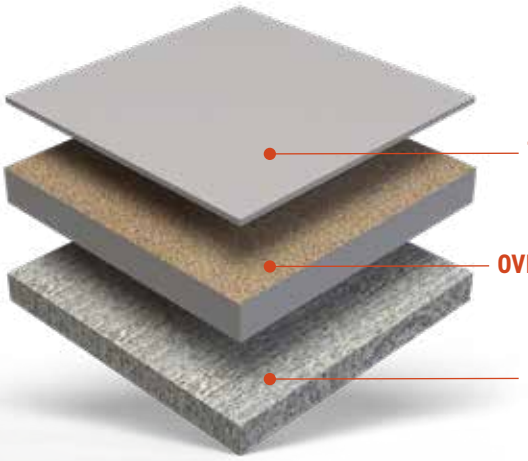
# SIMCRETE SF SYSTEM GUIDE




**NOTE:** PLEASE READ AND REVIEW THESE INSTRUCTIONS PRIOR TO INSTALLATION OF THE COATING SYSTEM. OTHER SIMIRON PRODUCTS MAY BE USED AS ALTERNATIVE PARTS OF THIS SYSTEM. CONTACT SIMIRON TECHNICAL SUPPORT AT CUSTOMERSERVICE@SIMIRON.COM OR 866-515-8775.

## DESCRIPTION

**SIMIRON SIMCRETE SF** is a self-leveling urethane cement. This heavy-duty flooring system is typically installed at 3/16" and broadcast to rejection with silica sand to achieve 1/4" total thickness and a slip-resistant texture suited for wet environments subject to thermal shock. This featured system locks in the broadcast with a polyaspartic, which provides UV stability and chemical resistance.

**Simiron Simcrete SF** also has moisture control properties and can withstand moisture vapor transmission up to 20 lbs./1,000 sq. ft. in 24 hours as measured by calcium chloride using ASTM F1869 or 99% RH as measured by in-situ relative humidity using ASTM F2170.

## PRODUCT INFORMATION

| PRODUCT NAME | SIZE | ITEM NUMBER |
|---|---|---|
| Urethane Cement Part A | 0.5-Gallon | 40007911 |
| Urethane Cement Part B | 0.5-Gallon | 40007928 |
| Urethane Cement Part A | 5-Gallon Pail | 40007935 |
| Urethane Cement Part B | 5-Gallon Pail | 40007942 |
| Urethane Cement Part A | 250-Gallon Tote | 40008208 |
| Urethane Cement Part B | 250-Gallon Tote | 40008215 |
| SF Filler | 35-lb. Bag | 40008017 |

| PRODUCT NAME | SIZE | ITEM NUMBER |
|---|---|---|
| UC Powder Pigment Red | 1-lb. Bag | 40008130 |
| UC Powder Pigment Gray | 1-lb. Bag | 40008123 |
| UC Powder Pigment Dark Gray | 1-lb. Bag | 40008222t |
| Polyaspartic HS Slow Cure Kit | 2-Gallon Clear / Gloss | 40008919 |
| Polyaspartic HS Activator | 5-Gallon Clear / Gloss | 40008956 |
| Polyaspartic HS Slow Cure Base | 5-Gallon Clear / Gloss | 40008932 |

A bag mix of Simcrete CB is pigmented with 1/2 bag of UC Powder Pigment. A bag mix of Simcrete SF is pigmented with 1 bag of UC Powder Pigment. The color options are: Red, Gray, and Dark Gray. Pigment Polyaspartic HS Slow Cure with Simiron U-Tint Light Gray or Tile Red.

## COVERAGE RATES

| PRODUCT NAME | MIX | THICKNESS | COVERAGE RATE |
|---|---|---|---|
| Simcrete CB | 1 qt. Part A + 1 qt. Part B + 1 Bag Filler + 1/2 Bag Pigment | 1/8 - 3/16 inches | 35 Lineal ft. for a 4 inch high cove. |
| Simcrete SF | 1/2 gal Part A + 1/2 gal Part B + 1 Bag Filler + 1 Bag Pigment | 3/16 inch, 1/4 inch after broadcast | 23 sq. ft. |
| Polyaspartic HS Slow Cure | 1 gal Base + 1 gal Activator + 16 oz. U-Tint | 12 - 16 mils | 100 - 134 sq. ft./gal. |

