magriplis.

Drosso Monokandilos
Quality Control Manager

10-30-15
Date

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

FORM A-2

QUALITY CONTROL INSPECTOR'S TRAINING CERTIFICATES

The Society For
Protective Coatings
40 24th St., 6th Floor
Pittsburgh, PA 15222
P 412.281.2331
T 1-877.281.7772
F 412.281.9992
www.sspc.org

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

This card certifies that
Gary Magriplis
has fulfilled the **Level 1** requirements of BCI - Coatings Inspection Training and Certification for the Bridge Industry.

President:

Expires: 4/30/2016
Cert. ID#: 47644

LEVEL 1 - BRIDGE COATINGS INSPECTOR

Date: June 21, 2012

From: SSPC: The Society for Protective Coatings

To: Gary Magriplis

Subject: **SUCCESSFUL COMPLETION OF THE COATINGS INSPECTION TRAINING AND CERTIFICATION FOR THE BRIDGE INDUSTRY- LEVEL 1**

Encl: (1) Certificate of Completion
(2) Wallet Card

1. This letter is to inform you that you have successfully passed the **Coatings Inspection Training And Certification For The Bridge Industry- Level 1** course you attended on April 23-27, 2012 by SSPC: The Society for Protective Coatings.

2. This certification is awarded for a period of four years and will expire on April 30, 2016. Information on re-certification will be forwarded six months prior to expiration of certification. If you wish to maintain your certification, please notify SSPC: The Society for Protective Coatings by way of a letter stating any change in your address/employment/command in the interim period.

3. The attached sheet is in regards to maintaining your Level 1 status.
If you have any questions please contact Dee Boyle at SSPC, 877-281-7772 ext 2202 or boyle@sspc.org.

4. In order to become a **SSPC Bridge Coatings Certified Inspector** you must complete the following administrative items prior to going through the Certification Part of the Program. (The certification part of the program consist of two exams, there is no additional training that will be required. The exams will take one day to complete.) Candidates must submit an application to the SSPC Program Administrator (PA) along with the Attestation on the program rules, Work Experience Form, Professional Reference Form and the contents of the Disciplinary Action Program. For more information on the prerequisite requirements and to download these administration forms please visit the SSPC website at www.sspc.org and then click on the training tab. SSPC will set up test site locations for the certification exams.

All individuals registering for the Coatings Inspection Training and Certification for the Bridge Industry (BCI) must provide information showing that they meet the minimum prerequisite requirements. If SSPC is unable to verify the accuracy of any information reported on these forms, it may result in rejection of your application.

5. Questions concerning the BCI Program requirements should be directed to Dee Boyle, SSPC 40 24th St., Pittsburgh, PA 15222, 877-281-7772, ext 2202 or E-mail boyle@sspc.org.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION B: QUALITY CONTROL INSPECTION EQUIPMENT

The equipment below are typically used by Monoko. When new equipment is purchased that is not included in this section, the Quality Control Manager will receive the appropriate information about the equipment and establish a calibration schedule if necessary.

The following quality control inspection equipment will be used by Monoko for its inspections.

1. Sling psychrometer and US Weather Bureau tables
2. Surface temperature thermometer
3. Putty knife with a width between 25 and 75 mm (1 and 3 inches)
4. Spring micrometer and Testex tape
5. Latex cell - Quantab chloride titrator strip or equivalent
6. WFT gage
7. Positector 6000 DFT gage or equivalent and calibration standards
8. Light meter
9. Reference materials such as SSPC Vis 1, SSPC standards and ASTM

1.0 SLING PSYCHROMETER

1.1. Operation of the sling psychrometer

1.1.1 Examine both thermometers to determine that they are not broken or the alcohol is not cracked in any manner.

1.1.2 Examine the sock, if it is dirty replace it.

1.1.3 Saturate the sock or sock well with clean potable water.

1.1.4 Hold the sling Psychrometer away from your body and whirl for 40 seconds and take a reading (always read wet bulb first).

1.1.5 Repeat this process until the temperature stabilizes.

1.1.6 Record the temperatures.

1.2 Verification (calibration) of the accuracy of a psychrometer

1.2.1 Using a standard psychrometer that has two thermometers, remove the sock from the wet bulb thermometer.

1.2.2 Allow both thermometers to equalize to ambient temperature.

1.2.3 If both thermometers are with 2 degrees of each other, document the date a serial number of the psychrometer as accurate.

1.2.4 If the thermometers are greater than 2 degrees apart, use a third thermometer and allow it to reach ambient temperature. If this thermometer is within 2 degrees of one of the first two thermometers, remove the thermometer that is not within 2 degrees and replace.

1.2.5 After replacing a thermometer, repeat steps A-D. Document the discarding a replacement of the thermometer.

1.2.6 The accuracy check will be conducted monthly or if any thermometer is suspected of inaccurate results.

1.3 Reference:

1.3.1 ASTM E 337

1.3.2 The Inspection of Coatings and Linings 2nd Edition

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

2.0 SURFACE TEMPERATURE GAGE

2.1. Operation

2.1.1 Attach the thermometer to the surface and let it remain there for five minutes, then lightly tap the glass. Look directly at the thermometer, read the temperature.

2.1.1 Steel surface temperatures will vary from the ambient temperature through out the day. The steel will be cooler in the morning while the ambient temperatures are rising and will remain warmer later in the day while the ambient temperature is falling.

2.2 Verification (calibration) of the accuracy of the surface temperature gage

2.2.1 Using two surface temperature gages, place against a surface and allow both to equalize to ambient temperature (note: this can be done inside).

2.2.2 If both thermometers are with 2 degrees of each other, document the date a serial number of the surface temperature gages as accurate.

2.2.3 If the thermometers are greater than 2 degrees apart, use a surface temperature gage thermometer and allow it to reach ambient temperature. If this thermometer is within 2 degrees of one of the first two thermometers, remove the thermometer that is not within 2 degrees and replace.

2.2.4 The accuracy check will be conducted monthly or if any thermometer is suspected of inaccurate results.

3.0 VISUAL STANDARDS

Visual standards may be used based upon the type of paint removal. Typically, the Visual standard is used at the start of the project with the Quality Control Inspector and the Owner's representative to determine the paint removal being performed meets the specification. This project specifies the following visual standard.

3.1 SSPC-Vis 1 Guide and reference photographs for steel surfaces prepared by dry abrasive blast cleaning.

4.0 ANCHOR PROFILE

4.1 Anchor profiles will be measured in various locations after each abrasive blast.

4.2 Project specifications state that the anchor profile will be between 40 um and 90 um (1 ½ to 3 ½ mils).

4.3 Textex tape

4.3.1 Extra course tape will be used if the profile is less than 90 um.

4.3.1 Remember the film thickness of the Testex tape mylar backing is 2.0 mils, this needs to be subtracted from the reading obtained on the micrometer.

4.4 Reference - ASTM D 4417 method C

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

5.0 CHLORIDE TESTING

Project specifications require testing for the presence of chlorides. The project requirement for chloride testing is:

Chloride <7 ug/cm^2

Quantab Chloride Titrator Strips or Chlor*Rid test kit will be used for chloride testing. A minimum of 5 tests per 1000 square feet (or a fraction thereof) will be conducted at project start up. If the surfaces tested are greater than project requirements, the area(s) will be re-cleaned and retested at the same frequency. If the tests for three consecutive days (blasting days) are below project specifications, Monoko can reduce the frequency of testing to one test per 1000 square feet.

If the Chloride levels exceed project specifications, Monoko will use a garden sprayer with Chlor*Rid or Hold Tight and either use power tools or reblast affected area.

6.0 WET FILM THICKNES

Wet film thickness gages are used by personnel performing coatings applications. The Quality Control Inspector should conduct spot checks of the coating applicators by randomly asking them during application to check the wet film thickness.

6.1 Prior to using the WFT gage, check the teeth for cleanliness. Hold the gage perpendicular to the surface and insert into the coating, remove and take an immediate reading. Record the reading as the last tooth wetted.

6.2 Wet film thickness measurements are not accurate on coatings with high solids (inorganic zincs).

6.3 The equation used to determine the proper amount of coating to apply wet to achieve a specified dry film thickness is:

6.3.1 DFT = WFT x % solids by volume

6.3.2 WFT = % solids by volume/(1 + decimal % thinner)

7.0 DRY FILM THICKNESS GAUGES

7.1 Dry film thickness gauges vary from manufacturer to manufacturer, prior to use read the manufacturer's instruction completely and follow.

7.2 Examine the sensing probe prior to use and check for residues or contaminants. Place the gauge firmly on the surface to be measured. Record the reading.

7.3 Prior to measuring a coated surface, the gauge should be calibrated in accordance with SSPC PA-2, Measurement of Dry Paint Thickness with Magnetic Gauges.

