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: June 08, 2016.

Vermont Department of Transportation
Southeast Regional Construction Office
Attn: Ann Gammell, P.E., Regional Construction Engineer
PO Box 1873; 61 Depot Street
Wilder, VT 05088-1873
(802) 522-5719; (802) 281-5000; (802) 281-5002 fax
Ann.Gammell@Vermont.gov

Description: Proposal/Contract Number: Windsor-Hartford IM BPNT (13)
Letting Date: 10/09/15; Award Date: 11/02/15
Project Description: Bridge Painting of Eleven Bridges
In the Towns of Windsor & Hartford, Windsor County, VT
Contract Amount: $8,671,323.00; Completion Date: 10/12/18

Contractor: **MONOKO, LLC**

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

Date: **06/08/2016**

Engineer: Paul Perry IV, Resident Engineer
PO Box 1873; 61 Depot Street
Wilder, VT 05088-1873
802-498-8255 cell; 802-281-5000 office; 802-281-5002 fax
paul.perry@vermont.gov
mark.sargent@vermont.gov
pmcdonald@gpinet.com
ann.gammell@vermont.gov

Revision:

Quality Control Plan

Submitted to

Paul Perry IV, Resident Engineer
PO Box 1873; 61 Depot Street
Wilder, VT 05088-1873
802-498-8255 cell; 802-281-5000 office; 802-281-5002 fax
paul.perry@vermont.gov

for
Project

Proposal/Contract Number: Windsor-Hartford IM BPNT (13)
Letting Date: 10/09/15; Award Date: 11/02/15
Project Description: Bridge Painting of Eleven Bridges
In the Towns of Windsor & Hartford, Windsor County, VT
Contract Amount: $8,671,323.00; Completion Date: 10/12/18

By

Monoko, LLC
1037 Peninsula Avenue
Tarpon Springs, FL 34689

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 5
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 6
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 7
FORM A-2 QUALITY CONTROL INSPECTOR'S QUALIFICATIONS..... Page 8

SECTION B: QUALITY CONTROL INSPECTION EQUIPMENT..... Page 9
1.0 SLING PSYCHROMETER..... Page 10
2.0 SURFACE TEMPERATURE GAUGE..... Page 10
3.0 VISUAL STANDARDS..... Page 11
4.0 ANCHOR PROFILE..... Page 11
5.0 CHLORIDE TESTING..... Page 11
6.0 WET FILM THICKNESS..... Page 12
7.0 DRY FILM THICKNESS GAUGES..... Page 12
8.0 TYPICAL DRY FILM THICKNESS GAGES..... Page 12
9.0 PROJECT SPECIFICATIONS FOR DRY FILM THICKNESS READINGS..... Page 13
FORM B-1 CALIBRATION OF QUALITY CONTROL EQUIPMENT..... Page 13

SECTION C: INSPECTION OF EQUIPMENT..... Page 14
1.0 COMPRESSED AIR CLEANLINESS..... Page 15

SECTION D: COATING REMOVAL OPERATIONS..... Page 15
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 16

SECTION E: COATING OPERATIONS..... Page 17
1.0 MANUFACTURER'S SPECIFICATIONS..... Page 18
2.0 ATMOSPHERIC CONDITIONS..... Page 18
3.0 COATINGS OPERATIONS..... Page 18

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

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

6-8-16
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

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

FIELD APPLICATION OF COATINGS
COMPLEX STRUCTURES
SSPC-QP1

SSPC CERTIFIED CONTRACTOR SSPC QP1

President, SSPC

March 31, 2016 – March 31, 2017

Validation Period

ANAB ACCREDITED INSPECTION BODY

Owners are advised to contact SSPC at 412-281-2331 ext. 2235 or ext. 2209 to verify authenticity of certification.

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

INDUSTRIAL HAZARDOUS PAINT REMOVAL
SSPC-QP2

SSPC CERTIFIED CONTRACTOR SSPC QP2

"A"

Category

President, SSPC

March 31, 2016 – March 31, 2017

Validation Period

ANAB ACCREDITED INSPECTION BODY

Owners are advised to contact SSPC at 412-281-2331 ext. 2235 or ext. 2209 to verify authenticity of certification.

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.

NACE INTERNATIONAL INSTITUTE

NACE CERTIFIED COATING INSPECTOR—LEVEL 3

Drosso Monokandilos

Cert No. 9188 **Expires: May 31, 2017**

The person to whom this has been issued has fulfilled the examination and experience requirements of the NACE Institute in order to attain the status of *NACE Certified Coating Inspector—Level 3* certification.

Helena Seelinger

Helena Seelinger—Executive Director

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

Will Q Shop
Executive Director

RP McMurray
President

QCS Course
Location

May 21, 2012
Date

QCS Course- SSPC
Instructor(s)

Page 6B

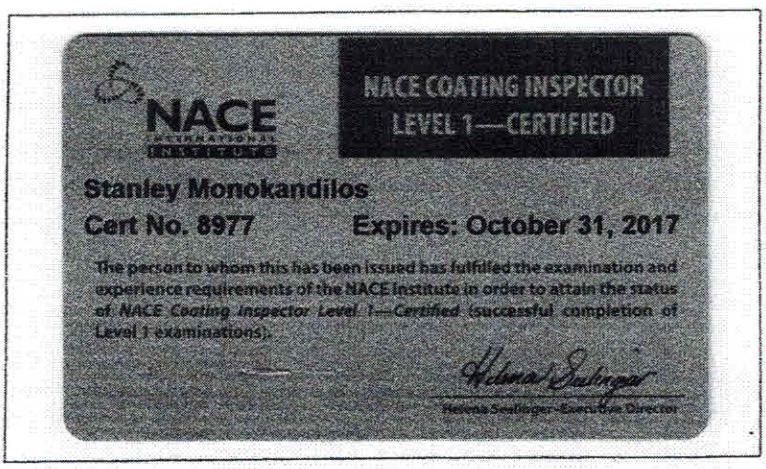
NACE INTERNATIONAL INSTITUTE

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

SSPC™ The Society For Protective Coatings

ACCREDITED IACET PROVIDER

IACET Provider # 1003373
Florida Board of Professional Engineers,
Provider #0004326
New York Board of Professional Engineers

CERTIFICATE OF COMPLETION

Perekles Loumakos

Has fulfilled the ***Level 1*** *requirements of SSPC: The Society for Protective Coatings'*

BCI COATINGS INSPECTION TRAINING & CERTIFICATION FOR THE BRIDGE INDUSTRY

And is awarded
4.5 Continuing Education Units

ID#: 73972

Expires: 3/31/2020

Course Date(s): 3/3/16

Location: St. Petersburgh, FL

Instructor(s): Mitch Blum

SSPC President

SSPC Executive Director

www.sspc.org | 800 Trumbull Drive, Pittsburgh, PA 15205-4365 | P:412.281.2331 T:877.281.7772 F:412.444.3591

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.

