ArmorSeal Heavy Duty Floor Coatings

# ARMORSEAL® 650 SL/RC
## SELF-LEVELING/RECOATABLE EPOXY

| | | |
|---|---|---|
| PART A | B58-650 | SERIES |
| PART B | B60VQ655 | STANDARD HARDENER |
| PART B | B60VQ656 | FAST SET HARDENER |

Revised: February 11, 2022

# PRODUCT INFORMATION

8.25

## PRODUCT DESCRIPTION

**ARMORSEAL 650 SL/RC** self-leveling, recoatable epoxy is a two-component, heavy duty floor system that provides a high gloss, seamless, hygienic surface that is extremely hard wearing and durable. The coating can also be applied to provide a nonslip texture. This product may be topcoated if required.

- Chemical resistant
- Impact resistant
- Abrasion resistant
- Outstanding application properties

## PRODUCT CHARACTERISTICS

| | |
|---|---|
| **Finish:** | Full Gloss |
| **Color:** | Clear, Haze Gray, Deck Gray, White, Sandstone, Tile Red, and wide range of colors possible |
| **Volume Solids:** | 99%, mixed |
| **Weight Solids:** | 99%, mixed |
| **VOC (EPA Method):** | <100 g/L; 0.83 lb/gal, mixed |
| **Mix Ratio:** | 2 component, premeasured 2:1 by volume |

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **10.0** (250) | **30.0*** (750)* |
| **Dry mils** (microns) | **10.0** (250) | **30.0** (750) |
| **~Coverage sq ft/gal** ($m^2$/L) | **50** (1.2) | **160** (3.9) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1588** (39.0) | |

*Apply Clear at only 10-15 mils (250-375 microns) maximum per coat

**Drying Schedule @ 10.0 mils wet (250 microns):**

| | @ 55°F/13°C | @ 72°F/22°C | @ 95°F/35°C |
|---|---|---|---|
| ***B60VQ655 (Std Hardener):*** | | ***50% RH*** | |
| **To touch:** | 16-24 hours | 6-12 hours | 4-8 hours |
| **To recoat:** | | | |
| **minimum:** | 36 hours | 8 hours | 6 hours |
| **maximum:** | 72 hours | 72 hours | 72 hours |
| **Foot traffic:** | 48 hours | 24 hours | 18 hours |
| **Heavy traffic:** | 96 hours | 72 hours | 60 hours |
| **To cure:** | 7 days | 7 days | 7 days |
| **Pot Life:** | 60 minutes | 40 minutes | 20 minutes |
| **Sweat-in-Time:** | None | None | None |

| | @ 72°F/22°C |
|---|---|
| ***B60VQ656 (Fast Set Hardener)*:** | ***50% RH*** |
| **To touch:** | 4 hours |
| **To recoat:** | |
| **minimum:** | 8 hours |
| **maximum:** | 72 hours |
| **Foot traffic:** | 10-12 hours |
| **Heavy traffic:** | 24-48 hours |
| **To cure:** | 7 days |

*Abrade surface if recoating after 72 hours.*
*Drying time is temperature, humidity, and film thickness dependent.*
*Do Not use Fast Set Hardener with tint bases.

| | |
|---|---|
| **Pot Life:** | 25 minutes |
| **Sweat-in-Time:** | None |

## PRODUCT CHARACTERISTICS (CONT'D)

| | |
|---|---|
| **Shelf Life:** | 18 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C) |
| **Flash Point:** | 200°F (93°C), PMCC, mixed |
| **Reducer:** | Not recommended |
| **Clean Up:** | Reducer #54, R7K54 |

## RECOMMENDED USES

- Especially suited for clean rooms, aircraft hangars, laboratories, workshops and light assembly areas.
- The product can be applied at thicknesses from 10.0-30.0 mils (250-750 microns) dft.
- For use as part of the ArmorQuartz system, a decorative broadcast color quartz system.
- Suitable for use in USDA inspected facilities
- Nuclear Power Plants
- Nuclear fabrication shops
- DOE Nuclear Fuel Facilities
- DOE Nuclear Weapons Facilities
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.