7.4. Check with the manufacturer's instructions, some DFT gauges can be calibrated with NIST calibration shims or with plastic calibration shims placed upon a cleaned surface.

7.5. Calibration must be made in accordance with the manufacturer's instructions.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

8.0 TYPICAL DRY FILM THICKNESS GAGES

8.1 Monoko typically uses the Positector 6000 and the Elcometer 456 DFT gauges.
8.2 Both manufacturer's allow calibration on NIST standard (or an uncoated standard) or using plastic shims on the substrate.
8.3 Typically Monoko will calibrate the gage to the substrate for the prime coat (at the same time establish the base magnetic readings (BMR) and use the plates for all other coats.
8.4 Calibrations are made prior to and at the end of each use.

9.0 PROJECT SPECIFICATIONS FOR DRY FILM THICKNESS READINGS

9.1 DFTs will be recorded as defined by SSPC PA-2.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

FORM B-1

CALIBRATION OF QUALITY CONTROL EQUIPMENT

Equipment_____

Serial Number _____

Date	Pass/ Fail	Comments	Inspected By:

SECTION C: INSPECTION OF EQUIPMENT

1.0 COMPRESSED AIR CLEANLINESS

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1.1 Compressed air will be checked to ensure that the air is clean and dry to prevent surface contamination on a daily basis when compressed air is used, to do this:

- 1.1.1 Allow the compressor that will be tested to properly warm up and come to operating condition. Ensure that blast materials are turned off. Keep the petcock on the moisture trap remains open.
- 1.1.2 Monoko will use either a blotter paper or a clean white cloth.
- 1.1.3 Attach the blotter paper or a clean white cloth to a rigid surface.
- 1.1.4 Hold the air discharge line within 24 inches of the blotter paper. Allow the air to discharge for a minimum of one minute.
- 1.1.5 Examine the blotter paper for oil and/or water droplets.
- 1.1.6 Record results on the Daily Inspection Report

1.2 Reference:

- 1.2.1 ASTM D 4285

SECTION D: COATING REMOVAL OPERATIONS

Monoko will provide safe access for inspection by use of scaffold platforms, catenary scaffolds, ladders or aerial lifts. The actual method will vary bridge to bridge and will be selected by the foreman.

1.0 SURFACE PREPARATION

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1. All work will conform with the VTrans Standard Specification, unless a change is authorized by the Engineer.
2. Steel surface will be cleaned by abrasive blasting. Monoko may use chipping hammer at the bearings and other areas to remove areas of pack rust.
3. Monoko may use power tools to clean areas where outriggers are used to support the containment or tarps.

2.0 PRESSURE WASHING

2.1 When pressure washing is used, pressure wash will use an operating pressure range of 7 Mpa to 34 MPA.
2.2 Pressure washing will be conducted when air temperatures are greater than 4.5 °C. and rising.
2.3 Pressure washing is intended to remove the dirt and debris from the bridge and not intended to remove tightly adhered paint.

3.0 ATMOSPHERIC CONDITIONS FOR ABRASIVE BLAST

Blast cleaning operations will not be conducted under the following conditions.

3.1 Relative humidity exceeds 85%.
3.2 The substrate is damp or covered with frost.
33 The surface temperature is less than 3 °C. above the dew point.

4.0 PROJECT STANDARD

Monoko will prepare a project standard in an area of each structure that is easily accessible and representative of the structure. The project standard will be 0.93 m^2 (10 ft^2) The area will be abrasive blast cleaned to a SSPC SP-10 in accordance with project specifications. Once accepted the area will be sealed with a clear coat. At the conclusion of painting activities the test area will be reblasted and have the coatings applied.

Where the containment is moved, the project standard will remain in effect for the bridge and a new project standard will not be required. The project standard will be maintained in a clean condition for use by both Monoko and Vtrans personnel.

1.01 Grease Removal

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1. Monoko will remove grease from structures using scrapers, flat paddles, rags and wire brushes but not limited to these tools.
2. The heavy grease will then be placed in buckets and 55 gl barrels to be tested and disposed of properly.
3. Monoko will then apply a degreasing agent and then steam clean the structure.
4. All water will be collected. Filtered, tested and disposed of.

5.0 ABRASIVE BLASTING

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

5.1 All surface will be cleaned to a SSPC SP-10 (near white metal) using recyclable steel grit.

5.2 Steel grit will have certification from the manufacturer stating the abrasive meets SSPC AB-2.

5.3 Recycled abrasive will checked daily for the non-abrasive residue test, water soluble test and oil content test. The results will be recorded on Form F-1.

5.4 Air cleanliness will be checked at least once pre shift. See Section C 1.0.

5.5 All fins, tears, slivers, flame cut edges, burred and sharp edges that are present or occur during abrasive blast operations will be removed by grinding the affected areas followed by a reblast, or using a method approved by the Engineer such as power tool cleaning to achieve a minimum anchor profile acceptable by International.

5.6 After abrasive blast, the anchor profile will be measured. See Section B 4.0.

5.7 Prior to coatings operations, the steel will be blown down and the steel grit and paint chips will be removed from the containment by vacuuming. Monoko will remove the gross debris prior to coatings operations and a final cleaning will be required prior to removal of the containment. If the Quality Control Inspector observes dust or debris affecting the application of the coatings applications, then the Quality Control Inspector and foreman will determine the course of action to be taken to ensure dust and debris do not affect the application. This may include a full clean-up of the containment prior to coatings applications.

SECTION E: COATINGS OPERATIONS

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1.0 MANUFACTURER'S SPECIFICATIONS

1.1. Monoko recognizes each coating is unique in its application and properties.
1.2. Monoko will use Sherwin-Williams coatings in this project and as listed under the state approved list.
1.3 Monoko will follow Sherwin-Williams's recommendations for drying and curing times for handling, recoating and top coating.

2.0 ATMOSPHERIC CONDITIONS

2.1 The surfaces and ambient temperatures will be 3^0C (5^0F) above the dew point.
2.2 The surface and ambient temperatures will be a minimum of 40^0F.
2.3 Paint will not be applied if the humidity is greater than 85%.
2.4 Paint will not be applied during rain, unless the area being painted is contained and meets project requirements.
2.5 Ambient conditions will be measured at the beginning of each work day and every four hours during surface preparation and coatings applications.

3.0 COATING OPERATIONS

3.1 Prior to coating operations, the Quality Control Inspector will verify the batch being used has not past its shelf life and the cans are in good shape.
3.2 The Quality Control Inspector will observe the mixing and thinning of the coatings.
3.3 Each painter will be issued a wet film thickness gage and will check for the wet film thickness during application. The Quality Control Inspector will randomly spot check the wet film thickness.
3.4 If temperatures are within 10 degrees of the coating limits for use, then the Quality Control Inspector will use a thermometer to verify the coating temperatures are acceptable.
3.5 The Sherwin-Williams coatings are a two or three part system, the person mixing paint must enure to mix part A with part B and with part C if applicable.
3.6 During coating operations, the Quality Control Inspector may randomly observe each workers performance for proper coating technique and if holidays, runs or sags are evident.
3.7 At the completion of coating operations, the Quality Control Inspector will conduct a hold point inspection to verify the coating was applied properly.
3.8 The Quality Control Inspector will record; manufacturer's name and product number, batch numbers, quantity of coating material used, thinner used, start and stop times, ambient temperatures and wet film thickness measurements.
3.10 A stripe coat is required for each coat. The stripe coat will be applied after the application of the full prime coat and before the application of the intermediate and top coats.

SECTION F: QUALITY CONTROL INSPECTIONS AND REPORTS

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1.0 HOLD POINT INSPECTIONS

1.1 Hold points are points where inspections must take place, these occur between all major operations.

1.2 Hold points include:

1.2.1 Pre-paint meeting with Monoko's foreman, Quality Control Manager and Quality Control Inspector (Lead Competent Person) and the Engineer.

1.2.2 Test Section which is an area representative at each bridge to demonstrate the required level of cleanliness and anchor profile.

1.2.3 Pre-paint removal inspection which includes verifying the substrate meets SSPC SP-1 and if specified, weld splatter and uneven edges are remediated, and if a containment system is required, it meets project specifications.

1.2.4 Surface preparation, the area inspected meets SSPC SP-10.

1.2.5 Soluble salt remediation, the solubel salt levels meet project specifications

1.2.6 Surface profile is between 1 ½ and 3 ½ mils

1.2.7 Surface condition prior to painting

1.2.8 Mixing of coatings where the Quality Control Inspector watches the person mixing the coating for proper mixing which may include proper agitation, sweat-in times and proper amounts of thinner.

1.2.9 Prime coat inspection is after application, checking the dry film thickness, checking for holidays and other defects in the applications.