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

6-8-16
Date

FORM A-2

QUALITY CONTROL INSPECTOR'S TRAINING CERTIFICATES

SSPC The Society For Protective Coatings

www.sspc.org 800 Trumbull Drive Pittsburgh, PA 15205-4365 P: 412.281.2331 T: 877.281.7772 F: 412.444.359

March 2, 2016

Mr. Gary Magriplis
Monoko LLC
1037 Peninsula Ave
Tarpon Springs FL 34689

Subject: **SSPC Bridge Coating Inspector (BCI) Level 1 Certification - Confirmation**

Enclosed: Wallet card **Gary Magriplis - Certification #: 47644**

This letter is to inform you that you have successfully completed your SSPC Bridge Coating Inspector (BCI) Level 1 recertification.

Successful completion of the recertification process reaffirms that you understand the basic principles of the Protective Coating Inspector program, have met the prerequisites needed, and passed the exam.

This certification is awarded for a period of four years and will expire on 4/30/2020.

Information on your next recertification will be mailed to you 6 months prior to expiration. In order to receive the information, you must notify SSPC of any change of address or employment. It is the responsibility of each certified individual to keep SSPC current on his or her contact information. SSPC will not be responsible for certifications that lapse because a reminder letter was sent to an incorrect address.

Please make sure to continue to submit your Job Notification Forms and the Audit Criteria Forms over the next fours years of your certification term.

If you have any questions about your certification please contact Silvia Palmieri at 412-281-2331 Ext. 2201 or by e-mail at palmieri@sspc.org at your convenience. You may also contact me directly at Ext. 2219 if you have any comments or concerns that you would like me to address. We appreciate your participation and are here to serve you.

Sincerely,

Terry L Sowers

Terry Sowers
Director of Member Services

SSPC
This card certifies that
Gary Magriplis
has fulfilled the Level 1 requirements of SSPC's (BCI) Bridge Coatings Inspector Certification Program
Expires: 4/30/2020
ID#: 47644
SSPC President
SSPC (BCI) Bridge Coatings Inspector - Level 1

NACE International Education - Student Grades by Class

Access Scores Online | Shipping Status

Student ID	Last Name	First Name	Final Exam Score	Final Practical Score	Logbook Score
3553821	SAMONAS	ELIAS	75	75	80

Passing requires a score of 70 or above. When more than one score is listed, passing requires a score of 70 or above on each portion of the exam.

Search Again

Grade letters will be mailed approximately 10 weeks following the completion of the course.
Please note that letters mailed within the U.S. will be sent U.S. first class.
Grade letters mailed outside the U.S. will be sent via air mail.
An official record of all grades is maintained by NACE International Headquarters. Any errors in data presented on the Web site will not affect official grades.

Houston, Texas USA
Phone: +1 281-228-6223 or
+1 800-797-6223
Fax: +1 281-228-6300
firstservice@nace.org

© Copyright 2000-2016 NACE International. All rights reserved.
Revision: 707a5bb | Common: 0c02e61 | Core: ee2a31e | Auth: 264c109

Mr. Samonas passed NACE I
10 weeks must pass by before a certificate is issued

SSPC The Society For Protective Coatings

ACCREDITED IACET PROVIDER

IACET Provider # 1003373
Florida Board of Professional Engineers,
Provider #0004326
New York Board of Professional Engineers
American Board of Industrial Hygiene
Approved Provider #10-193

CERTIFICATE OF COMPLETION

Elias P. Samonas

Has fulfilled the requirements of
SSPC: The Society for Protective Coatings'

C-3 SUPERVISOR/COMPETENT PERSON TRAINING FOR DELEADING OF INDUSTRIAL STRUCTURES

And is awarded
3.0 Continuing Education Units

Course Date(s):
3/7/16 – 3/10/16

Location:
Merrillville, IN

Instructor(s):
Mitch Blum

SSPC President

SSPC Executive Director

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

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

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.

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.

FORM B-1

CALIBRATION OF QUALITY CONTROL EQUIPMENT

Equipment _____

Serial Number _____

Date	Pass/Fail	Comments	Inspector

SECTION C: INSPECTION OF EQUIPMENT

1.0 COMPRESSED AIR CLEANLINESS

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

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

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

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

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

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.

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

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

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.

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

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**_____

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

		Yes No			Foreman
		Yes No			QC/HSO
		Yes No			Blaster/Painter
		Yes No			Laborer
		Yes No			
		Yes No			

QC Inspectors Signature_____ **QCS Review**_____

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_____

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_____

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

Protective & Marine Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

Revised: Sept. 29, 2015

PRODUCT INFORMATION

5.22

PRODUCT DESCRIPTION

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

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

PRODUCT CHARACTERISTICS

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

Recommended Spreading Rate per coat:

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

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

Drying Schedule @ 6.0 mils wet (150 microns):

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

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

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

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

Flash Point:	55°F (13°C), Seta, mixed
Reducer/Clean Up:	
Spray:	Reducer R7K15, MEK R6K10, or R7K111
Brush / Roll:	Reducer #132, R7K132 or R7K111

RECOMMENDED USES

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

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

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Macropoxy 646 @ 6.0 mils (150 microns) dft
1 ct. Acrolon 218 HS Gloss @ 4.0 mils (100 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance[1]	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	43 mg loss
Adhesion[3]	ASTM D4541	1976 psi
Corrosion Weathering[3]	ASTM D5894, 27 cycles, 9072 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Direct Impact Resistance[1]	ASTM D2794	50 in. lb.
Dry Heat Resistance[1]	ASTM D2485, Method A	200°F (93°C)
Flexibility[1]	ASTM D522, 180° bend, 1/8" mandrel	Passes
Humidity Resistance[2]	ASTM D4585, 100°F (38°C), 1500 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance[3]	ASTM B117, 15,000 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering

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

Complies with ISO 12944-5 C5I and C5M requirements.

