NAVSEA REVIEWED ASTM F-718

Sherwin-Williams

ArmorSeal 650 SL/RC Epoxy Deck Coating

PRODUCT DESIGNATIONS

Part A: B58-650 Series

Part B: B60VQ655 Standard Hardener

MIL-PRF-32171
MIL-PRF-32584

If this product is to be applied as part of a coating system, all components of the system must be as listed on the QPL.

This NAVSEA-REVIEWED ASTM F-718 data sheet is the only data sheet approved for use when utilizing this coating for U.S. Navy preservation projects. NAVSEA's review covers only the application process for the material. The review does not denote the material as a qualified product, nor does it constitute an approval for purchase/procurement of the material. For products on the Qualified Products List (QPL) for this MILSPEC, please refer to https://qpldocs.dla.mil/search/default.aspx.
Questions regarding modifications or updates of this ASTM F-718 shall be directed toward:

NSWCPD
NSWCPD_ASTM_F718.fct@navy.mil

I. GENERIC TYPE AND DESCRIPTION: Sherwin-Williams ArmorSeal 650 SL/RC Epoxy Deck Coating Date: 8/13/2020
Specification Number: MIL-PRF-32171 High Durability, Wear Resistant Deck Coating and MIL-PRF-32584 Deck Covering Materials, Monolithic
NOTE: For Type/Grade/Class/Application information see QPD-32171 and QPD-32584

II. MANUFACTURERS DATA:

(a) MANUFACTURER: The Sherwin-Williams Company

(b) PRODUCT DESIGNATION: Part A: B58-650 Series Part B: B60VQ655 Standard Hardener

(c) COLOR(S): Haze Gray, Deck Gray, White, Sandstone, Tile Red, and other colors available.

(d) USES: ArmorSeal 650 SL/RC approved for deck surfaces per MIL-PRF-32171 Type I (interior system for general use), Type II (interior system for submarine use), Type III (exterior weather deck system excluding MIL-PRF-24667 nonskid surfaces), Class 2 (high gloss) and approved for shipboard deck surfaces per MIL-PRF-32584, Type I (high durability, general), Type II (high durability, corrosion resistant), Class 1 (general shipboard use), Class 2 (submarine interior decks), Grades A and B, Composition E (Epoxy).

(e) TECHNICAL SERVICE REPRESENTATIVE: 1-877-877-7115 or your local Sherwin-Williams Representative

III. PROPERTIES:

(a) PERCENT VOLUME SOLIDS (ASTM D2697): 98 %

(b) PERCENT WEIGHT SOLIDS (ASTM D2369): 98 %

(c) FLASH POINT (ASTM D93 or D56 or D3278):

Component A: 212 °F (100 °C)

Component B: 235°F (113 °C)

Mixed: 200 °F (93 °C)

(d) WEIGHT PER VOLUME (ASTM D1475):

Component A: 10.5 lb/gal (1258 g/L)

Component B: 8.4 lb/gal (1007 g/L)

Mixed: 10.4 +/- 0.3 lb/gal (1246 g/L)

(e) PERCENT EDGE RETENTION, IF REQUIRED BY APPLICABLE SPECIFICATION (N/A): N/A %

(f) SHELF LIFE: 18 Months

(g) VISCOSITY (ASTM D2196):

Component A : 4,000-9,000 cps @ 25 °C (77 °F)

Component B : 200-400 cps @ 25 °C (77 °F)

Mixed : 2,000-6,000 cps @ 25 °C (77 °F)

(h) PACKAGING: Part A is 3.33 gallons in a 5 gallon container, Part B is a 1.67 gallons in a two gallon container. Also sold as a premeasured one gallon kit.

(i) NUMBER OF COMPONENTS: 2

(j) GLOSS (ASTM D523): (High gloss) >80 GU

(k) STORAGE REQUIREMENTS: TEMPERATURE: 40 °F (4 °C) MIN. 100 °F (38 °C) MAX.

ADDITIONAL PAINT STORAGE REQUIREMENTS: Protected storage out of the sun, rain, etc.

(l) VOLATILE ORGANIC COMPOUNDS (VOCS- EPA TEST METHOD 24): <0.83 lb/gal (<100 g/L)

(m) WEIGHT PER AREA OF DRY FILM AT 1 MIL THICKNESS: 0.0065 lb/sq. ft. (31.74 g/m²)

(n) SPECIAL PROPERTIES:High build, high gloss, seamless, durable, impact resistant, abrasion resistant, chemical resistant, self leveling, heavy duty floor coating.