1.2.10 Intermediate coat inspection is after application, checking the dry film thickness, checking for holidays and other defects in the applications.

1.2.11 Finish-coat inspection is after application, checking the dry film thickness, checking for holidays and other defects in the applications.

1.2.12 Stripe coat, check for application around edges, rivets, bolts, crevices, welds and other irregular surface areas.

1.2.13 Corrective Action

1.3 The quality control inspector must be aware when a hold point is near, so they can don the proper personal protective equipment, calibrate inspection equipment as necessary and be ready to conduct an inspection without causing an undue delay.

1.4 The Vtrans representative will be informed by the quality control inspector when hold point inspections will be conducted so that they perform quality assurance inspections as necessary.

2.0 REMOVAL/ REPAIR OF DEFECTIVE COATINGS

A coatings will be considered defective if: it is damaged,, it lifts, blisters, wrinkles, has excessive runs or sags, it shows evidence of application under unfavorable conditions, it does not meet the coating thickness or continuity, rusting occurs, the workmanship is poor or an unauthorized coating is used.

2.1 To repair defective areas, Monoko will:

2.1.1 When the defective coating or damage extends to bare steel or bare steel is exposed, the area will be cleaned to a SSPC SP-10 or SSPC SP-11 if approved.

2.1.2 If the underlaying area is not exposed, the area will be cleaned to a SSPC SP-3.

2.1.3 The surrounding coatings will be feathered the surrounding area.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Additional QC inspections

1. Review containment drawings assure proper installation and continued performance of the containment system as per engineer containment drawings.
2. Daily visual inspections of emissions. And must correct any unacceptable emissions.
3. Visually inspect on a daily basis hazardous waste storage area. Inspect for spills or deposits of contaminated material onto ground or water.
4. Review improperly implement the waste management plan as stated in submittals.
5. Properly implement section 18 of Environmental Plan which is Monoko's contingency plan for emergencies

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

3.0 NON-CONFORMANCES

3.1 After each Hold Point is checked, if there is a non-conformance the superintendent/ foreman will immediately be informed and corrective actions will be made as necessary.

3.2 A non-conformance requires corrective actions beyond normally anticipated. Examples of non-conformances are:

- 3.2.1 An area that was coated requires additional coatings due to low mils
- 3.2.2.An area that was coated has abrasive media under the coating
- 3.2.3 Failure to apply a coating

3.3 Hold points inspections that require rework are not non-conformances as the rework is typical. Examples of hold point that are not non-conformances include:

- 3.3.1 Quality Control Inspector requires additional abrasive blasting to meet the specification
- 3.3.2 Quality Control Inspector observes a run, sag or holiday and has the painters make immediate corrections
- 3.3.3 A breach in the containment that allows a puff of emission.

3.4 A copy of each non-conformance report found in Appendix E will be attached to the daily report and communicated to the Quality Control Manager.

3.5 When corrective actions are taken, they will be documented on the original non-conformance report.

3.6 If the corrective action was taken after a paint removal or coating inspection, then a follow-up inspection will be completed and documented. The Quality Control Manager will be informed of the results.

SECTION G: COATING AND ABRASIVE MATERIAL CONTROL

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

1.0 COATING MATERIAL RECEIPT

1.1. The Quality Control Inspector or superintendent/ foreman will perform an inspection of all coatings materials including solvents at the time of delivery.

1.2 All coatings will be checked to ensure they are within the manufacturer's shelf life.

1.3 Each container will be shipped in original, unopened and undamaged containers.

1.4 A copy of the Material Receipt Record and the coatings material certification record from the manufacturer will be forwarded to the Quality Control Manager.

1.5 If the coatings are found to be unacceptable due to damaged cans, past shelf life, no material certification or unacceptable traceability then the manufacturer or supplier will be contacted to remove the unacceptable coatings or the shipment will be refused and the shipper will return the coatings to the manufacturer or supplier.

2.0 COATING MATERIAL STORAGE

2.1 After the coatings are accepted, they will be stored in a clean, dry, secured location that is protected from the weather.

2.2 Each paint storage area will have a hi/lo thermometer that will be capable of measurements over a 24 hour period. Each paint storage area will be checked each workday for compliance.

3.0 COATING MATERIAL ISSUE

3.1 Upon issuing coatings materials, the Quality Control Inspector will maintain records of usage.

3.2 If coatings are opened and not used, manufacturer recommendations will be utilized if the coatings can be reused.

4.0 ABRASIVE MATERIAL RECEIPT

4.1 The Quality Control Inspector or superintendent/project foreman will visibly inspect the abrasive to ensure it is clean, dry and free of foreign matter.

4.2 A copy of the Material Receipt Record and the abrasive material certification record from the manufacturer will be forwarded to the Quality Control Manager.

5.0 ABRASIVE MATERIAL STORAGE

5.1 The abrasive containers will be protected from the weather by covering them with tarps or inside a storage container.

5.2 Abrasive storage will be checked daily to ensure moisture does not affect the abrasive.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION H: CONCRETE RUST REMOVAL

If Monoko's work causes rust on the surrounding concrete of the bridge, the following steps will be taken.

1.0 RUST REMOVAL

1.1 Rust will be removed using hand and power tools to lightly grind the affected areas.

1.2 Hand tools may include wire brushes and power tools may include grinders with wire cups or sanding disks.

2.0 CONTAINMENT

2.1 The work area will have a ground tarp and if the work is being conducted on a windy day, the foreman may utilize side tarps.

3.0 DISPOSAL OF WASTE

3.1 All waste will be vacuumed or swept into buckets.

3.2 The waste in the buckets will be considered as construction debris and will be disposed in accordance with Pennsylvania state regulations.

APPENDIX A

PROJECT PAPERWORK

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

DAILY INSPECTION REPORT
ABRASIVE BLAST OPERATIONS

Date	Spec#	Page ___ of ___	Client

Work Performed and Locations _____

_____

_____

Ambient conditions

Time					
Dry Bulb Temp					
Wet Bulb Temp					
Dew Point					
Relative Humidity	%	%	%	%	%
Surf. Temp Min/Max					
Outside wind speed/dir.					
weather conditions					

Pre-Surface Condition: Pack rust_____ Weld splatter_____ Mill scale_____ Degree of paint corrosion_____
Grease, oil contamination removed_____ No visible moisture on steel_____

Surface Preparation: Start_____ Finish_____ Est. sq/ft_____
Method of paint removal _____ Specification requirement ___**SSPC SP-**___
# of blasters_____ Compressor air check (blotter test D4285)_pass / fail___ Compressor pressure_____
Dust collector _____ RPM Dust collector magnehelic gage reading_____
Anchor profile required_____ Anchor profile achieved_____ (Attach Testex tape to side or back of this page)
Blowdown of steel complete_____
Other testing performed (i.e. chloride testing)_____

Abrasive Testing: AB-1 Test: water soluble test _____ oil content test_____
AB-2 Test: non-abrasive residue_____ water soluble test _____ oil content test _____

Coating Application: Start_____Finish_____Est. sq/ft_____
Prime_____ Mid_____ Top_____ Stripe_____ Other_____
Manufacturer _____ Product name_____ Product number_____
Color_____Kit size_____Shelf life_____Pot life_____Sweat-in time_____
Batch number(s) of coatings: A:_____ B:_____ C:_____
Date manufactured_____
Reducer _____ Batch number_____
% reducer specified_____ % reducer observed used_____
Mix method_____ Quantity mixed_____ Application method: Airless spray / Brush and roll
Pump size _____Tip size_____ Temperature of coating being mixed_____ WFT Required_____
WFT Achieved_____

Hold Point Inspections: Pre-paint removal ☐ During paint removal ☐ Abrasive blast meets specification ☐
Mixing of coatings per specification ☐ Coating application ☐ Stripe Coating application ☐ Post cure/DFT ☐
Non-Conformance ☐ Corrective actions ☐

QC Inspectors Signature:_____ **QCS Review**_____

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

DAILY INSPECTION REPORT LOG

Date	Spec#	Page ___ of ___	Client

Time	Remarks

Lighting: Lighting achieved (general areas 10, blasting and painting 20 and inspection 50)_____

Inspection Equipment Used

Equipment	Serial Number	Meets Requirements		Equipment	Personnel
		Yes No			Foreman
		Yes No			QC/HSO
		Yes No			Blaster/Painter
		Yes No			Laborer
		Yes No			
		Yes No			

QC Inspectors Signature_____ **QCS Review**_____

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

DRY FILM THICKNESS MEASUREMENTS

Date	Spec#	Page___ of ____

Client	Location
Reference report #	Coating inspecting

DFT calibration: gage type_____serial #_____shim/plate_____ reading before_____ after_____
adjust_____ BMR_____Coating DFT required_____