Footnotes:
[1] Finish coat only tested

[2] Primer	*Zinc-Clad II Plus*
Intermediate	*Macropoxy 646*
Finish	*Acrolon 218 HS*
[3] Primer	*Zinc-Clad III HS*

continued on back

Protective & Marine Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

Revised: Sept. 29, 2015

PRODUCT INFORMATION

5.22

RECOMMENDED SYSTEMS

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

FIRETEX ONLY:

Finish Coat for FIRETEX Hydrocarbon Systems:

1 ct. Acrolon 218 HS Polyurethane*

*Consult FIRETEX PFP Specialist for recommended dft range

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

DISCLAIMER

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

SURFACE PREPARATION

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

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

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

Surface Preparation Standards

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

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

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

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	1 gallon (3.78L) mix:	5 gallon (18.9L) mix:
Part A:	.86 gal (3.25L)	4.29 gal (16.2L)
Part B:	.14 gal (0.53L)	0.71 gal (2.7L)
(premeasured components)		

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

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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

WARRANTY

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

Protective & Marine Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

Revised: Sept. 29, 2015

APPLICATION BULLETIN

5.22

SURFACE PREPARATIONS

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

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

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

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

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

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

Surface Preparation Standards

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

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

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

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

Airless Spray
Pressure.....2500 - 2800 psi
Hose.....3/8" ID
Tip .....013" - .017"
Filter.....60 mesh
Reduction.....As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

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

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

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

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

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

continued on back

Protective & Marine Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

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

Revised: Sept. 29, 2015

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

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

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

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

Recommended Spreading Rate per coat:

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

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

Drying Schedule @ 6.0 mils wet (150 microns):

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

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

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

CLEAN UP INSTRUCTIONS

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

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 apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15 or MEK, R6K10.

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

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

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

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

SAFETY PRECAUTIONS

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

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised: April 15, 2016

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
- Chemical resistant
- Abrasion resistant
- Outstanding application properties
- Meets Class A requirements for Slip Coefficient, 0.36 @ 6 mils / 150 microns dft (Mill White only)

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Mill White, Black and a wide range of colors available through tinting
Volume Solids:	72% ± 2%, mixed, Mill White
Weight Solids:	85% ± 2%, mixed, Mill White
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)	

*May be applied at 3.0-10.0 mils (75-250 microns) dft in a multi-coat system. Refer to Recommended Systems and Performance Tips Sections.

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
To cure:			
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

When used as an intermediate coat as part of a multi-coat system:

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	3 hours	1 hour	1 hour
To handle:	48 hours	4 hours	2 hours
To recoat:			
minimum:	16 hours	4 hours	2 hours
maximum:	1 year	1 year	1 year

PRODUCT CHARACTERISTICS (CONT'D)

Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 110°F (43°C).
Flash Point:	91°F (33°C), TCC, mixed
Reducer/Clean Up:	Reducer, R7K15
In California:	Reducer R7K111 or Oxsol 100

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
Nuclear Decontamination	ASTM D4256/ANSI N 5.12	99% Water Wash; 95% Overall
Direct Impact Resistance[2]	ASTM D2794 Modified	**120 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
Fuel Contribution	NFPA 259	5764 btu/lb
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
Radiation Tolerance	ASTM D4082 / ANSI 5.12	Pass at 21 mils (525 microns)
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
Surface Burning	ASTM E84/NFPA 255	Flame Spread Index 20; Smoke Development Index 35 (at 18 mils or 450 microns)
Water Vapor Permeance	ASTM D1653, Method B	1.16 US perms

Epoxy coatings may darken or discolor following application and curing.

*Refer to Slip Certification document

** Performed on 1/16 inch blasted steel

Footnotes:

[1] *Zinc Clad II Plus Primer*

[2] *Two coats of* Macropoxy 646 Fast Cure Epoxy

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.

continued on back

Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised: April 15, 2016

PRODUCT INFORMATION

4.53

RECOMMENDED USES

- Marine applications
- Fabrication shops
- Pulp and paper mills
- Power plants
- Offshore platforms
- Nuclear Power Plants
- Nuclear fabrication shops
- Refineries
- Chemical plants
- Tank exteriors
- Water treatment plants
- DOE Nuclear Fuel Facilities
- DOE Nuclear Weapons Facilities
- 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
- Acceptable for use in Canadian Food Processing facilities, categories: D1, D2, D3 (Confirm acceptance of specific part numbers/rexes with your SW Sales Representative)
- Conforms to AWWA D102 OCS #5
- Conforms to MPI # 108
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.

* Nuclear qualifications are NRC license specific to the facility.

- Suitable for use in the Mining & Minerals Industry
- Acceptable for use over and/or under Loxon S1 and Loxon H1 Caulking

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Immersion and atmospheric:			
Steel:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Concrete/Masonry, smooth:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	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 Fast Cure Epoxy	5.0-10.0	(125-250)
Atmospheric:			
Steel: (Shop applied system, new construction, AWWA D102, can also be used at 3 mils / 75 microns 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 Fast Cure Epoxy	5.0-10.0	(125-250)
Steel:			
1 ct.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
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 Fast Cure Epoxy	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	2.0-4.0	(50-100)
1 ct.	Macropoxy 646 Fast Cure Epoxy	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 Fast Cure Epoxy	3.0-10.0	(75-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Aluminum:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	2.0-4.0	(50-100)
Galvanizing:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	2.0-4.0	(50-100)
FIRETEX M89/02, M90, M90/02, and M93/02:			
Steel & Galvanized Substrates being primed for FIRETEX only:			
1 ct.	Macropoxy 646 Fast Cure Epoxy	2.0-5.0	(50-125)

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

Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
Aluminum:	SSPC-SP1
Galvanizing:	SSPC-SP1; See Surface Preparations section on page 3 for application of FIRETEX intumescent coating systems

Concrete & Masonry

Atmospheric:	SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 2-4

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

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised: April 15, 2016

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.
In preparing galvanized steel substrates for the application of FIRE-TEX intumescent coating systems, Surface Preparation Specification SSPC-SP 16 must be followed obtaining a surface profile of minimum 1.5 mils (38 microns). Optimum surface profile will not exceed 2.0 mils (50 microns).