## PHYSICAL PROPERTIES

| TEST NAME | TEST METHOD | RESULT |
|---|---|---|
| Bond Strength | ASTM D7234 | 100% Concrete Failure |
| COF (Wet DCOF) | ANSI 326.3 | > .63 |
| Compressive Strength | ASTM C579 | 8300 psi |
| Flammability | ASTM D695 | Self extinguising over concrete |
| Flexural Strength | ASTM C580 | 2,550 psi |
| Gloss | D523 | 92 - 95 |
| Impact Strength | ASTM D4226 | > 160 in./lbs. |
| Resistance to Fungi Growth | ASTM D4226 | Passes, Rating of 1 |
| Taber Abrasion (CS-17 Wheel, 1000 g Load, 1000 Cycles) | ASTM D4060 | 30 mg loss |
| Tensile Strength | ASTM G21 | 1,000 psi |
| UV Resistance (Gloss after 1000 hours in QUV) | ASTM G154 | 87 - 89 |
| VOC | EPA (Method 24) | < 50 g/L |

## CHEMICAL RESISTANCE

| CHEMICAL | RESULTS |
|---|---|
| 10% Acetic Acid | G |
| Vinegar | G |
| 10% Citric Acid | G |
| 10% Hydrochloric Acid | G |
| 30% Hydrochloric Acid (muriatic) | G |
| 10% Nitric Acid | NR |
| 50% Phosphoric Acid | F |
| 10% Sulfuric Acid | F |
| 37% Sulfuric Acid | F |
| 70% Sulfuric Acid | F |
| 20% Ammonium Nitrate | E |
| 20% Sodium Chloride | E |
| 50% Sodium Hydroxide | G |

| CHEMICAL | RESULTS |
|---|---|
| Methyl Ethyl Ketone | E |
| Xylene | E |
| Ethylene Glycol | E |
| Isopropyl Alcohol | E |
| Mineral Spirits | F |
| Brake Fluid | E |
| Transmission Fluid | E |
| Motor Oil | E |
| 50:1 Gas/Oil Mixture | E |
| E85 Gasoline | E |
| E95 Gasoline | E |
| Unleaded Gasoline | E |
| Skydrol | E |

| CHEMICAL | RESULTS |
|---|---|
| Betadine | E |
| Bleach | E |
| Urine | E |
| Coffee | E |
| Cola | E |
| Ketchup | E |
| Mustard | G* |
| Red Wine | E |

*Stain is only defect.

| KEY | |
|---|---|
| E = Excellent | G = Good |
| F = Fair | NR = Not Recommend |

## SURFACE PREPARATION

Concrete and coated concrete surfaces must be sound, clean, dry, and free of contaminants such as loose coatings, dirt, dust, grease, oil, silicone, and other contaminants that may negatively affect adhesion.

MOISTURE VAPOR BARRIER: A suitable moisture barrier must be in place for concrete slabs on-grade. If a moisture barrier is not in place, seasonal variations in ground moisture can cause excessive moisture vapor transmission (MVT) regardless of results measured prior to coating application. MVT rate must not exceed three pounds per 1,000 square feet per 24 hours, as directed by ASTM F1869. The relative humidity (RH) of the slab must not exceed 75%, as directed by ASTM F2170. If there is a moisture situation in excess of the above rate, the use of **Simiron MVB** Moisture Vapor Barrier Primer may be required. Consult a Simiron Representative for details and application procedures.

NEW/BARE CONCRETE: Diamond grind or shotblast to a CSP 3 - 5 or greater surface profile. Refer to SSPC-SP13 / NACE 6 or ICRI Technical Guideline No. 310.2. New concrete must be cured a minimum of 28 days and should meet moisture vapor transmission (MVT) and relative humidity (RH) thresholds as described above.

## SAFETY & TECHNICAL

Refer to the SDS sheet before use. Safety precautions must be strictly followed during storage, handling, and use. Personal Protective Equipment (PPE) should be worn at all times. PPE will include (but is not limited to): Safety glasses with side shields, high-quality nitrile gloves, and properly fitted NIOSH approved respirators. To acquire additional information or technical and safety data, please visit: www.simiron.com.

## TEMPERATURE

| | | |
|---|---|---|
| Air | 45° – 85°F | 7° – 29°C |
| Surface | 45° – 85°F | 7° – 29°C |
| Material | 60° – 80°F | 16° – 29°C |

Simcrete products can be applied at cool conditions down to 40°F.
For temperatures below 60°F, use Polyaspartic HS Fast Cure.

## SET-UP & MIXING AREA

Place the mixing area as close to the project area as possible. Cover mix area with plastic, a tarp, or cardboard and securely tape to the floor. Assemble all necessary application tools, safety supplies & PPE, and clean-up supplies and place in the mixing area prior to starting the application process.

TAPE AND TERMINATION POINTS: Apply masking tape to all perimeter areas where the coating system will terminate. Sawcut and key-in all termination points at doorways, joints, and around drains, dock plates, and high traffic impact points (see Simiron Drawings/ Architectural Details). To prevent lifting or delamination, keyways (minimum 5/16" wide x 5/16" deep) must be cut.