Location: **Location:**

1	2	3	Avg	1	2	3	Avg

Total Avg: **Total Avg:**

Location: **Location:**

1	2	3	Avg	1	2	3	Avg

Total Avg: **Total Avg:**

Location: **Location:**

1	2	3	Avg	1	2	3	Avg

Total Avg: **Total Avg:**

DFT range:_____ DFT average this coat:_____

Inspectors Signature:_____ QCS Review_____

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

NON-CONFORMANCE REPORT

Date	Spec#	Page___ of ____

Client	Location

Non-Conformance:_____

Is non-Conformance based upon Owner's Representative Report:_____

Is this a Re-Occurring Non-Conformance:_____

If so, determine the root cause and report it to the Quality Control Supervisor:_____

Corrective Action(s) Required:_____

Corrective Action(s) Completed:_____

Time required to complete corrective actions: _____

Superintendent/ Foreman Informed:_____

Quality Control Supervisor Informed:_____

Quality Control Supervisor's comments:_____

Quality Control Inspector's Signature:_____ QCS Review_____

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

DAILY INSPECTION REPORT FOR MULTIPLE COATINGS APPLICATIONS

Date	Spec#	Page___ of ___	Client

Work Performed and Locations _____

_____

Ambient conditions

Time				
Dry Bulb Temp				
Wet Bulb Temp				
Dew Point				
Relative Humidity	%	%	%	%
Surf. Temp Min/Max				
Outside wind speed/dir.				
weather conditions				

Coating Application: Start_____ Finish_____Est. sq/ft_____
Prime_____ Mid_____ Top_____ Stripe_____ Other_____
Manufacturer _____ Product name_____ Product number_____
Color_____Kit size_____Shelf life_____Pot life_____Sweat-in time_____
Batch number(s) of coatings: A:_____ B:_____ C:_____
Date manufactured_____
Reducer _____ Batch number_____
% reducer specified_____ % reducer observed used_____
Mix method_____ Quantity mixed_____ Application method: Airless spray / Brush and roll
Tip size_____ Temperature of coating being mixed_____
WFT Required_____ WFT Achieved_____

Hold point inspections: Mixing of coatings _____ Coating application_____
Post cure/DFT_____ Corrective actions_____

Coating Application: Start_____ Finish_____Est. sq/ft_____
Prime_____ Mid_____ Top_____ Stripe_____ Other_____
Manufacturer _____ Product name_____ Product number_____
Color_____Kit size_____Shelf life_____Pot life_____Sweat-in time_____
Batch number(s) of coatings: A:_____ B:_____ C:_____
Date manufactured_____
Reducer _____ Batch number_____
% reducer specified_____ % reducer observed used_____
Mix method_____ Quantity mixed_____ Application method: Airless spray / Brush and roll
Tip size_____ Temperature of coating being mixed_____
WFT Required_____ WFT Achieved_____

Hold point inspections: Mixing of coatings _____ Coating application_____
Post cure/DFT_____ Corrective actions_____

QC Inspectors Signature:_____ **QCS Review**_____

APPENDIX B

SHERWIN-WILLIAMS

PRODUCT DATA SHEETS

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SHERWIN WILLIAMS.

Industrial & Marine Coatings

6.07

ZINC CLAD® III HS

ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

PRODUCT INFORMATION

Revised 6/08

PRODUCT DESCRIPTION

ZINC CLAD III HS is a three-component, polyamide epoxy, zinc-rich coating. It has a low VOC level and contains 90.5% by weight of zinc dust pigment in its dried film.

- Meets Class B requirements for Slip Coefficient and Creep Resistance, .52
- Provides cathodic protection
- Damaged film exhibits "self-healing" properties
- Fast Recoat Time

RECOMMENDED USES

For use over properly prepared blasted steel.

- Fabrication Shops
- Bridge and Highway Structures
- Stadiums and Sports Complexes
- Drilling Rigs
- Piping
- Refineries
- Barges and Ships
- Shop or Field Applications
- Not recommended for immersion service.

PRODUCT CHARACTERISTICS

Finish: Flat

Color: Gray-green

Volume Solids: 60% ± 2%, mixed

Weight Solids: 90% ± 2%, mixed

VOC (EPA Method 24): mixed
Unreduced: <340 g/L; 2.80 lb/gal
Reduced 5%: <360 g/L; 3.00 lb/gal

Zinc Content in Dry Film: 90.5% by weight

Mix Ratio: 3 components, premeasured 3.25 gallons total

Recommended Spreading Rate per coat:
Wet mils: 5.0 - 8.0
Dry mils: 3.0 - 5.0
Coverage: 190 - 320 sq ft/gal approximate
Note: Brush application is for stripe coating and small areas only.

Drying Schedule @ 5.0 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 120°F
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	2 hours	1 hour
**maximum:	none	none	none
To cure:	10 days	7 days	7 days
Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Drying time is temperature, humidity, and film thickness dependent.
*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.
**Maximum Recoat: Unlimited. Must have a clean, dry surface for topcoating. "Loose" chalk or salts must be removed in accordance with good painting practice.

Shelf Life: Part A - 18 months, unopened and Parts B, & F- 24 months, unopened Store indoors at 40°F to 100°F

Flash Point: 58°F, Seta Flash, mixed

Reducer/Clean Up:
Below 80°F: MEK, R6K10
Above 80°F: Reducer #58 (R7K58) or MEK (R6K10)

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)
Substrate: Steel
Surface Preparation: SSPC-SP10
1 ct. Zinc Clad III HS @ 5.0 mils dft
1 ct. Macropoxy 646 @ 5.0-10.0 mils dft
1 ct. Acrolon 218 HS @ 5.0 mils dft

Adhesion:
Method: ASTM D4541
Result: 975 psi

Corrosion Weathering
Method: ASTM D5894, 13 cycles, 2016 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Dry Heat Resistance, zinc only:
Method: ASTM D2485
Result: 300°F

Moisture Condensation Resistance:
Method: ASTM D4585, 100°F, 4000 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Pencil Hardness, zinc only:
Method: ASTM D3363
Result: 2H

Salt Fog Resistance:
Method: ASTM B117, 4500 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Slip Coefficient, zinc only:
Method: AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts
Result: Class B, 0.52

Slip Coefficient (system listed below):
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
1 ct. Steel Spec Epoxy Primer @ 4.0 - 6.0 mils dft
Method: AISC Specifiction for Structural Joints using ASTM A325 or ASTM A490 Bolts
Result: Passes Class B, 0.58
(Meets SSPC Paint Spec 20. (1ct. Zinc @ 5 mils dft)

continued on back

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Industrial & Marine Coatings

6.07

ZINC CLAD® III HS

ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

PRODUCT INFORMATION

RECOMMENDED SYSTEMS

Steel, polyurethane topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
1-2 cts. Acrolon 218 HS @ 3.0 - 6.0 mils dft/ct

Steel, catalyzed epoxy topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
1-2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

Steel, catalyzed epoxy topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
1-2 cts. Tile-Clad HS @ 2.5 - 4.0 mils dft

Steel, acrylic topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
2 cts. DTM Acrylic Coating @ 2.5 - 4.0 mils dft/ct
or
1 ct. Fast Clad HB Acrylic @ 5.0 - 8.0 mils dft

Steel, water based epoxy topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
2 cts. Waterbased Tile-Clad Epoxy @ 2.0 - 4.0 mils dft/ct

Steel, water-based polyurethane topcoat:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
1 ct. Waterbased Tile-Clad Epoxy @ 2.0 - 4.0 mils dft
1-2 cts. Centurion WB Urethane @ 2.0 - 3.0 mils dft/ct
or
1-2 cts. Hydrogloss@ 2.0-4.0 mills dft/ct

Steel, Class B Compliant System:
1 ct Zinc Clad III HS @ 3.0-5.0 mils dft
1 ct Steel Spec Epoxy Primer (red) @4.0-6.0 mils dft

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, 2 mil profile
Galvanizing:	SSPC-SP7
Weathered Zinc Rich Primer:	Clean, dry, sound

TINTING

Do not tint.

APPLICATION CONDITIONS

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

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	3.25 gallons mixed
Part A	1 gallon
Part B	1 gallon
Part F	73 lb Zinc Dust
Weight per gallon:	27.63 ± 0.2 lb, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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

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.

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.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Industrial & Marine Coatings

6.07A
ZINC CLAD® III HS
ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

APPLICATION BULLETIN

Revised 6/08

SURFACE PREPARATION

Zinc rich coatings require direct contact between the zinc pigment in the coating and the metal substrate for optimum performance. Surface must be dry, free from oil, dirt, dust, mill scale or other contaminants to ensure adequate adhesion.

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). Coat any bare steel the same day as it is cleaned or before flash rusting occurs.