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

Concrete, Immersion Service:
For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-4.

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

Previously Painted Surfaces
If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this 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 ..... As needed up to 10% by volume

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

Plural Component Spray ... Acceptable
Refer to April 2010 Technical Bulletin - "Application Guidelines for Macropoxy 646 Fast Cure Epoxy & Recoatable Epoxy Primer Utilizing Plural Component Equipment"
If specific application equipment is not listed above, equivalent equipment may be substituted.

continued on back

Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A	B58-600	SERIES
PART B	B58V600	HARDENER

Revised: April 15, 2016

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)	

*May be applied at 3.0-10.0 mils (75-250 microns) dft in a multi-coat system. Refer to Recommended Systems and Performance Tips Sections.

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
To cure:			
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

When used as an intermediate coat as part of a multi-coat system:

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C *50% RH*	@ 100°F/38°C
To touch:	3 hours	1 hour	1 hour
To handle:	48 hours	4 hours	2 hours
To recoat:			
minimum:	16 hours	4 hours	2 hours
maximum:	1 year	1 year	1 year

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.

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 Mill 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.

When coating over aluminum and galvanizing, recommended dft is 2-4 mils (50-100 microns).

Acceptable for Concrete Floors.

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

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

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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

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

ZINC CLAD® III HS
ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	GRAY-GREEN, BASE
PART A	B69LW100	OAP BLUE, BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

Revised: April 27, 2016

APPLICATION BULLETIN

6.07

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 (12.3L) of ready-to-apply material.

Mixing Instructions:
Mix contents of component A and B thoroughly with low speed 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:

	Minimum	Maximum
Wet mils (microns)	**4.5** (113)	**7.0** (175)
Dry mils (microns)	**3.0** (75)	**5.0** (125)
~Coverage sq ft/gal (m^2/L)	**224** (5.5)	**370** (9.1)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1120** (27.5)	

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

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C *50% RH*	@ 120°F/49°C
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	30 minutes	30 minutes
****maximum:**	none	none	none
To cure:	10 days	7 days	7 days

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 top-coating. "Loose" chalk or salts must be removed in accordance with good painting practice.

Paint temperature must be at least 40°F (4.5°C) minimum.

Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	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 MEK, R6K10. Clean tools immediately after use with MEK, R6K10. 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 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.

SSPC-SP11 surface preparation is acceptable for small areas.

Higher dry film thickness may be acceptable under certain conditions. Contact your Sherwin-Williams representative.

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

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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

WARRANTY

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

Protective & Marine Coatings

ZINC CLAD® III HS
ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	GRAY-GREEN, BASE
PART A	B69LW100	OAP BLUE, BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

Revised: April 27, 2016

APPLICATION BULLETIN

6.07

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.

Zinc rich coatings require direct contact between the zinc pigment in the coating and the metal substrate for optimum performance.

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

When used on Ductile Iron Pipe, surface preparation shall be in accordance with NAPF 500-03-04 Abrasive Blast Cleaning of Ductile Iron Pipe with a minimum 1.0 mil surface profile.

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 1.5-3.0 mil (38-75 micron) surface profile, per Keane-Tator Surface Profile Comparator. A profile up to 4 mils (100 microns) is acceptable, however, coating must be applied to achieve a minimum of 3 mils (75 microns) dft. This method may result in improved adhesion and performance.

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
Below 80°F .....Reducer #58 or MEK, R6K10
Above 80°F .....Reducer #58 or R7K104

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

Protective & Marine Coatings

ZINC CLAD® III HS
ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	GRAY-GREEN, BASE
PART A	B69LW100	OAP BLUE, BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

PRODUCT INFORMATION

Revised: April 27, 2016

6.07

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Steel, polyurethane topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1-2 cts.	Acrolon 218 HS	3.0-6.0	(75-150)
Steel, catalyzed epoxy topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1-2 cts.	Macropoxy 646	5.0-10.0	(125-250)
Steel, catalyzed epoxy topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1-2 cts.	Tile-Clad HS	2.5-4.0	(63-100)
Steel, catalyzed epoxy siloxane topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1-2 cts.	Polysiloxane XLE-80	3.0-7.0	(75-175)
or			
1-2 cts.	Polysiloxane XLE-80 HAPS Free	3.0-7.0	(75-175)
Steel, acrylic topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
2 cts.	Pro Industrial DTM Acrylic Coating	2.5-4.0	(63-100)
or			
1 ct.	Fast Clad HB Acrylic	5.0-8.0	(125-200)
Steel, water based epoxy topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
2 cts.	Waterbased Tile-Clad Epoxy	2.0-4.0	(50-100)
Steel, water-based urethane topcoat:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Waterbased Tile-Clad Epoxy	2.0-4.0	(50-100)
1-2 cts.	Hydrogloss	2.0-4.0	(50-100)
Steel, Class B Compliant System:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Steel Spec Epoxy Primer (red)	4.0-6.0	(100-150)
ISO 12944 C5M System:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Fast Clad Urethane	6.0-9.0	(150-225)
or			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct.	Tower Guard Epoxy	5.0-11.5	(125-287.5)
1 ct.	Acrolon 218 HS	3.0-6.0	(75-150)
FIRETEX ONLY			
Steel Substrate being primed for FIRETEX M90 and M90/2			
1 ct.	Zinc Clad III HS	3.0-6.0	(75-150)

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

DISCLAIMER

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

SURFACE PREPARATION

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

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel:	SSPC-SP6/NACE 3, 2 mil (50 micron) profile
Galvanizing:	SSPC-SP7
Weathered Zinc Rich Primer:	Clean, dry, sound

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

Do not tint.