## PATCHING

Cracks, holes, eroded & spalled areas of the floor that will not cover, should be skim-coated with **Simcrete SF**. Scrape patch material flush with surface. Areas deeper than 1/4" need to be patched with a cementitious material and prepared as above.

## JOINTS

Honor all isolation, expansion, and movable joints with the appropriate joint material after the coating system is installed. Contraction (sawcut) joints may be filled and coated over; However, the coating system may crack over time if the slab experiences excessive shrinkage or movement (see Simiron Drawings/Architectural Details).

## APPLICATION EQUIPMENT

Assemble all required application equipment. Equipment will include (but is not limited to):

- Drill and Jiffy® type mixing blade
- High quality non-shed 3/8" nap roller covers
- Edge rollers & chip brushes
- Painters' tape
- Duct tape
- High quality flat & notched EPDM squeegees
- Spiked shoes
- Measuring and mixing containers
- Cam rake or trowel
- Spike roller
- Loop/Texture roller
- Cove strip (plastic or metal Schlueter strip) if specified.
- Tape measure, ruler, and marker to measure and mark proper cove height
- Chalk line to mark height of cove base to be installed. Some floors may require a string level if floor is pitched.
- Cove strip (plastic or metal Schlueter strip) if specified.
- Flat stainless steel trowels, radius cove trowels, margin trowels, and assorted concrete finishing tools (corner tools etc.).
- Acetone for clean-up and trowel lubrication.
- MAN-U-FAB M-61 (1 HP) mixer with a 10 gallon pail and TR4-10 mixing arm (www.mixall.com).

## APPLICATION PROCEDURE

## SIMCRETE CB: COVE BASE

**Installation of cove base may be performed before or after placement of a Simcrete flooring system, but installing the cove first, will provide a smoother transition. Simcrete CB can be used to create a 45 degree cant cove.**

Apply duct tape to top of cove strip or wall termination (4" height is standard) to protect cove strip and wall. Apply duct tape on floor approximately 1.5 – 2" from wall to identify area to receive primer and cove base.

**Primer: 1000HS primer** must be applied prior to **Simcrete CB** for the cove to hang on the wall. Mix 1 Part Base to 1 Part Activator by volume for 3 minutes and prime wall area using a small roller and/or brush. Primer may require multiple coats on porous surfaces. Fumed silica may be used to thicken primer if desired.

Do not install cove base to an unprimed wall or a primer that has soaked into the wall. Use caution not to apply the primer too thick, as primer may sag and puddle at base of wall. Roll out or remove any areas of excess primer.

1. Pour 1 quart (.25 gallons) of Simcrete Part A liquids into a measuring container.
2. If pigmenting, add 1/2 **UC Pigment Powder** Bag to the Part A and mix for 15 seconds.
3. Add 1 quart (.25 gallons) of Simcrete Part B liquids to the Simcrete Part A and mix for 15 seconds.
4. Transfer mixed material into a clean mixing bucket or mortar mixer and add the Simcrete Part C. Mix until the material is completely wet and uniform (1-2 minutes).
5. Pour the mixed material in a straight line along the base of the wall to receive the cove.
6. Using a flat trowel or margin trowel, scrape the material up the wall @ approximately 1/8"-3/16" thickness, taking care not to apply too thick (especially at the base of the cove). If the material is too thick, it will be more difficult to trowel.
7. Once area is sufficiently covered, compact and finish area with cove trowel leaving a 3/16"-1/4" terminating edge on the floor.
8. Acetone can be used to lubricate and clean trowels if they get sticky during application.
9. Remove tape from top of cove and floor, and lightly brush top edge and rough areas of cove with acetone to remove imperfections.
10. Snap a chalk line, cut and scrape excess mortar to achieve a clean transition edge where flooring system will meet the cove base 1.5"-2" from the base of the wall.
11. Scrape loose material from floor and clean-up work area.

## SIMCRETE SF: OVERLAY AND BROADCAST

**The following installation summary is for reference only and should only be installed by trained persons experienced in polyurethane concrete flooring applications.**