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). 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.

Weathered Zinc-Rich Primer
Remove zinc salts by either high pressure water washing and scrubbing with stiff bristle brush or sweep blast followed by water flush. Allow to dry.

Note: If blast cleaning with steel media is used, an appropriate amount of steel grit blast media may be incorporated into the work mix to render a dense, angular 1.5 - 2.0 mil surface profile. This method may result in improved adhesion and performance.

APPLICATION CONDITIONS

Temperature:	40°F minimum, 120°F maximum (air, surface, and material) At least 5°F 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
Below 80°F ..... MEK, R6K10
Above 80°F ..... Reducer #58, R7K58 or MEK, R6K10

Airless Spray
(use Teflon packings and continuous agitation)
Pressure ..... 2000 - 2300 psi
Hose ..... 3/8" ID
Tip ..... .019"
Filter ..... none
Reduction ..... As needed up to 5% by volume

Conventional Spray
(continuous agitation required)
Gun ..... Binks 95
Fluid Nozzle 68
Air Nozzle 68P
Atomization Pressure .. 50 psi
Fluid Pressure ..... 10 - 20 psi
Reduction ..... As needed up to 5% by volume

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

Brush
Brush ..... Small areas only; natural bristle
Reduction ..... Not recommended

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

continued on back

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Industrial & Marine Coatings

6.07A

ZINC CLAD® III HS

ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.
Zinc Clad III HS comes in 3 premeasured containers which when mixed provides 3.25 gallons of ready-to-apply material.

Mixing Instructions:
Mix contents of component A and B thoroughly with power agitator. Make certain no pigment remains on the bottom of the can. Then combine 1 part by volume of Part A with 1 part by volume of Part B, then add Part F (73 lb zinc dust). Thoroughly agitate the mixture with power agitation. After mixing, pour through a 30-60 mesh screen. Allow the material to sweat-in as indicated. Re-stir before using.
If reducer solvent is used, add only after components have been thoroughly mixed, after sweat-in.
Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.
Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

Wet mils:	5.0 - 8.0
Dry mils:	3.0 - 5.0
Coverage:	190 - 320 sq ft/gal approximate

Note: Brush application is for stripe coating and small areas only.

Drying Schedule @ 5.0 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 120°F
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	2 hours	1 hour
**maximum:	none	none	none
To cure:	10 days	7 days	7 days
Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Drying time is temperature, humidity, and film thickness dependent.
*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.
**Maximum Recoat: Unlimited. Must have a clean, dry surface for topcoating. "Loose" chalk or salts must be removed in accordance with good painting practice.

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

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 performance.

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 MEK, R6K10.

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

Application above recommended film thickness may result in mud cracking.

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

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with MEK, R6K10. Clean tools immediately after use with MEK, R6K10. Follow manufacturer's safety recommendations when using any solvent.

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.

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.

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

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MACROPOXY® 646 FAST CURE EPOXY

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised 9/09

PRODUCT INFORMATION

4.53

PRODUCT DESCRIPTION

MACROPOXY 646 FAST CURE EPOXY is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

- Low VOC
- Low odor
- Outstanding application properties
- Chemical resistant
- Abrasion resistant

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Mill White, Black and a wide range of colors available through tinting
Volume Solids: Mill White	72% ± 2%, mixed
Weight Solids: Mill White	85% ± 2%, mixed
VOC (EPA Method 24): mixed	Unreduced: <250 g/L; 2.08 lb/gal Reduced 10%: <300 g/L; 2.50 lb/gal
Mix Ratio:	1:1 by volume

Recommended Spreading Rate per coat:

	Minimum		Maximum	
Wet mils (microns)	**7.0**	175	**13.5**	338
Dry mils (microns)	**5.0**	125	**10.0**	250
~Coverage sq ft/gal (m^2/L)	**116**	2.8	**232**	5.7
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1152**	28.2		

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

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 35°F/1.7°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			
service:	10 days	7 days	4 days
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.
Paint temperature must be at least 40°F (4.5°C) minimum.

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

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
In California:	Reducer R7K111 or Oxsol 100

RECOMMENDED USES

- Marine applications
- Fabrication shops
- Pulp and paper mills
- Power plants
- Offshore platforms
- Refineries
- Chemical plants
- Tank exteriors
- Water treatment plants
- Mill White and Black are acceptable for immersion use for salt water and fresh water, not acceptable for potable water
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102-03 OCS #5

PERFORMANCE CHARACTERISTICS

Substrate*: Steel
Surface Preparation*: SSPC-SP10/NACE 2
System Tested*:
1 ct. Macropoxy 646 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
Accelerated Weathering-QUV[1]	ASTM D4587, QUV-A, 12,000 hours	Passes
Adhesion	ASTM D4541	1,037 psi
Corrosion Weathering[1]	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	30 in. lb.
Dry Heat Resistance	ASTM D2485	250°F (121°C)
Exterior Durability	1 year at 45° South	Excellent, chalks
Flexibility	ASTM D522, 180° bend, 3/4" mandrel	Passes
Humidity Resistance	ASTM D4585, 6000 hours	No blistering, cracking, or rusting
Immersion	1 year fresh and salt water	Passes, no rusting, blistering, or loss of adhesion
Irradiation-Effects on Coatings used in Nuclear Power Plants	ANSI 5.12 / ASTM D4082-89	Passes
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance[1]	ASTM B117, 6,500 hours	Rating 10 per ASTM D610 for rusting; Rating 9 per ASTM D1654 for corrosion
Slip Coefficient, Mill White	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class A, 0.36
Water Vapor Permeance	ASTM D1653, Method B	1.16 US perms

Epoxy coatings may darken or discolor following application and curing.

Footnotes:
[1] *Zinc Clad II Plus Primer*

continued on back

Protective & Marine Coatings

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MACROPOXY® 646 FAST CURE EPOXY

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

PRODUCT INFORMATION

4.53

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Immersion and atmospheric:			
Steel:			
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Concrete/Masonry, smooth:			
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Concrete Block:			
1 ct.	Kem Cati-Coat HS Epoxy Filler/Sealer as needed to fill voids and provide a continuous substrate.	10.0-20.0	(250-500)
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Atmospheric:			
Steel:			
(Shop applied system, new construction, AWWA D102-03, can also be used at 3 mils minimum dft when used as an intermediate coat as part of a multi-coat system)			
1 ct.	Macropoxy 646 Fast Cure Epoxy	3.0-6.0	(75-150)
1-2 cts.	of recommended topcoat		
Steel:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Steel:			
1 ct.	Macropoxy 646	4.0-6.0	(100-150)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
or	Hi-Solids Polyurethane	3.0-5.0	(75-125)
or	SherThane 2K Urethane	2.0-4.0	(50-100)
or	Hydrogloss	2.0-4.0	(50-100)
Steel:			
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Tile-Clad HS Epoxy	2.5-4.0	(63-100)
Steel:			
1 ct.	Zinc Clad II Plus	3.0-6.0	(75-150)
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
or	Zinc Clad IV	3.0-5.0	(75-125)
1 ct.	Macropoxy 646	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Aluminum:			
2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Galvanizing:			
2 cts.	Macropoxy 646	5.0-10.0	(125-250)

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

DISCLAIMER

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

SURFACE PREPARATION

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

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel
- Atmospheric: SSPC-SP2/3
- Immersion: SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
- Aluminum: SSPC-SP1
- Galvanizing: SSPC-SP1

Concrete & Masonry
- Atmospheric: SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3
- Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732, 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	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Tint Part A with Maxitoners at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

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:	
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:	12.9 ± 0.2 lb/gal ; 1.55 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 FAST CURE EPOXY

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised 9/09

APPLICATION BULLETIN

4.53

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, 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.

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 (2-3 mils / 50-75 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

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

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). 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.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI 03732, 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.

Concrete, Immersion Service:
For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI 03732, CSP 1-3.

Always follow the standard methods listed below:
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 03732 Concrete Surface Preparation.

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

Surface Preparation Standards

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

APPLICATION CONDITIONS

Temperature:	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 ..... Reducer R7K15
In California ..... Reducer R7K111

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

Conventional Spray
Gun ..... DeVilbiss MBC-510
Fluid Tip ..... E
Air Nozzle 704
Atomization Pressure ..... 60-65 psi
Fluid Pressure ..... 10-20 psi
Reduction ..... As needed up to 10% by volume
Requires oil and moisture separators

Brush
Brush ..... Nylon/Polyester or Natural Bristle
Reduction ..... Not recommended

Roller
Cover ..... 3/8" woven with solvent resistant core
Reduction ..... Not recommended

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

continued on back

Protective & Marine Coatings

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MACROPOXY® 646 FAST CURE EPOXY

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

APPLICATION BULLETIN

4.53

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:

	Minimum		Maximum	
Wet mils (microns)	**7.0**	175	**13.5**	338
Dry mils (microns)	**5.0**	125	**10.0**	250
~Coverage sq ft/gal (m^2/L)	**116**	2.8	**232**	5.7
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1152**	28.2		

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

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 35°F/1.7°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			
service:	10 days	7 days	4 days
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.
Paint temperature must be at least 40°F (4.5°C) minimum.