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:

3.25 gallons (12.3L) mixed:

Part A	1 gallon (3.78L)
Part B	1 gallon (3.78L)
Part F	73 lb (33 Kg) Zinc Dust

1 gallon (3.78L) mixed:

Part A	0.30 gallon (1.14L)
Part B	0.30 gallon (1.14L)
Part F	22 lb (10 Kg) Zinc Dust

Weight: 27.63 ± 0.2 lb/gal ; 3.31 Kg/L, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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

WARRANTY

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

Protective & Marine Coatings

ZINC CLAD® III HS
ORGANIC ZINC-RICH EPOXY PRIMER

PART A	B69A100	GRAY-GREEN, BASE
PART A	B69LW100	OAP BLUE, BASE
PART B	B69V100	HARDENER
PART F	B69D11	ZINC DUST

Revised: April 27, 2016

PRODUCT INFORMATION

6.07

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
- Provides cathodic protection
- Damaged film exhibits "self-healing" properties
- Fast Recoat Time
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray-Green, OAP Blue
Volume Solids:	70% ± 2%, ASTM D2697
Weight Solids:	90% ± 2%, mixed
VOC (EPA Method 24):	Unreduced: <340 g/L; 2.80 lb/gal mixed Reduced 5%: <360 g/L; 3.00 lb/gal
Zinc Dust Pigment Content in Dry Film:	ASTM D 521 90% Min ASTM D 6580 85% Min
Mix Ratio:	3 components, premeasured 3.25 gallons (12.3L) total

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**4.5** (113)	**7.0** (175)
Dry mils (microns)	**3.0** (75)	**5.0** (125)
~Coverage sq ft/gal (m^2/L)	**224** (5.5)	**370** (9.1)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1120** (27.5)	

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

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	30 minutes	30 minutes
****maximum:**	none	none	none
To cure:	10 days	7 days	7 days

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 top-coating. "Loose" chalk or salts must be removed in accordance with good painting practice.

Paint temperature must be at least 40°F (4.5°C) minimum.

Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Shelf Life:	Part A*: 18 months, unopened Part B: 18 months, unopened Part F: 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C)

*B69LW100 (Part A) has a 12 month shelf life

PRODUCT CHARACTERISTICS (CONT'D)

Flash Point:	67°F (19°C), Closed Cup, mixed
Reducer/Clean Up:	
Below 80°F (27°C):	Reducer #58 or MEK, R6K10
Above 80°F (27°C):	Reducer #58 or R7K104

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
- Wind Towers - onshore and offshore
- Shop or Field Applications
- Not recommended for immersion service
- Approved with FIRETEX hydrocarbon coatings

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Zinc Clad III HS @ 5.0 mils (125 microns) dft
1 ct. Macropoxy 646 @ 5.0-10.0 mils (125-250 microns) dft
1 ct. Acrolon 218 HS @ 5.0 mils (125 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Adhesion	ASTM D4541	1976 psi
Corrosion Weathering	ASTM D5894, 27 cycles, 9072 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Dry Heat Resistance (zinc only)	ASTM D2485	400°F (204°C)
Moisture Condensation Resistance	ASTM D4585, 100°F (38°C), 4000 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Pencil Hardness (zinc only)	ASTM D3363	2H
Salt Fog Resistance	ASTM B117, 15,000 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Slip Coefficient* (zinc only)	AISC Specifications for Structural Joints using ASTM A325 or ASTM A490 Bolts	Class B, 0.52
Slip Coefficient[1]*	AISC Specification for Structural Joints using ASTM A325 or ASTM A490 Bolts	Passes Class B, 0.58

Meets SSPC Paint Spec 20 - 1ct. Zinc @ 5 mils (125 microns) dft

Complies with ISO 12944-5 C5I and C5M requirements.

Footnotes:

[1] *1 ct. Zinc Clad III HS @ 3.0-5.0 mils (75-125 microns) dft*
1 ct. Steel Spec Epoxy Primer @ 4.0-6.0 mils (100-150 microns) dft

*Refer to Slip Certification document

continued on back

Protective & Marine Coatings

SOLVENTS

Revised April 27, 2016

PRODUCT INFORMATION

12.00

OVERVIEW

- Film integrity, appearance, and application are significantly affected by the nature of the solvent. A solvent plays a very important role in film formation and durability even though it is not a permanent component.
- There are only two basic performance properties that must be considered in selecting the proper solvent for any end use: solvency and evaporation rate. Solvency is important because, by definition, a solvent must dissolve something.
- The solvent dissolves the resin and reduce the viscosity. Evaporation is subsequently necessary, not only as a part of the drying process, but to control the coating viscosity at various stages of drying. As the solvent evaporates, film viscosity increases.
- A solvent must evaporate relatively quickly during initial drying to prevent sagging, but it must evaporate slowly enough to give sufficient leveling and adhesion.

ALIPHATICS/AROMATICS

ALIPHATIC SOLVENTS

These solvents are used to reduce medium and long oil alkyd enamels such as Industrial Enamel HS and Direct-to-Metal Enamel. They are not strong enough to be true solvents in any resin quality other than alkyds. Aliphatic solvents are non-photochemically reactive, HAPS complying, and non-polar.

- **Mineral Spirits R1K4 -** Weak, slow evaporating. Used predominately in alkyds.
- **VM&P Naphtha R1K3 -** Weak, fast drying solvent, very good for solvent cleaning galvanized metal.

AROMATIC SOLVENTS

Aromatic solvents are economical solvents that are widely used in alkyds, polyesters, and epoxies; either alone or in combination with other solvent types. All aromatics are photochemically reactive.