IV. SURFACE PREPARATION MINIMUM REQUIREMENTS:

(a) INITIAL CLEANLINESS: SSPC-SP 10 Near White Metal Blast or SSPC-SP 11 Power Tool Cleaning to Bare Metal

(b) TOUCH-UP CLEANLINESS: SSPC-SP 11 Power Tool Clean to Bare Metal areas requiring touch-up. Clean per SSPC-SP 1 and abrade 1" to 2" of coating surface adjacent to touch-up areas with 80 grit sandpaper (or equivalent) to create tie-in and promote adhesion prior to recoating.

(c) PROFILE (ASTM D4417, Methods B or C): 2 mils MIN. 4 mils MAX.

(d) SPECIAL INSTRUCTIONS: Profile 2-4 mils recommended, up to 5 mils acceptable. If ultra high pressure waterjet (UHPWJ) is utilized as surface preparation method, do not self prime with ArmorSeal 650 SL/RC. Use other recommended primer per section IV (e).

(e) PRIMER REQUIREMENTS: Self priming. Additional approved primers include SeaGuard 5000HS, MIL-DTL-24441 Type IV F150 and MIL-PRF-23236, Type V, VI, VII, Class 5, 7 qualified Sherwin-Williams expoxies.

(f) MAXIMUM ALLOWABLE CONDUCTIVITY (NACE 0508-2010 "Methods of Validating Equivalence to ISO 8502-9 on Measurement of the Levels of Soluble Salts):

For non-immersed areas maximum conductivity is 70 micro-Siemens/cm.

(g) MAXIMUM DEGREE OF FLASH RUSTING ALLOWED: SSPC-SP WJ-2M

SPECIAL SAFETY PRECAUTIONS:
See Material Safety Data Sheet or Globally Harmonized System Safety Data Sheet

V. MIXING PROCEDURES

(a) MIXING RATIOS BY WEIGHT: N/A
BY VOLUME: 2:1

(b) INDUCTION TIME: Zero Minutes

(c) RECOMMENDED CLEANING SOLVENT (NO THINNING ALLOWED): MIBK, MEK, MAK

(d) POT LIFE:

60 Minutes @ 55 °F (13 °C)
40 Minutes @ 72 °F (22 °C)
20 Minutes @ 95 °F (35 °C)

Graphs included on page: N/A

(e) SPECIAL INSTRUCTIONS: To mix 5 gallon units, use electric or air mixer (approximately 250 rpm) with metal mixing blade (Jiffy Model ES or equivalent). Premix both components thoroughly (typically 1-2 minutes) then pour hardener contents into slack filled resin can. Mix thoroughly (typically 2-3 minutes). Avoid whipping in air while mixing. To mix 1 gallon units, use same procedure as above except use a smaller mixing blade (Jiffy Model HS or equal).

VI. APPLICATION:

(a) ENVIRONMENTAL LIMITATIONS:

SUBSTRATE TEMPERATURE: 55°F (13°C) MIN. 95°F (35°C) MAX.
AMBIENT TEMPERATURE: 55°F (13°C) MIN. 95°F (35°C) MAX.
DIFFERENCE ABOVE THE DEW POINT: 5 °F (-15 °C)
MAXIMUM PERCENT RELATIVE HUMIDITY: 85 %

(b) FILM THICKNESS (SSPC PA2-73T): PER COAT:

10 mils WET MIN. 12 mils WET MAX.
10 mils DRY MIN. 12 mils DRY MAX.

TOTAL SYSTEM:

20 mils DRY MIN. 24 mils DRY MAX.

(c) DRY TIMES (ASTM D1640):

Minimum Overcoat Window:

36 Hours @ 55 °F (13°C)
8 Hours @ 72 °F (22°C)
6 Hours @ 95 °F (35°C)

Maximum Overcoat Window:

72 Hours @ 55 °F (13°C)
72 Hours @ 72 °F (22°C)
72 Hours @ 95 °F (35°C)

Dry to Handle:

48 Hours @ 55 °F (13°C)
24 Hours @ 72 °F (22°C)
18 Hours @ 95 °F (35°C)

Dry to Service:

7 Days @ 55 °F (13°C)
7 Days @ 72 °F (22°C)
7 Days @ 95 °F (35°C)

Graphs included on page 5 and 6 or additional information included on page N/A

(d) EQUIPMENT REQUIREMENTS: See Special Instructions

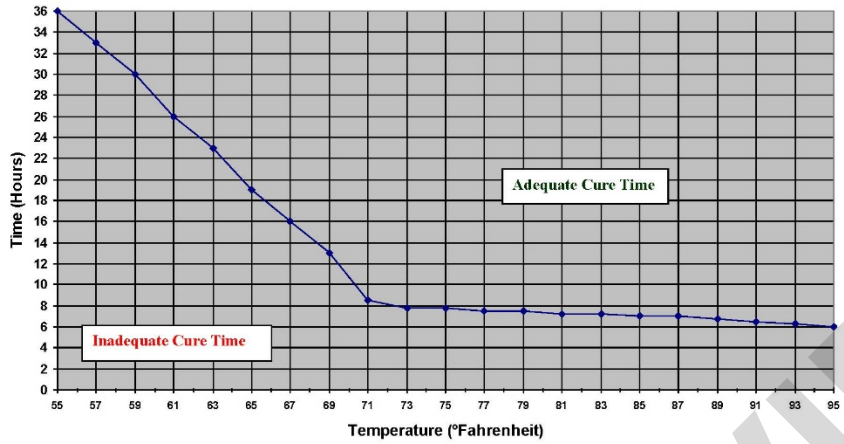
(e) SPECIAL INSTRUCTIONS: Immediately after mixing [as detailed in Section V (e)], pour onto prepared substrate and spread with a flat rubber squeegee to the desired thickness and then cross roll using a 3/8' nap soft woven roller or equivalent. Check film thickness frequently. After 20-30 minutes set-up time, roll with spiked roller to remove any entrapped air. Do not spike roll after 40 minutes. The incorporation of vinyl chips for decorative purposes is allowed. The vinyl chips improves aesthetics and "breaks up the light" reflecting off of the decking which aids in hiding mars or scuffs. Recommend roughly ¼" square vinyl chips. After removing entrapped air with spiked roller and while ArmorSeal 650 SL/RC is still wet, begin evenly broadcasting vinyl chips into the wet resin much the same as grass seed is spread. Vinyl chips should be broadcast in such a way that the chips falls lightly into resin without causing the resin to move. Continue broadcasting to excess until the desired level of coverage is obtained. Allow ArmorSeal 650 SL/RC to cure to minimum recoat time and then sweep off excess vinyl chips with a stiff bristled broom. Proceed with ArmorSeal 650 SL/RC clear coat.

IF OVERCOAT WINDOW HAS BEEN EXCEEDED FOR CRITICAL APPLICATIONS: Clean surface of coating per SSPC-SP 1, aggressively abrade surface with 80 grit sandpaper or equivalent to promote adhesion, clean surface per SSPC-SP 1 again and then proceed with application of next coat.

IF OVERCOAT WINDOW HAS BEEN EXCEEDED FOR NON-CRITICAL APPLICATIONS: Clean surface of coating per SSPC-SP 1, aggressively abrade surface with 80 grit sandpaper or equivalent to promote adhesion, clean surface per SSPC-SP 1 again and then proceed with application of next coat.

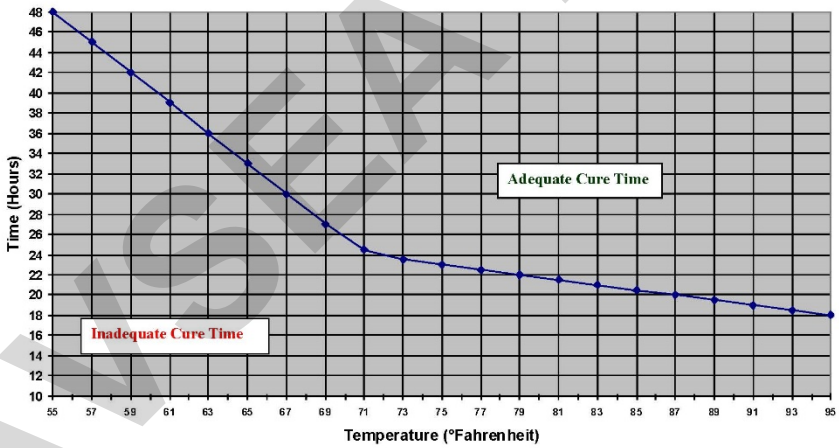
GRAPHS FOR POT LIFE AND CURE TIMES:

Figure 1. ArmorSeal 650SL/RC Minimum Cure to Recoat



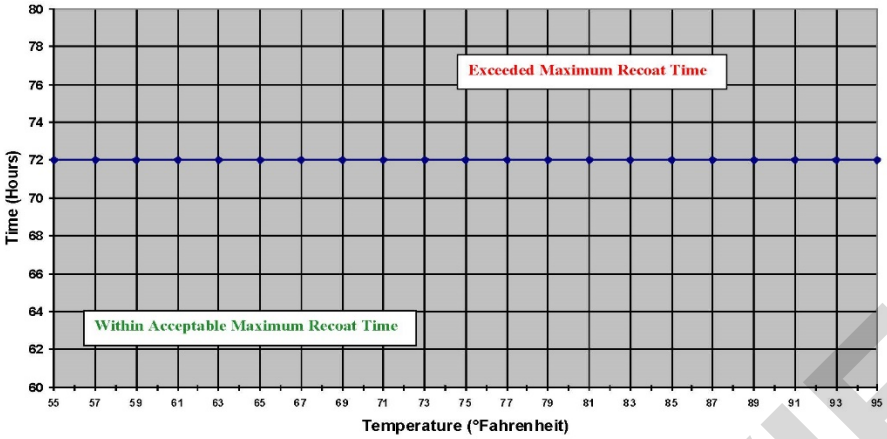
The above curing schedule is at 10 mils and 50% relative humidity.
Drying time is temperature, humidity, and film thickness dependent.
The above information is provided for guideline use only.

Figure 2. ArmorSeal 650SL/RC Minimum Cure For Foot Traffic



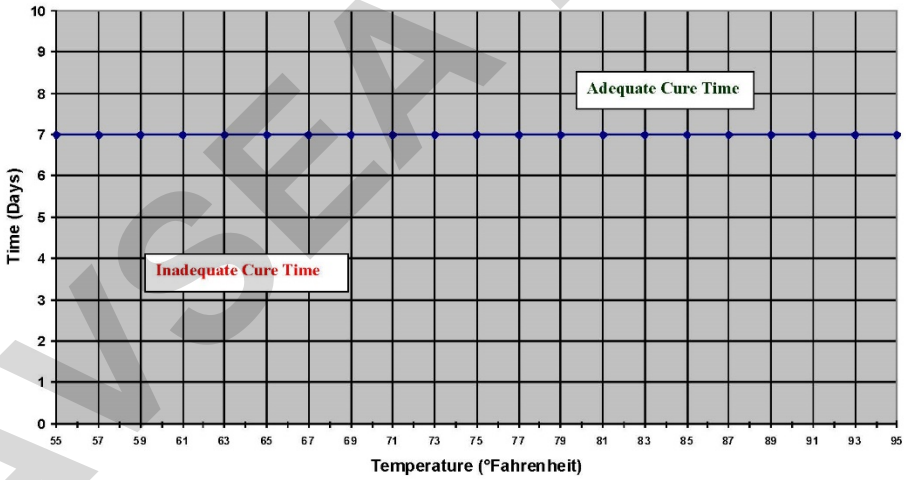
The above curing schedule is at 10 mils and 50% relative humidity.
Drying time is temperature, humidity, and film thickness dependent.
The above information is provided for guideline use only.

Figure 3. ArmorSeal 650SL/RC Maximum Cure To Recoat



The above curing schedule is at 10 mils and 50% relative humidity.
Drying time is temperature, humidity, and film thickness dependent.
The above information is provided for guideline use only.

Figure 4. ArmorSeal 650SL/RC Minimum Cure To Full Service



The above curing schedule is at 10 mils and 50% relative humidity.
Drying time is temperature, humidity, and film thickness dependent.
The above information is provided for guideline use only.

ADDITIONAL DATA/INSTRUCTIONS:

I. GENERIC TYPE AND DESCRIPTION: N/A

II. MANUFACTURERS DATA: N/A

III. PROPERTIES: N/A

IV. SURFACE PREPARATION MINIMUM REQUIREMENTS: N/A

V. MIXING PROCEDURES: N/A

VI. APPLICATION:
WARRANTY DISCLAIMER: DRY TIMES ARE NORMALLY A FUNCTION OF HUMIDITY, VENTILATION, AND TEMPERATURE. INFORMATION GIVEN IS TO BE USED AS A GUIDELINE ONLY. THE TECHNICAL DATA GIVEN HEREIN HAS BEEN COMPILED FOR THE ASSISTANCE OF THE USER AND GUIDANCE IS BASED ON THE EXPERIOENCE AND KNOWLEDGE OF THE MANUFACTURER. HOWEVER, AS THE MANUFACTURER HAS NO CONTROL OVER THE USE OF THIS INFORMATION, NO WARRANTY EXPRESSED OR IMPLIED IS INTENDED OR GIVEN.