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

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. In California use Reducer R7K111. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

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

PERFORMANCE TIPS

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 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. In California use Reducer R7K111.

Tinting is not recommended for immersion service.

Use only Mil White and Black for immersion service.

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.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

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.

Industrial & Marine Coatings

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

PRODUCT INFORMATION

Revised 7/09

PRODUCT DESCRIPTION

ACROLON 218 HS acrylic polyurethane is a VOC compliant, polyester modified, aliphatic, acrylic polyurethane formulated specifically for in-shop applications. Also suitable for industrial applications. A fast drying, high gloss 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

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
- Tank exteriors
- Pipelines
- Ships
- Offshore platforms - exploration and production
- Suitable for use in USDA inspected facilities

Conforms to AWWA D102-03, OCS #5&#6
Acceptable for use in high performance architectural applications.

PRODUCT CHARACTERISTICS

Finish: High 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): mixed
Unreduced: <300 g/L; 2.5 lb/gal
Reduced 10%: <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:

Wet mils:	4.5 - 9.0
Dry mils:	3.0 - 6.0
Coverage:	175 - 346 sq ft/gal approximate

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

Drying Schedule @ 6.0 mils wet @ 50% RH:

	@ 50°F	@ 77°F	@ 120°F
To touch:	2 hours	30 minutes	20 minutes
To handle:	10 hours	6 hours	4 hours
To recoat:			
minimum:	12 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days

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

Pot Life: (reduced 5% with Reducer R7K15)	4 hours	2 hours	45 minutes
Sweat in Time:	none	none	none

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

Shelf Life:
Part A: 36 months, unopened
Part B: 24 months, unopened
Store indoors at 40°F to 100°F

Flash Point: 55°F, Seta, mixed
Reducer/Clean Up: Spray Reducer R7K15
Brush/Roll Reducer #132, R7K132

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)
Substrate: Steel
Surface Preparation: SSPC-SP10
1 ct. Macropoxy 646 @ 6.0 mils dft
1 ct. Acrolon 218 HS Gloss @ 4.0 mils dft

Abrasion Resistance: [1]
Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load
Result: 43 mg loss

Adhesion:
Method: ASTM D4541
Result: 975 psi

Corrosion Weathering: [2]
Method: ASTM D5894, 9 cycles, 3024 hours
Result: Rating 10 per ASTM D610, for rusting
Rating 10 per ASTM D714, for blistering

Direct Impact Resistance: [1]
Method: ASTM D2794
Result: 50 in. lb.

Dry Heat Resistance: [1]
Method: ASTM D2485, Method A
Result: 200°F

Flexibility: [1]
Method: ASTM D522, 180° bend, 1/8" mandrel
Result: Passes

Humidity Resistance: [2]
Method: ASTM D4585, 100°F, 1500 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 10 per ASTM D714 for blistering

Pencil Hardness:
Method: ASTM D3363
Result: 3H

Salt Fog Resistance: [2]
Method: ASTM B117, 7000 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 9 per ASTM D714 for blistering

[1] Finish coat only tested
[2] Primer Zinc-Clad II Plus
Intermediate Macropoxy 646
Finish Acrolon 218 HS

Meets the requirements of SSPC Paint No. 36, Level 3.

continued on back

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Industrial & Marine Coatings

5.22

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

PRODUCT INFORMATION

RECOMMENDED SYSTEMS

Steel:
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Zinc Clad II Plus @ 3.0 - 5.0 mils dft
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Zinc Clad IV @ 3.0 - 5.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Corothane I - GalvaPac Zinc Primer @ 3.0 - 4.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Epoxy Mastic Aluminum II @ 6.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Recoatable Epoxy Primer @ 4.0 - 6.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Concrete/Masonry:
1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer @ 10.0 - 20.0 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

Aluminum/Galvanizing:
1 ct. DTM Wash Primer @ 0.7 - 1.3 mils dft
1-2 cts. Acrolon 218 HS Acrylic Polyurethane @ 3.0 - 6.0 mils dft/ct

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, 1-2 mils pro file
* Galvanizing: SSPC-SP1
* Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3
* Primer required

TINTING

Tint Part A with 844 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: 40°F minimum, 120°F maximum (air, surface, and material)
At least 5°F above dew point
Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	1 gallon mix:	5 gallon mix:
Part A:	.86 gal	4.29 gal
Part B:	.14 gal	0.71 gal
(premeasured components)		
Weight per gallon:	11.2 ± 0.2 lb 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.

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.

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.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Industrial & Marine Coatings

5.22A

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

APPLICATION BULLETIN

Revised 7/09

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.

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). 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.

Poured Concrete

New

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3. Surfaces must be clean, dry, sound and offer sufficient profile to achieve adequate adhesion. Minimum substrate cure is 28 days at 75°F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 8.0 and 10.0. Allow to dry thoroughly prior to coating.

Old

Surface preparation is done in much the same manner as new concrete, however, if the concrete is contaminated with oils, grease, chemicals, etc., they must be removed by cleaning with a strong detergent. Refer to ASTM D4258. Form release agents, hardeners, etc. must be removed by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. If surface deterioration presents an unacceptably rough surface, Kem Cati-Coat Epoxy HS Filler/Sealer is recommended to patch and resurface damaged concrete.

Fill all cracks, voids and bugholes with Steel Seam VSE

Always follow the standard methods listed below:

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 03732 Concrete Surface Preparation

APPLICATION CONDITIONS

Temperature:	40°F minimum, 120°F maximum (air, surface, and material) At least 5°F 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 compatible with the existing environmental and application conditions.

Reducer/Clean Up:

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

Airless Spray

Pressure.....2500 - 2800 psi
Hose.....3/8" ID
Tip .....013" - .017"
Filter.....60 mesh
Reduction.....As needed up to 10% by volume*

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*

Brush

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

Roller

Cover .....3/8" woven with phenolic 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 10% by volume with R7K15 will exceed 340g/L VOC

continued on back

Industrial & Marine Coatings

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with 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:

Wet mils:	4.5 - 9.0
Dry mils:	3.0 - 6.0
Coverage:	175 - 346 sq ft/gal approximate

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

Drying Schedule @ 6.0 mils wet @ 50% RH:

	50°F	@ 77°F	@ 120°F
To touch:	2 hours	30 minutes	20 minutes
To handle:	10 hours	6 hours	4 hours
To recoat:			
minimum:	12 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
(reduced 5% with Reducer R7K15)			
Sweat in Time:	none	none	none

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

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.

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.

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.

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.

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.

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.

APPENDIX C

SHERWIN-WILLIAMS

MATERIAL SAFETY DATA SHEETS (MSDS)

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B69A100
16 00

DATE OF PREPARATION
Nov 26, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B69A100
PRODUCT NAME
ZINC CLAD® III HS Organic Zinc-Rich Epoxy Primer (Part A)
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
7	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
40	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
2	90-72-2	**Tri(dimethylaminomethyl)phenol**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
11	Proprietary	**Polyamide**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	3*
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Causes burns.
SKIN: Causes burns.
INHALATION: Causes burns of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May cause allergic skin reaction in susceptible persons or skin sensitization.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention **IMMEDIATELY**.
SKIN: Wash affected area thoroughly with soap and water.
If irritation persists or occurs later, get medical attention.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
85 °F PMCC	1.0	7.0	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IC

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Do not get in eyes, or on skin or clothing. Do not breathe vapor or spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

To prevent eye contact, wear safety spectacles with unperforated sideshields.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

OTHER PROTECTIVE EQUIPMENT
Use barrier cream on exposed skin.
OTHER PRECAUTIONS
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	8.90 lb/gal	1067 g/l
SPECIFIC GRAVITY	1.07	
BOILING POINT	277 - 292 °F	136 - 144 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	58%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

4.20 lb/gal	503 g/l	Less Water and Federally Exempt Solvents
4.20 lb/gal	503 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable
CONDITIONS TO AVOID
None known.
INCOMPATIBILITY
None known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide
HAZARDOUS POLYMERIZATION
Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.
TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
90-72-2	Tri(dimethylaminomethyl)phenol			
		LC50 RAT	4HR	Not Available
		LD50 RAT		1653 mg/kg
Proprietary	Polyamide			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION
No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD
Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT, 3, PG III, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Ethylbenzene 1000 lb RQ
Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT, 3, PG III, (XYLENES (ISOMERS AND MIXTURE)).
(ERG#128)