- **Toluol (Toluene) R2K1** - fast evaporating, strongest aromatic, not HAPS complying.
- **Xylol (Xylene; Reducer No. 4) R2K4** - medium evaporating, most common aromatic, not HAPS complying. Used to adjust viscosity when electrostatic spraying.
- **Hi-Flash Naphtha (100 Flash Naphtha, Solvesso 100) R2K5** - Slow evaporating aromatic. Used as retarder to improve flow or as part of a solvent blend. Not HAPS complying.

BLENDED SOLVENTS

- **Reducer #54 R7K54** - designed for use with epoxies where a photochemically reactive solvent blend is permitted. It has excellent solvent power and permits application at higher films with and less reduction than when using other blended reducers. It is relatively fast evaporating and used primarily with spray applications.

BLENDED SOLVENTS

(continued)

- **Reducer #58** - also designed for use with epoxies. It has excellent solvent power. It is slower evaporating than R7K54. Used for brush, roll, and squeegee applications.
- **Reducer 255-C-005** - designed for use with select epoxies. Relatively fast evaporating; used primarily for spray applications.
- **Reducer 100, R7K100 -** a slow evaporating solvent for use with epoxies. Over use may cause sagging.
- **Reducer 145, R7K145** - designed for use with select epoxies. Acceptable for brush, roll, or spray application.
- **Reducer 155, R7K155** - a medium-slow evaporating, strong cutting solvent for use in epoxies.

KETONES

Ketone solvents offer very strong solvency to reduce viscosity rapidly and to increase conductivity. Ketones are widely used in polyurethanes, polyesters, and epoxies and also as part of a solvent blend in many other coating qualities.

- **Reducer R7K195** - 100% MIBK - a very strong, fast drying solvent for use during spray applications in select epoxies.
- **Methyl Ethyl Ketone (MEK) R6K10** - a very fast evaporating polar solvent widely used in zinc rich coatings, and as part of reducer blends. It is also used to increase conductivity of coatings for electrostatic applications. It is not HAPS complying.
- **Acetone R6K9** - an extremely fast evaporating solvent. It is too fast evaporating for most products. Its very low flash point makes it extremely flammable. Acetone has been exempted in Federal EPA regulations as a VOC contributor and it is HAPS complying.

POLYURETHANE SOLVENTS

Polyurethane solvents are specially formulated for use with polyurethane coatings. They are moisture free and optimized for use on the wide range of substrates and systems to which polyurethane coatings are applied.

- **Reducer R7K69** - a general purpose photochemically reactive reducer for use in polyurethanes.
- **Reducer R7K216** - a general purpose retarder/reducer for improved flow when spraying large areas or when ambient temperatures are over 86°F (30°C).
- **Reducer R7K15** - a strong solvent designed primarily for use with moisture cured urethanes. Relatively fast drying. Ideal for spray applications.
- **Reducer 132, R7K132** - a medium-slow evaporating, strong cutting solvent for use in polyurethanes

continued on back

Protective & Marine Coatings

SOLVENTS

PRODUCT INFORMATION - SOLVENT SELECTION

12.00

Sherwin-Williams offers reducers and solvents which will assure the correct tailor-made properties are obtained for each coating or application requirement. The following chart provides a list of solvents and blended solvents and some specific properties. For the proper selection of a reducer or thinner, see the respective Product Data Page which then can be tied in with the chart below.

Product Name	Evaporation Rate-Minutes	Solvent Strength	Flash Point	Flow	Set Up Time	HAPS	Non-Photo-chemically Reactive	Characteristic Summary
	1*	2*	3*	4*	5*	6*		
ALIPHATIC/AROMATIC								
R1K4 - Mineral Spirits	50	1	105	6	6	OK	YES	Weak, slow evaporating, used predominately in alkyds.
R2K4 - Xylene: Reducer No. 4	11	6	80	4	3	NO	NO	Medium fast evaporating for use in epoxies and alkyds.
R2K1 - Toluene	4	6	40	2	1	NO	NO	Fast evaporating.
R1K3 - VM&P Naphtha	4	2	50	2	2	OK	YES	Weak, fast evaporating, very good for solvent cleaning when using alkyd topcoats.
R2K5 - Hi-Flash Naphtha	40	5	105	6	6	NO	NO	Slow evaporating, overuse may cause sagging.
BLENDED SOLVENTS								
R7K54 - Reducer #54	15	6	55	5	5	NO	NO	Medium-fast evaporating for epoxy spray application.
Reducer #58	20	6	80	8	7	NO	NO	Slow evaporating for epoxies and urethanes, use with brush and roll application.
R7K100 - Reducer #100	40	5	105	6	6	NO	NO	Slow evaporating, overuse may cause sagging.
255-C-005 - Reducer	10	6	40	4	6	NO	NO	Medium to fast evaporating, for use with epoxies.
R7K145 - Reducer #145	18	6	80	6	6	NO	NO	Medium-slow evaporating for use with epoxies; brush, roll, or spray application
R7K155 - Reducer #155	20	7	75	8	7	NO	YES	Medium-slow evaporating, strong cutting solvent for use in epoxies.
KETONES								
R6K10 - MEK	2	10	18	2	2	NO	YES	Very fast evaporating for spray application with zinc rich coatings. Used in small amounts.
R6K9 - Acetone	1	10	1	1	1	OK	YES	Very fast evaporating
R7K195 - Reducer #195	14	8	60	5	4	NO	YES	Medium fast evaporating, for use with spray applications of epoxies.
POLYURETHANE SOLVENTS								
R7K69 - Reducer #69	8	6	35	4	4	NO	NO	Medium-fast evaporating for use with polyurethanes.
R7K216 - Reducer #216	21	9	102	8	8	OK	YES	Slow evaporating for brush and roll application of polyurethanes.
R7K132 - Reducer #132	18	8	108	9	6	NO	NO	Medium-slow evaporating, strong cutting solvent for use in polyurethanes
R7K15 - Reducer #15	12	8	<100	5	7	NO	NO	Medium-fast evaporating for use with moisture cure urethanes.