*Nuclear qualifications are NRC license specific to the facility.

- Qualified as a high durability deck coating per MIL-PRF-32584, Type I and II, Class 1 and 2, Grade A and B, Comp E. Also qualified as a high durability deck coating per MIL-PRF-32171, Type I, II, and III, Class 2.

## PERFORMANCE CHARACTERISTICS

- Excellent adhesion properties
- Chemical resistant
- Self - leveling properties
- Provides a seamless-high build durable coating
- Solvent resistant
- Dry heat resistance: 200°F (93°C)

| Test Name | Test Method | Results |
|---|---|---|
| **Abrasion Resistance** | ASTM D4060, CS17 wheel, 1000 cycles, 1 Kg load | 100 mg loss |
| **Flexural Strength** | ASTM D790 | ~12,400 psi |
| **Hardness - Shore D** | ASTM D2240 | 75 |
| **Impact Resistance** | Mil-D-3134J | Direct: >160 in lb; Indirect: > 80 in lb |
| **Nuclear Decontamination*** | ASTM D4256 / ANSI N 5.12 | 99.7% Water Wash; 98% Overall |
| **Radiation Tolerance*** | ASTM D4082 / ANSI 5.12 | Pass at 30 mils (750 microns) |
| **Surface Burning**** | ASTME84/ NFPA 255 | Flame Spread Index 20; Smoke Development Index 35 |
| **Tensile Strength** | ASTM D638 | ~6,000 psi |

*Substrate: Concrete
**Armorseal WB Primer (Clear) at 2.5 mils (63 microns) DFT topcoated with Armorseal 650 SL/RC at 17.5 mils (438 microns) DFT


continued on back

ArmorSeal Heavy Duty Floor Coatings

# ARMORSEAL® 650 SL/RC
## SELF-LEVELING/RECOATABLE EPOXY

| | | |
|---|---|---|
| PART A | B58-650 | SERIES |
| PART B | B60VQ655 | STANDARD HARDENER |
| PART B | B60VQ656 | FAST SET HARDENER |

Revised: February 11, 2022

# PRODUCT INFORMATION

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## RECOMMENDED SYSTEMS

| | | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|---|
| **Concrete:** | | | |
| 1 ct. | ArmorSeal 33 Primer | 8.0 | (200) |
| 1 ct. | ArmorSeal 650 SL/RC | 10.0-30.0 | (250-750) |
| **Concrete:** | | | |
| 1 ct. | ArmorSeal Water Based Epoxy Primer | 2.0-3.0 | (50-75) |
| 1 ct. | ArmorSeal 650 SL/RC | 10.0-30.0 | (250-750) |
| **Concrete:** | | | |
| 1 ct. | ArmorSeal 8100 | 1.5-2.0 | (40-50) |
| 1 ct. | ArmorSeal 650 SL/RC | 10.0-30.0 | (250-750) |
| **Steel:** | | | |
| 1 ct. | Recoatable Epoxy Primer | 4.0-5.0 | (100-125) |
| 1 ct. | ArmorSeal 650 SL/RC | 10.0-30.0 | (250-750) |
| **Steel:** | | | |
| 1 ct. | Macropoxy 646 | 5.0-10.0 | (125-250) |
| 1 ct. | ArmorSeal 650 SL/RC | 10.0-30.0 | (250-750) |
| **ArmorQuartz System*:** | | | |
| 1 ct. | ArmorSeal 33 Epoxy Primer/Sealer Clear, broadcast to excess with color quartz | 10.0 | (250) |
| 1 ct. | ArmorSeal 33 Epoxy Primer/Sealer Clear, broadcast to excess with color quartz | 24.0 | (600) |
| 1 ct. | ArmorSeal 650 SL/RC Clear at | 15.0 | (375) |
| 1 ct. | ArmorSeal 650 SL/RC Clear at | 8.0 | (200) |

*Refer to application procedures

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
* 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

Tinting acceptable for the tint bases only. Use Maxitoner colorants only at 50% tint strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color. No more than 6 oz. of Maxitoner colorant for the Ultra Deep Base and no more than 2 oz. of Maxitoner colorant for the White Base.