Canada (TDG)

UN1263, PAINT, 3, PG III, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG III, (29 C c.c.), EmS F-E, S-E

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG III, (29 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT, 3, PG III

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	7	
1330-20-7	Xylene	40	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B69V100
12 00

DATE OF PREPARATION
Jul 8, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B69V100
PRODUCT NAME
ZINC CLAD® III HS Organic Zinc-Rich Epoxy Primer (Part B), Hardener
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
2	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
12	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
2	64742-95-6	**Light Aromatic Hydrocarbons**		
		ACGIH TLV	Not Available	3.8 mm
		OSHA PEL	Not Available	
2	108-67-8	**1,3,5-Trimethylbenzene**		
		ACGIH TLV	25 PPM	2 mm
		OSHA PEL	25 PPM	
3	95-63-6	**1,2,4-Trimethylbenzene**		
		ACGIH TLV	25 PPM	2.03 mm
		OSHA PEL	25 PPM	
22	78-93-3	**Methyl Ethyl Ketone**		
		ACGIH TLV	200 PPM	90.6 mm
		ACGIH TLV	300 PPM STEL	
		OSHA PEL	200 PPM	
		OSHA PEL	300 PPM STEL	
17	110-43-0	**Methyl n-Amyl Ketone**		
		ACGIH TLV	50 PPM	3.855 mm
		OSHA PEL	100 PPM	
40	67924-34-9	**Epoxy Polymer**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

EFFECTS OF OVEREXPOSURE

EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

HMIS Codes	
Health	2*
Flammability	3
Reactivity	0

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic skin reaction in susceptible persons or skin sensitization.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
If irritation persists or occurs later, get medical attention.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
81 °F PMCC	0.7	10.0	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IC

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use of barrier cream on exposed skin is recommended.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	7.85 lb/gal	940 g/l
SPECIFIC GRAVITY	0.94	
BOILING POINT	174 - 360 °F	78 - 182 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	68%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

4.73 lb/gal	567 g/l	Less Water and Federally Exempt Solvents
4.73 lb/gal	567 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Methyl Ethyl Ketone may increase the nervous system effects of other solvents.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
64742-95-6	Light Aromatic Hydrocarbons			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
108-67-8	1,3,5-Trimethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
95-63-6	1,2,4-Trimethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
78-93-3	Methyl Ethyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		2740 mg/kg
110-43-0	Methyl n-Amyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		1670 mg/kg
67924-34-9	Epoxy Polymer			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED)., ** DO NOT FREEZE **
Larger Containers are Regulated as:
UN1263, PAINT RELATED MATERIAL, 3, PG III, (ERG#128), ** DO NOT FREEZE **

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Ethyl methyl ketone 5000 lb RQ
Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT RELATED MATERIAL, 3, PG III, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128), ** DO NOT FREEZE **

Canada (TDG)

UN1263, PAINT RELATED MATERIAL, 3, PG III, LIMITED QUANTITY, (ERG#128), ** DO NOT FREEZE **

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, 3, PG III, (27 C c.c.), EmS F-E, S-E, ** DO NOT FREEZE **

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, 3, PG III, (27 C c.c.), EmS F-E, S-E, ** DO NOT FREEZE **

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

IATA/ICAO

UN1263, PAINT RELATED MATERIAL, 3, PG III, ** DO NOT FREEZE **

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	2	
1330-20-7	Xylene	12	
95-63-6	1,2,4-Trimethylbenzene	3	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B69D11
05 00

DATE OF PREPARATION
Jul 2, 2013

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B69D11
PRODUCT NAME
ZINC CLAD™ Zinc Dust (Part F)
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
100	7440-66-6	Zinc		
			ACGIH TLV	Not Available
			OSHA PEL	Not Available

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	2
Flammability	0
Reactivity	1

ROUTES OF EXPOSURE
EYE or SKIN contact with product.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
Not Applicable	Not Applicable	Not Applicable	Not Applicable

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

UNUSUAL FIRE AND EXPLOSION HAZARDS

Dry zinc dust will not ignite spontaneously. In contact with atmospheric moisture, zinc dust can form an explosive mixture with air. When dampended in confined spaces, explosive concentrations of hydrogen may form. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Do not use water.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove with inert absorbent. Sweep up material taking care not to generate airborne dust.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Use entire container at one time. Do not reseal opened containers containing Zinc dust. Do not transfer Zinc dust to other containers. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid generating or breathing airborne dust.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts dust are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or abrasive.

PROTECTIVE GLOVES

Required for long or repeated contact.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	58.60 lb/gal	7021 g/l
SPECIFIC GRAVITY	7.05	
BOILING POINT	Not Applicable	
MELTING POINT	Not Available	
VOLATILE VOLUME	0%	
EVAPORATION RATE	Not Available	
VAPOR DENSITY	Not Available	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

0.00 lb/gal	0 g/l	Less Water and Federally Exempt Solvents
0.00 lb/gal	0 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

Avoid contamination of Zinc dust or Zinc-containing mixtures with water. Avoid excess dusting of Zinc dust portions.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

INCOMPATIBILITY

Contamination with Water, Acids, or Alkalis can cause evolution of hydrogen, which may result in dangerously increased pressures in closed containers.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Oxides of Metals in Section 2

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
7440-66-6	Zinc			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

Not Regulated for Transportation.

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Zinc 1000 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (ZINC), 9, PG III, (ERG#171)

Canada (TDG)

Not Regulated for Transportation.

IMO

Not Regulated for Transportation.

IATA/ICAO

Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
	Zinc		97

CALIFORNIA PROPOSITION 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B58W610
25 00

DATE OF PREPARATION
Jul 30, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B58W610
PRODUCT NAME
MACROPOXY® 646 Fast Cure Epoxy Coating (Part A), Mill White
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
3	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
15	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
10	68410-23-1	**Polyamide**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
9	14807-96-6	**Talc**		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
31	13463-67-7	**Titanium Dioxide**		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	3*
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Causes burns.
SKIN: Causes burns.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system
- the reproductive system

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic skin reaction in susceptible persons or skin sensitization.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention **IMMEDIATELY**.
SKIN: Wash affected area thoroughly with soap and water.
If irritation persists or occurs later, get medical attention.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
85 °F PMCC	1.0	7.0	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IC

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Do not get in eyes or on skin. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

To prevent eye contact, wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	12.19 lb/gal	1460 g/l
SPECIFIC GRAVITY	1.47	
BOILING POINT	277 - 292 °F	136 - 144 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	29%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

2.11 lb/gal	253 g/l	Less Water and Federally Exempt Solvents
2.11 lb/gal	253 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
68410-23-1	Polyamide			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14807-96-6	Talc			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT, 3, PG III, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Ethylbenzene 1000 lb RQ
Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT, 3, PG III, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

Canada (TDG)

UN1263, PAINT, 3, PG III, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG III, (29 C c.c.), EmS F-E, S-E

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG III, (29 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT, 3, PG III

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	3	
1330-20-7	Xylene	15	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B58V600
17 00

DATE OF PREPARATION
Sep 17, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B58V600
PRODUCT NAME
MACROPOXY® 646 Fast Cure Epoxy Coating (Part B), Hardener
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.8	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
4	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
7	108-10-1	**Methyl Isobutyl Ketone**		
		ACGIH TLV	50 PPM	16 mm
		ACGIH TLV	75 PPM STEL	
		OSHA PEL	50 PPM	
		OSHA PEL	75 PPM STEL	
14	25085-99-8	**Epoxy Polymer**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
58	14808-60-7	**Quartz**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system
- the reproductive system

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
64 °F PMCC	1.0	7.5	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	13.48 lb/gal	1614 g/l
SPECIFIC GRAVITY	1.62	
BOILING POINT	237 - 292 °F	113 - 144 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	24%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

1.64 lb/gal	197 g/l	Less Water and Federally Exempt Solvents
1.64 lb/gal	197 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
108-10-1	Methyl Isobutyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		2080 mg/kg
25085-99-8	Epoxy Polymer			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14808-60-7	Quartz			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT RELATED MATERIAL, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT RELATED MATERIAL, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

Canada (TDG)

UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, (18 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT RELATED MATERIAL, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.7	
1330-20-7	Xylene	4	
108-10-1	Methyl Isobutyl Ketone	7	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B65T604
20 00