*

1. Measure of time in minutes required for 90% to evaporate. ASTM -D3539.
2. Ratings express the approximate ability to dissolve resin and reduce viscosity. Rated 1 to 10 (10 best).
3. Temperature (°F) at which sufficient vapors are given off to ignite by open flame (Closed Cup Method).
4. Rated from 1 to 10 (10 best). Good flow permits paint film to level out into a smooth film of uniform thickness without orange peel, brush marks, etc.
5. Rates from 1 to 10 (10 slow) relative rating of time necessary to obtain surface or dry-free drying of film.
6. Status relative to proposed Federal EPA HAPS Rule. "No" means listed and regulated as hazardous air pollutant.

MATERIAL SAFETY DATA SHEET

B65B600
12 00

DATE OF PREPARATION
May 28, 2016

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B65B600
PRODUCT NAME
ACROLON™ 218 HS Polyurethane - Gloss (Part A), Black
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 W. Prospect Avenue
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
0.7	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	
2	64742-94-5	**Medium Aromatic Hydrocarbons**		
		ACGIH TLV	Not Available	0.12 mm
		OSHA PEL	Not Available	
0.3	91-20-3	**Naphthalene**		
		ACGIH TLV	10 PPM	1 mm
		ACGIH TLV	15 PPM STEL	
		OSHA PEL	10 PPM	
		OSHA PEL	15 PPM STEL	
5	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	
9	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	
33	14808-60-7	**Quartz**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
1	1333-86-4	**Carbon Black**		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

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 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.

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	10.71 lb/gal	1283 g/l
SPECIFIC GRAVITY	1.29	
BOILING POINT	174 - 415 °F	78 - 212 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	40%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

2.92 lb/gal	350 g/l	Less Water and Federally Exempt Solvents
2.92 lb/gal	350 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.

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.

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

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
1333-86-4	**Carbon Black**			
		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

Naphthalene 100 lb RQ

Xylenes (mixed isomers) 100 lb RQ

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

RQ, UN1263, PAINT, 3, PG II, (XYLENES (MIXED ISOMERS)), (ERG#128)

Canada (TDG)
UN1263, PAINT, 3, PG II, LIMITED QUANTITY, (ERG#128)
IMO
5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG II, (13 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 II, (13 C c.c.), EmS F-E, S-E
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	0.7	
1330-20-7	Xylene	4	
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.

MATERIAL SAFETY DATA SHEET

B65V600
15 00

DATE OF PREPARATION
Mar 29, 2016

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

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.

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.

IMO
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
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.

MATERIAL SAFETY DATA SHEET

B65T604
21 00

DATE OF PREPARATION
May 28, 2016

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 W. Prospect Avenue
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	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 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.

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.

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 (mixed isomers) 100 lb RQ

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

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

Canada (TDG)

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

IMO

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

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.

MATERIAL SAFETY DATA SHEET

B65V600
15 00

DATE OF PREPARATION
Mar 29, 2016

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

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.

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.

IMO
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
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.

MATERIAL SAFETY DATA SHEET

B58B600
05 00

DATE OF PREPARATION
Mar 26, 2016

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
B58B600
PRODUCT NAME
MACROPOXY® 646 Fast Cure Epoxy Coating (Part A), Black
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	
17	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	90-72-2	**Tri(dimethylaminomethyl)phenol**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
11	68410-23-1	**Polyamide**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
38	14808-60-7	**Quartz**		
		ACGIH TLV	0.025 mg/m3 as Resp. Dust	
		OSHA PEL	0.1 mg/m3 as Resp. Dust	
4	1333-86-4	**Carbon Black**		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

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.

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.

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	10.71 lb/gal	1283 g/l
SPECIFIC GRAVITY	1.29	
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)

2.13 lb/gal	255 g/l	Less Water and Federally Exempt Solvents
2.13 lb/gal	255 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.

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

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
68410-23-1	Polyamide			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14808-60-7	Quartz			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
1333-86-4	Carbon Black			
		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 III, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Ethylbenzene 1000 lb RQ
Xylenes (mixed isomers) 100 lb RQ

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

RQ, UN1263, PAINT, 3, PG III, (XYLENES (MIXED ISOMERS)), (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	17	

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.

MATERIAL SAFETY DATA SHEET

B58V600
17 00

DATE OF PREPARATION
May 26, 2016

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 W. Prospect Avenue
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

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.

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.

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 (mixed isomers) 100 lb RQ

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

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

Canada (TDG)

UN1263, PAINT RELATED MATERIAL, 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, 3, PG II, (18 C c.c.), EmS F-E, S-E, MARINE POLLUTANT, (EPOXY RESIN)

IMO

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

IATA/ICAO

UN1263, PAINT RELATED MATERIAL, 3, PG II, MARINE POLLUTANT, (EPOXY RESIN)

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.

MATERIAL SAFETY DATA SHEET

B58W610
25 00

DATE OF PREPARATION
May 26, 2016

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 W. Prospect Avenue
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

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.

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

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 (mixed isomers) 100 lb RQ

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

RQ, UN1263, PAINT, 3, PG III, (XYLENES (MIXED ISOMERS)), (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.

MATERIAL SAFETY DATA SHEET

B69A100
18 00

DATE OF PREPARATION
May 28, 2016

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 W. Prospect Avenue
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	**68410-23-1**	**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.

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.

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	1066 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
68410-23-1	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.

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 (mixed isomers) 100 lb RQ

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

RQ, UN1263, PAINT, 3, PG III, (XYLENES (MIXED ISOMERS)), (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.

MATERIAL SAFETY DATA SHEET

B69V100
12 00

DATE OF PREPARATION
May 28, 2016

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 W. Prospect Avenue
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.

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.

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.

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 (mixed isomers) 100 lb RQ

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

RQ, UN1263, PAINT RELATED MATERIAL, 3, PG III, (XYLENES (MIXED ISOMERS)), (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 **

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.

MATERIAL SAFETY DATA SHEET

B69D11
05 00

DATE OF PREPARATION
Dec 22, 2015

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

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

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Applicable

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

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.

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

None known.

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: Carbon Dioxide, Carbon Monoxide
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.
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.

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.

MATERIAL SAFETY DATA SHEET

R7K15
04 00

DATE OF PREPARATION
Nov 29, 2015

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.