1. It is very important to utilize a proper mixer and paddle to ensure a complete mix and to reduce the risk of introducing excessive air into the mixture.
2. With the mixer running, pour ½ Gallon Part A into the pail.
3. If pigmenting, add 1 **UC Powder Pigment** bag to Part A and mix about 15 seconds.
4. Add ½ Gallon Part B and mix another 15 seconds.
5. Gradually add all contents of a Simcrete SF Filler bag into the liquid mixture and blend thoroughly until all particles are wetted out, normally about two minutes.
6. Immediately after mixing (within 3 minutes), spread the mixed **Simcrete** onto the floor at the desired thickness, using a cam rake or trowel. Approximately 3/16" for a 1/4" finished floor after broadcasting 20/40 mesh silica sand or quartz aggregate.
7. Lay abutting edges within 10 minutes to ensure a clean edge. A "wet edge" installation is imperative during large placements to avoid lines and ridges in the finished floor.
8. Evenly apply to desired thickness while trying to keep cam rake lines to a minimum. Back-roll across slurry with spike roller to help settle aggregates and blend cam rake lines. Further roll with loop/texture roller perpendicular to cam rake lines over entire floor to even and settle slurry prior to broadcasting.
9. Broadcast to rejection specified broadcast media (aggregate or decorative flakes) onto the wet slurry. Do not broadcast onto the wet edge area until settling and back-rolling is complete. Continue broadcasting until no wet areas remain. Coverage rate for quartz or silica sand is approximately .75 lbs./sq. ft. Coverage rate for decorative flake is approximately 6 sq. ft./lb.
10. After curing (approximately 6-8 hours to withstand foot traffic), remove all excess broadcast media and scrape floor as required.
11. Apply specified topcoat to lock system and achieve desired slip resistance.

## APPLICATION PROCEDURE (CONT.)

### POLYASPARTIC HS SLOW CURE: TOPCOAT

**Slow Cure mix ratio is 1 Part Base to 1 Part Activator by volume. Pigment 2 gallons of mixed Slow Cure with 16-ounces of Simiron U-Tint Light Gray or Tile Red to go over red Simcrete.**

1. Pre-mix Part A for 1 minute. Add Part B and mix for three minutes until uniform. Do not mix more material than can be applied in 10 – 15 minutes (material will stiffen or tack-up). Mix full kits only.
2. Using a flat or notched rubber squeegee (depending upon DFT required) with EPDM rubber blade, apply at a spread rate of 100 – 134 sq. ft. per gallon to yield 12 – 16 wet film thickness. Use a non-shed 3/8" roller for back-rolling.
3. In hot or humid conditions, apply via 18" roller in a dip and roll method from a roller pan as increased heat and humidity will decrease the working time of the material.
4. This material will cure faster with exposure to moisture in the air.
5. To avoid visible differences in texture or mix-to-mix "tie-ins" do not exceed 5 – 10 minutes from one mix to another.
6. Use joints as natural breaks to divide sections of the floor.
7. If less texture is desired, apply a second coating of 6 – 8 mils (no more than 200 sq. ft. per gal.) on top of the previous coat within 24 hours.

Applying thicker than recommended, allowing material to pool, or rolling into late may leave a white, hazy appearance.

## CLEAN UP & DISPOSAL

Clean up mixing and application equipment immediately after use. Use acetone, or xylene; do not use alcohol. Follow solvent manufacturer's safety instructions. Be sure to follow all local, state, and federal regulations when disposing of materials.

## MAINTENANCE

To maintain the appearance and extend the life of the newly sealed surface, it is imperative to have a routine maintenance program. Dirt and debris that is tracked over a finished floor will quickly scratch and dull the surface. Place walk-off mats at entrances. Sweep and mop/scrub floors regularly using soft bristles/pads and a mild cleaner. Some cleaning products and equipment or improper use of these can damage a surface. Remove spills quickly to minimize damage and/or stains. For systems that support parked vehicles or other heavy items on rubber wheels, place a small piece of nonporous material, such as sheet metal or plexiglass between the tires and floor to prevent tire marks. Reapplication may be necessary in heavy traffic areas.

## LIMITATIONS

⚠ Do not apply at temperatures or thicknesses not recommended. Do not delay in pouring mixed material onto the floor. Do not make partial mixes. Do not invert epoxy pails to drain. Do not apply over loose or unsound concrete, asphalt or bitumen substrates, glazed tile or nonporous brick and tile, magnesite, copper, metal, polyesters, or elastomeric membranes. Moving joints and shrinkage cracks may reflect through system. Joints that are designed to move may reflect through the finished flooring system if they are not honored. Tire marking may occur.

## SHELF LIFE & STORAGE

12 months from date of manufacture when stored indoors in the original unopened container at 60°F – 85°F (16°C – 29°C) in a dry location with humidity below 65%. Excludes Simcrete Filler which is 6-months from date of manufacture.

⚠ Do not allow materials to freeze.

## LIMITED WARRANTY

SIMIRON warrants this product to be free from defect in the material that affects its performance for a period of one year (from date of purchase). SIMIRON will replace at no charge the quantity of the coating that SIMIRON determines has failed to perform, as the sole and exclusive remedy for any breach of this warranty and/or any other defect or failure of the coating. Proof of purchase is required. Cost of labor for application of any product specifically is excluded. Warranty is void if Simiron products are mixed with or used in conjunction with materials that are substituted for Simiron products. Warranty is nontransferable.

## TECHNICAL ASSISTANCE

Information is available by calling SIMIRON
Toll Free: **1.866.515.8775 / +1.248.686.3600**

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