DATE OF PREPARATION
Mar 27, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B65T604
PRODUCT NAME
ACROLON™ 218 HS Polyurethane - Gloss (Part A), Ultradeep/Clear Tint Base
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.4	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
2	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
1	64742-94-5	**Medium Aromatic Hydrocarbons**		
		ACGIH TLV	Not Available	0.12 mm
		OSHA PEL	Not Available	
0.2	91-20-3	**Naphthalene**		
		ACGIH TLV	10 PPM	1 mm
		ACGIH TLV	15 PPM STEL	
		OSHA PEL	10 PPM	
		OSHA PEL	15 PPM STEL	
4	78-93-3	**Methyl Ethyl Ketone**		
		ACGIH TLV	200 PPM	90.6 mm
		ACGIH TLV	300 PPM STEL	
		OSHA PEL	200 PPM	
		OSHA PEL	300 PPM STEL	
10	123-86-4	**n-Butyl Acetate**		
		ACGIH TLV	150 PPM	10 mm
		ACGIH TLV	200 PPM STEL	
		OSHA PEL	150 PPM	
		OSHA PEL	200 PPM STEL	
6	108-65-6	**1-Methoxy-2-Propanol Acetate**		
		ACGIH TLV	Not Available	1.8 mm
		OSHA PEL	Not Available	
31	14808-60-7	**Quartz**		
		ACGIH TLV	0.025 mg/m3 as Resp. Dust	
		OSHA PEL	0.1 mg/m3 as Resp. Dust	

SECTION 3 — HAZARDS IDENTIFICATION

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

HMIS Codes	
Health	2*
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the hematopoietic (blood-forming) system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure.
Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If any breathing problems occur during use, **LEAVE THE AREA** and get fresh air. If problems remain or occur later, **IMMEDIATELY** get medical attention.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
55 °F PMCC	0.8	13.1	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

NO PERSON SHOULD USE THIS PRODUCT, OR BE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. **NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.**

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	10.64 lb/gal	1275 g/l
SPECIFIC GRAVITY	1.28	
BOILING POINT	174 - 415 °F	78 - 212 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	36%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

2.66 lb/gal	319 g/l	Less Water and Federally Exempt Solvents
2.66 lb/gal	319 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Methyl Ethyl Ketone may increase the nervous system effects of other solvents.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Naphthalene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
64742-94-5	Medium Aromatic Hydrocarbons			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
91-20-3	Naphthalene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
78-93-3	Methyl Ethyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		2740 mg/kg
123-86-4	n-Butyl Acetate			
		LC50 RAT	4HR	2000 ppm
		LD50 RAT		13100 mg/kg
108-65-6	1-Methoxy-2-Propanol Acetate			
		LC50 RAT	4HR	Not Available
		LD50 RAT		8500 mg/kg
14808-60-7	Quartz			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

UN1263, PAINT, 3, PG II, (ERG#128)

Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, CLASS 3, PG II, (13 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT, 3, PG II

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

IATA/ICAO
UN1263, PAINT, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.4	
1330-20-7	Xylene	2	
91-20-3	Naphthalene	0.2	

CALIFORNIA PROPOSITION 65
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION
All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

B65V600
15 00

DATE OF PREPARATION
Aug 13, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B65V600
PRODUCT NAME
ACROLON™ 218 HS Acrylic Polyurethane (Part B), Hardener
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units		Vapor Pressure
1	822-06-0	**Hexamethylene Diisocyanate (max.)**			
		ACGIH TLV	0.005	PPM	0.05 mm
		OSHA PEL	Not Available		
99	28182-81-2	**Hexamethylene Diisocyanate Polymer**			
		ACGIH TLV	Not Available		
		OSHA PEL	Not Available		

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	3*
Flammability	1
Reactivity	2

ROUTES OF EXPOSURE
EYE or SKIN contact with product.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure.
Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.
CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
INHALATION: If any breathing problems occur during use, **LEAVE THE AREA** and get fresh air. If problems remain or occur later, **IMMEDIATELY** get medical attention.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
18 °F PMCC	1.8	10.0	RED LABEL -- Extremely Flammable, Flash below 21 °F (-6 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	6.68 lb/gal	800 g/l
SPECIFIC GRAVITY	0.80	
BOILING POINT	174 - 177 °F	78 - 80 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	100%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

6.68 lb/gal	800 g/l	Less Water and Federally Exempt Solvents
6.68 lb/gal	800 g/l	Emitted VOC

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	9.41 lb/gal	1127 g/l
SPECIFIC GRAVITY	1.13	
BOILING POINT	Not Applicable	
MELTING POINT	Not Available	
VOLATILE VOLUME	0%	
EVAPORATION RATE	Not Available	
VAPOR DENSITY	Not Available	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

0.00 lb/gal	0 g/l	Less Water and Federally Exempt Solvents
0.00 lb/gal	0 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

Contamination with Water, Alcohols, Amines and other compounds which react with isocyanates, may result in dangerous pressure in, and possible bursting of, closed containers.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide , Oxides of Nitrogen, possibility of Hydrogen Cyanide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
822-06-0	**Hexamethylene Diisocyanate (max.)**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		738 mg/kg
28182-81-2	**Hexamethylene Diisocyanate Polymer**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

Not Regulated for Transportation.

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Hexamethylene 1,6-diisocyanate 100 lb RQ

Canada (TDG)

Not Regulated for Transportation.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

R7K15
04 00

DATE OF PREPARATION
Aug 29, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
R7K15
PRODUCT NAME
Reducer No. 15
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
8	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
44	1330-20-7	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
48	108-10-1	**Methyl Isobutyl Ketone**		
		ACGIH TLV	50 PPM	16 mm
		ACGIH TLV	75 PPM STEL	
		OSHA PEL	50 PPM	
		OSHA PEL	75 PPM STEL	

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
> 200 °F PMCC	Not Applicable	Not Applicable	Not Applicable

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

All personnel in the area should be protected as in Section 8.

Cover spill with absorbent material. Deactivate spilled material with a 10% ammonium hydroxide solution (household ammonia). After 10 minutes, collect in open containers and add more ammonia. Cover loosely. Wash spill area with soap and water.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IIIB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

NO PERSON SHOULD USE THIS PRODUCT, OR BE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. **NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.**

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	9.41 lb/gal	1127 g/l
SPECIFIC GRAVITY	1.13	
BOILING POINT	Not Applicable	
MELTING POINT	Not Available	
VOLATILE VOLUME	0%	
EVAPORATION RATE	Not Available	
VAPOR DENSITY	Not Available	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

0.00 lb/gal	0 g/l	Less Water and Federally Exempt Solvents
0.00 lb/gal	0 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

Contamination with Water, Alcohols, Amines and other compounds which react with isocyanates, may result in dangerous pressure in, and possible bursting of, closed containers.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide , Oxides of Nitrogen, possibility of Hydrogen Cyanide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
822-06-0	**Hexamethylene Diisocyanate (max.)**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		738 mg/kg
28182-81-2	**Hexamethylene Diisocyanate Polymer**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

Not Regulated for Transportation.

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Hexamethylene 1,6-diisocyanate 100 lb RQ

Canada (TDG)

Not Regulated for Transportation.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

IMO

Not Regulated for Transportation.

IATA/ICAO

Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
822-06-0	Hexamethylene Diisocyanate (max.)	1	

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

MATERIAL SAFETY DATA SHEET

MEK/SW
15 00

DATE OF PREPARATION
Oct 1, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
MEK/SW
PRODUCT NAME
Methyl Ethyl Ketone
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
100	78-93-3	**Methyl Ethyl Ketone**		
		ACGIH TLV	200 PPM	90.6 mm
		ACGIH TLV	300 PPM STEL	
		OSHA PEL	200 PPM	
		OSHA PEL	300 PPM STEL	

SECTION 3 — HAZARDS IDENTIFICATION

HMIS Codes

Health	2
Flammability	3
Reactivity	0

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
64 °F PMCC	1.0	7.5	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	6.91 lb/gal	827 g/l
SPECIFIC GRAVITY	0.83	
BOILING POINT	237 - 292 °F	113 - 144 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	100%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

6.90 lb/gal	827 g/l	Less Water and Federally Exempt Solvents
6.90 lb/gal	827 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene	LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene	LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
108-10-1	Methyl Isobutyl Ketone	LC50 RAT	4HR	Not Available
		LD50 RAT		2080 mg/kg

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

Vermont Agency of Transportation
RECEIVED
ON: November 12, 2015
and Checked for
CONFORMANCE
BY: ABC DATE:

US Ground (DOT)
5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT RELATED MATERIAL, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities
Ethylbenzene 1000 lb RQ
Methyl isobutyl ketone 5000 lb RQ
Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):
RQ, UN1263, PAINT RELATED MATERIAL, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

Canada (TDG)
UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO
5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, (18 C c.c.), EmS F-E, S-E

IATA/ICAO
UN1263, PAINT RELATED MATERIAL, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	8	
1330-20-7	Xylene	44	
108-10-1	Methyl Isobutyl Ketone	48	

CALIFORNIA PROPOSITION 65
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION
All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.