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.

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.

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, 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, 3, PG II, (18 C c.c.), EmS F-E, S-E

IMO
5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, 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.

MATERIAL SAFETY DATA SHEET

MEK/SW
16 00

DATE OF PREPARATION
Apr 22, 2016

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

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

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

CAS No.	Ingredient Name			
78-93-3	Methyl Ethyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		2740 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.

US Ground (DOT)
1 Liter (1.1 Quarts) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1193, ETHYL METHYL KETONE, 3, PG II, (ERG#127)
DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities
Ethyl methyl ketone 5000 lb RQ
Bulk Containers may be Shipped as (check reportable quantities):
UN1193, ETHYL METHYL KETONE, 3, PG II, (ERG#127)
Canada (TDG)
UN1193, ETHYL METHYL KETONE, 3, PG II, (ERG#127)
IMO
1 Liter (1.1 Quarts) and Less may be Shipped as Limited Quantity.
UN1193, ETHYL METHYL KETONE, 3, PG II, (-8 C c.c.), EmS F-E, S-D
IMO
1 Liter (1.1 Quarts) and Less may be Shipped as Limited Quantity.
UN1193, ETHYL METHYL KETONE, 3, PG II, (-8 C c.c.), EmS F-E, S-D
IATA/ICAO
UN1193, ETHYL METHYL KETONE, 3, PG II

SECTION 15 — REGULATORY INFORMATION

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

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element

No ingredients in this product are subject to SARA 313 (40 CFR 372.65C) Supplier Notification.

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.

SAFETY DATA SHEET

MEK/SW

Section 1. Identification

Product name : Methyl Ethyl Ketone

Product code : MEK/SW

Other means of identification : Not available.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Manufacturer : THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Emergency telephone number of the company : (216) 566-2917

Product Information Telephone Number : Not available.

Regulatory Information Telephone Number : (216) 566-2902

Transportation Emergency Telephone Number : (800) 424-9300

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Causes serious eye irritation.
Causes skin irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. FOR PROFESSIONAL USE ONLY.

Please refer to the SDS for additional information. Keep out of reach of children. Do not transfer contents to other containers for storage.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Methyl Ethyl Ketone	100	78-93-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	Exposure limits
Methyl Ethyl Ketone	**ACGIH TLV (United States, 3/2015).** TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 200 ppm 10 hours. TWA: 590 mg/m³ 10 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes. **OSHA PEL (United States, 2/2013).** TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours.

Occupational exposure limits (Canada)

Ingredient name	Exposure limits
Methyl Ethyl Ketone	**CA Alberta Provincial (Canada, 4/2009).** 15 min OEL: 300 ppm 15 minutes. 8 hrs OEL: 200 ppm 8 hours. 8 hrs OEL: 590 mg/m³ 8 hours. 15 min OEL: 885 mg/m³ 15 minutes. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 50 ppm 8 hours. STEL: 100 ppm 15 minutes.

	CA Ontario Provincial (Canada, 7/2015). TWA: 200 ppm 8 hours. STEL: 300 ppm 15 minutes. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 50 ppm 8 hours. TWAEV: 150 mg/m³ 8 hours. STEV: 100 ppm 15 minutes. STEV: 300 mg/m³ 15 minutes. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 300 ppm 15 minutes. TWA: 200 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Not available.
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: 78°C (172.4°F)
Flash point	: Closed cup: -8°C (17.6°F) [Pensky-Martens Closed Cup]
Evaporation rate	: 5.6 (butyl acetate = 1)
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: 1.8% Upper: 10%
Vapor pressure	: 1.6 kPa (12.079 mm Hg) [at 20°C]
Vapor density	: 2.48 [Air = 1]
Relative density	: 0.8
Solubility	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Kinematic (room temperature): >0.205 cm^2/s (>20.5 cSt) Kinematic (40°C (104°F)): >0.205 cm^2/s (>20.5 cSt)
Molecular weight	: Not applicable.

Aerosol product

Heat of combustion	: 30.9 kJ/g

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methyl Ethyl Ketone	LD50 Dermal LD50 Oral	Rabbit Rat	6480 mg/kg 2737 mg/kg	- -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Methyl Ethyl Ketone	Skin - Mild irritant Skin - Moderate irritant	Rabbit Rabbit	- -	24 hours 14 milligrams 24 hours 500 milligrams	- -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Methyl Ethyl Ketone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Methyl Ethyl Ketone	Category 2	Not determined	Not determined

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	2737 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Methyl Ethyl Ketone	Acute EC50 >500000 µg/l Marine water Acute EC50 5091000 µg/l Fresh water Acute LC50 3220000 µg/l Fresh water	Algae - Skeletonema costatum Daphnia - Daphnia magna - Larvae Fish - Pimephales promelas	96 hours 48 hours 96 hours

Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Methyl Ethyl Ketone	-	-	Readily

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1193	UN1193	UN1193	UN1193	UN1193
UN proper shipping name	Methyl Ethyl Ketone	Methyl Ethyl Ketone	Methyl Ethyl Ketone	Methyl Ethyl Ketone	Methyl Ethyl Ketone
Transport hazard class(es)	3	3	3	3	3
Packing group	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2. 18-2.19 (Class 3).	**Special provisions** (ERG#127)	-	**Emergency schedules (EmS)** F-E, S-D

Section 14. Transport information

	ERG No.	ERG No.	ERG No.		
	127	127	127		

Special precautions for user : 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 (sea, 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. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.
Ship type : Not available.
Pollution category : Not available.

Section 15. Regulatory information

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

Not applicable.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	3
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

History

Date of printing : 6/4/2016

Section 16. Other information

Date of issue/Date of revision	: 6/4/2016
Date of previous issue	: 6/3/2016
Version	: 3
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by Sherwin-Williams, including but not limited to the incorporation of non Sherwin-Williams products or the use or addition of products in proportions not specified by Sherwin-Williams. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

APPENDIX C

SHERWIN-WILLIAMS

MATERIAL SAFETY DATA SHEETS (MSDS)