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | 55°F (13°C) minimum, 95°F (35°C) maximum<br>(air, surface, and material)<br>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) kit | contains Part A and Part B |
| 5 gallon (18.9L) mix | Part A - 3.33 gal. (12.6L) in a 5 gal. (18.9L) container<br>Part B - 1.67 gal. (6.3L) in a 2 gal. (7.56L) container |
| Weight: | 10.4 ± 0.2 lb/gal ; 1.25 Kg/L, mixed |

## SAFETY PRECAUTIONS

Refer to the SDS 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.

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| PART B | B60VQ656 | FAST SET HARDENER |

Revised: February 11, 2022

# APPLICATION BULLETIN

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## SURFACE PREPARATIONS

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

**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.

**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 (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned.

**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, additional abrasion of the surface and/or removal of the previous coating may be necessary. Retest surface for adhesion. 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: | 55°F (13°C) minimum, 95°F (35°C) maximum<br>(air, surface, and material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

## APPLICATION EQUIPMENT

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

**Reducer** .....Not recommended

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

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

**Trowel** .....Acceptable

**Squeegee** .....Acceptable

**Spike Roller/**
**Loop Roller** .....Required

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



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Revised: February 11, 2022

# APPLICATION BULLETIN

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## APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

To mix 1 gallon (3.78L) units: Use electric or air mixer (approximately 250 rpm) with metal mixing blade (Jiffy Model HS or equal). Premix both components for 1-2 minutes, then pour hardener contents into slack-filled resin can. Mix for 2 to 3 minutes, moving blade around can while mixing. Avoid whipping in air while mixing. To mix 5 gallon (18.9L) units use same procedure as mixing 1 gallon (3.78L) units except a larger blade (Jiffy Model ES or equal) is required.

Immediately pour entire mixture onto prepared substrate and spread with a flat rubber squeegee to the desired thickness and "cross-roll" using a 3/8" nap soft woven roller or equivalent. Check film thickness frequently. After 20-30 minutes setup time, material should be rolled with a spiked roller to remove any entrapped air. Do not spike roll after 40 minutes.

If a slip-resistant texture is desired, broadcast a clean, dry 30-50 mesh silica sand into the ArmorSeal 33 Primer coat immediately after application. Broadcast sand until the primer is saturated and only dry sand is showing. After the primer has set (6 hours minimum), sweep excess sand off the surface. Then topcoat with 15-20 mils (375-500 microns) of ArmorSeal 650 SL/RC. Lower topcoat thickness will produce more pronounced slip-resistant profiles, heavier topcoats will produce smoother profiles. Spike rolling is not necessary when ArmorSeal 650 SL/RC is applied as a slip-resistant coating.

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

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **10.0** (250) | **30.0*** (750)* |
| **Dry mils** (microns) | **10.0** (250) | **30.0** (750) |
| **~Coverage sq ft/gal** ($m^2$/L) | **50** (1.2) | **160** (3.9) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1588** (39.0) | |

*Apply Clear at only 10-15 mils (250-375 microns) maximum per coat

**Drying Schedule @ 10.0 mils wet (250 microns):**

| | @ 55°F/13°C | @ 72°F/22°C 50% RH | @ 95°F/35°C |
|---|---|---|---|
| ***B60VQ655 (Std Hardener):*** | | | |
| **To touch:** | 16-24 hours | 6-12 hours | 4-8 hours |
| **To recoat:** | | | |
| **minimum:** | 36 hours | 8 hours | 6 hours |
| **maximum:** | 72 hours | 72 hours | 72 hours |
| **Foot traffic:** | 48 hours | 24 hours | 18 hours |
| **Heavy traffic:** | 96 hours | 72 hours | 60 hours |
| **To cure:** | 7 days | 7 days | 7 days |
| **Pot Life:** | 60 minutes | 40 minutes | 20 minutes |
| **Sweat-in-Time:** | None | None | None |

| | @ 72°F/22°C 50% RH |
|---|---|
| ***B60VQ656 (Fast Set Hardener)*:** | |
| **To touch:** | 4 hours |
| **To recoat:** | |
| **minimum:** | 8 hours |
| **maximum:** | 72 hours |
| **Foot traffic:** | 10-12 hours |
| **Heavy traffic:** | 24-48 hours |
| **To cure:** | 7 days |

*Abrade surface if recoating after 72 hours.*

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

*Do Not use Fast Set Hardener with tint bases.

| | |
|---|---|
| **Pot Life:** | 25 minutes |
| **Sweat-in-Time:** | None |

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

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## PERFORMANCE TIPS

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.

