



POLYMERICA INCORPORATED

MasterShield US Universal Surfacers Flooring Systems

PRODUCT PRESENTATION:

Universal Surfacers Flooring Systems are Polymerica's Innovative Chemical Solutions (PICS) to the complex moisture vapor emission problem that has plagued the industrial flooring industry for years.

Universal Surfacers Flooring Systems are moisture tolerant, abrasion, chemical, high temperature, impact and thermal shock resistant urethane mortar flooring systems for use in the toughest industrial environment. Based on state-of-the-art 100% solids aromatic urethane cementitious blends that are designed for ease of placement, rapid cure, providing quick turnaround and back in service industrial floors in 4 to 6 hours at 75°F (24°C) depending on finish coat.

Universal Surfacers Flooring Systems are available in the following grades and finish coat:

- US Self Leveling (SL)
- US Medium Grade (MG)
- US Trowel Grade (TG)
- US Universal Coat (UC)

Universal Surfacers Flooring Systems are designed to be at an installation at minimum thickness ranges of 1/8 inch to 1/4 inch depending on the system selected. They can also be used in greater thicknesses when leveling, sloping or patching are required.

ADVANTAGES

- Abrasion Resistance: US Systems are designed to withstand heavy abuse from forklift and steel wheel carts.
- Chemical Resistance: US Systems have excellent chemical resistance to a broad range of chemical reagents, including acids, caustics and solvents, even at elevated temperatures.
- Impact Resistance: US Systems have excellent impact resistance to repetitive blows, even at low temperatures when epoxy and MMA (methyl methacrylate) systems fracture do to embrittlement.
- Temperature Resistance: US Systems have excellent high and low temperature resistance ranging from -40°F (-40°C) to 336°F (159°C) Live Steam 220F.
- Rapid Cure: US Systems are designed for rapid cure and fast return of the industrial floor to normal service in as little as 8 to 10 hours at 75°F (24°C).
- Placement Advantages: US Systems are odorless and non-flammable during installation and can be installed in the presence of other trades and other parts of the plant are in service.
- Thermal Shock Resistance: US Systems due to stress-relieving chemistry have excellent resistance to thermal shock, including high temperature wash downs, without delamination or degradation.

UNIVERSAL SURFACER SYSTEMS:

Universal Surfacers SL: Is applied as a self-leveling slurry at a minimum thickness of 1/8 inch to 1/4 inch maximum in a single lift. It is designed for areas subjected to light to medium industrial traffic. It has smooth texture that is easy to clean. It may be used as an underlayment under tile, carpet and specialty floor finishes.

Universal Surfacers MG: Is applied as a medium grade system at a minimum thickness of 3/16 inch to 1/4 inch maximum in a single lift. It is designed to be broadcast with "job specific aggregates. Use MasterQuartz aggregates for a decorative finish, or for industrial applications it can be broadcast with uniform size and shape silica sand or aluminum oxide or a blend of both. Silica sand has a MOH Scale Hardness of 6.5 and it will polish over time in aggressive traffic environments. Aluminum oxide has a MOH Scale Hardness of 9 (just below diamonds) and it will not polish, instead it will fracture along cleavage planes when subjected to aggressive traffic always maintaining an aggressive profile.

Universal Surfacers TG: Is applied as a trowel grade system at a minimum thickness of 1/4 inch to 3/4 inch maximum in a single lift. It is ideal for the toughest industrial environments and can be used to slope a floor to drain. It is the thickest of the Universal Surfacers System Series and is designed to handle the most extreme conditions.

Universal Surfacers UC: Is applied as a coating system that is roller, squeegee or trowel applied and bankrolled at a thickness of 10 to 20 mils. It is a low gloss UV stable top coat. It is an ideal finish coat that provides color stability and it minimizes "trowel licks". It is excellent for maintenance recoating that can be used to restore the appearance of older installations.

LIMITATIONS:

- Substrate must be durable, clean and properly prepared**.
- Minimum concrete substrate temperature is 40°F (4.5°C), preferred 70°F (21°C) to 85°F (29°C).
- Maximum concrete substrate temperature is 95°F (35°C).
- Structural concrete may be less than 28 (twenty-eight) days old. Compressive strength of at least 3,500 psi. May be applied over green concrete.
- Lightweight concrete must be 2,500 psi and free of vesicular (Vermiculite or Perlite or air entrained igneous rocks) aggregates.
- MVER limitation is 18 lbs, per ASTM F1869.
- Product shall be installed only by a Polymerica approved installer per installation instructions.
- Provide "key ways" at transitions, penetrations and terminations.