Do not apply the material beyond recommended pot life. Do not mix previously catalyzed material with new.

Do Not use Fast Set Hardener with tint bases.

When recoating ArmorSeal 650 SL/RC, it must be done no less than 8 hours and no more than 72 hours after applying the first coat. If this "window" has passed, the surface of the cured ArmorSeal 650 SL/RC must be abraded to ensure the adhesion of subsequent coats.

## ARMORQUARTZ SYSTEM APPLICATION PROCEDURES

First Broadcast Step

1. Pre-mix ArmorSeal 33 Epoxy Primer/Sealer Clear components as previously referenced.
2. Pour hardener contents into a slack-filled resin can and mix with low speed drill for 3 minutes and until uniform.
3. Immediately pour the mixed material onto the substrate and pull out using a squeegee and cross roll with a 3/8" nap roller at a spread rate of 140-145 square feet per gallon (approximately 10.0 mils / 250 microns wft).
4. Allow material to self-level for 10-15 minutes. Begin evenly seeding the color quartz into the wet resin (much the same as grass seed is spread). Color quartz may be spread by hand or mechanical blower but should be broadcast in such a way that the granules fall lightly into the resin without causing the resin to move. Continue broadcasting to excess until the floor appears completely dry.
5. Allow to cure (cure times vary depending on environmental conditions) and sweep off excess granules with a clean, stiff-bristled broom. Clean granules can be saved for future use. All imperfections, such as high spots, should be smoothed before the application of the second broadcast.

Second Broadcast Step

1. Premix ArmorSeal 33 Epoxy Primer/Sealer Clear components as previously referenced.
2. Pour hardener contents into a slack-filled resin can and mix with low speed drill for 3 minutes and until uniform.
3. Immediately pour the mixed material onto the substrate and pull out using a squeegee and cross roll with a 3/8" nap roller at a spread rate of 65-70 square feet per gallon (approximately 24.0 mils / 600 microns wft).
4. Allow material to self-level for 10-15 minutes. Begin evenly seeding the color quartz into the wet resin (much the same as grass seed is spread). Color quartz may be spread by hand or mechanical blower but should be broadcast in such a way that the granules fall lightly into the resin without causing the resin to move. Continue broadcasting to excess until the floor appears completely dry.
5. Allow to cure (cure times vary depending on environmental conditions) and sweep off excess granules with a clean, stiff-bristled broom. Clean granules can be saved for future use.

NOTE: Color quartz distribution is critical to the success of the application. The finished appearance depends on the manner in which the granules have been applied. In grass seed-like fashion, allow the granules to fall after being thrown upward and out. **Do not throw downward at a sharp angle using force.**

Grout Coat / Seal Coat

1. Premix both components of ArmorSeal 650 SL/RC Clear separately, using a low speed drill and Jiffy mixer. Mix for 1-2 minutes and until uniform, exercising caution not to introduce air into the material.
2. Combine and mix with low speed drill and Jiffy mixer for 2-3 minutes and until uniform. To insure proper system cure and performance, strictly follow mix ratio recommendations.
3. Apply ArmorSeal 650 SL/RC Clear using a flat trowel or squeegee and backroll with a 3/8" woven roller. Apply evenly at a spread rate of 100 square feet per gallon (approximately 15.0 mils / 400 microns wft), with no puddles, making sure of uniform coverage. Spike roll after 20-30 minutes as needed. Two coats may be required to duplicate desired texture. **Take care not to puddle materials and insure even coverage.**
4. Allow to cure. (Cure times vary depending on environmental conditions.)

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

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## WARRANTY

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