Typical Physical Properties @ 73⁰F +/- 2⁰F (23⁰C +/- 1⁰C)				
Test Procedure	US – SL	US – MG	US – TG	US - UC
Adhesion to Concrete ASTM D4541 100% Concrete Failure	400 psi	400 psi	400 psi	400 psi
Compressive Strength ASTM C579	9,000 psi	9,000 psi	8,500 psi	8,500 psi
Tensile Strength ASTM C307	1,000 psi	1,000 psi	800 psi	1,000 psi
Flexural Strength ASTM C580	2,400 psi	2,400 psi	2,000 psi	2,400 psi
Thermal Compatibility with Concrete ASTM C884, 50 Cycles	Pass, No Delamination	Pass, No Delamination	Pass, No Delamination	Pass, No Delamination
Coefficient of Thermal Expansion ASTM C531	1.3 X 10⁻⁵	1.2 X 10⁻⁵	1.1 X 10⁻⁵	Same as US System Top Coated
Impact Resistance Mil D-3134, 16 lbs	Pass	Pass	Pass	Pass
Indentation Mil D-3134	None	None	None	None
Abrasion Resistance, ASTM D4060 CS 17 Wheel, 1 kg load, 1000 cycles	0.1 max gm loss	0.15 max gm loss	0.1 max gm loss	0.1 max gm loss
Static Coefficient of Friction ASTM D2047, James Machine	0.8+ Meets OSHA	0.8+ Meets OSHA	0.8+ Meets OSHA	0.8+ Meets OSHA
Water Absorption ASTM C413	<0.1%	<0.1%	<0.1%	<0.1%
Flammability ASTM D635	Self Extinguishing	Self Extinguishing	Self Extinguishing	Self Extinguishing
Microbial (Fungi) Resistance ASTM G21	Pass #1	Pass #1	Pass #1	Pass #1
USDA for Federally Inspected Meat, Poultry and Processing Plants	Meets	Meets	Meets	Meets

CHEMICAL RESISTANCE

See Polymerica's Chemical Resistance Chart
Test Results are Interim.

PACKAGING:

Unit Size	Part A	Part B	Part C
US-SL	1 gal	1 gal	28 lbs
US-MG	1 gal	1 gal	36 lbs
US-TG	48 fl oz	48 fl oz	44 lbs
US-UC 2 & 10	2 & 5 Gallons	2 & 5 Gallons	2.5 & 5 lbs

COLORS:

Standard Universal Surfacers Colors: Neutral, Brick Red and Grey. Universal Coat can be colored by adding 6 to 7 Ounces of ECC per 2 gallons of UC resin. ECC is added to the Part A on site or the ECC can be batch mixed at the Polymerica, Inc. Plant.

INSTALLATION:

1. PREPARATION:

Concrete substrate must meet ACI 201 Guide to Durable Concrete, sound, clean and free of bond breaking contaminants. Surface preparation must comply with

ICRI Guideline No. 03732 Concrete Surface Profile, CSP 2 to CSP 5.

Note: ** See Polymerica Bulletin SP-C (Surface Preparation)

2. MIXING SL, MG and TG

- Mix thoroughly the entire contents of parts A and B for 15 to 30 seconds. If ECC is added to the system pre mix with part A prior to adding the B.
- Add part C filler and continue mixing for approximately 30 to 60 seconds or until all three components are evenly dispersed. DO NOT OVERMIX.
- Immediately apply the US to the concrete surface, level and finish.
- Clean mixing tools immediately with the appropriate solvent.
- Spread the mixture using a cam screed, pin rake, trowel or other suitable tool.
- Depending on system roll with a spiny roller to release trapped air
- Broadcast MasterQuartz and other media within ten minutes of placement.
- Subsequent applications (lifts) can be installed in approximately 1 to 2 hours or as soon as application spikes will not damage the surface.

- Always remove loose broadcast aggregate and debris prior to the additional application.
- If a second application (lift) of the Universal Surfacers is installed repeat the prior directions.
- If MasterQuartz is used as a broadcast media a clear finish coat will be required.
- Cure time for system will be lengthened. See Polymerica's Application information for specific finish coats.
- If finishing with UC follow instructions supplied with product. Following installation, install "caution tape" and allow Universal Surfacers System to cure sufficiently prior to allowing foot traffic.
- The final top coat cure time will determine the length of time required prior to allowing traffic to resume.
- Ultimate chemical cure, depending on temperature, may require 3 to 5 days for extreme service.

CARE & MAINTENANCE:

Universal Surfacers Systems must be protected from traffic, chemicals, dirt and abuse during the curing process.

Newly installed floors should be cured a minimum of 12 hours prior to cleaning. Good housekeeping practices will extend the life of the floor and prolong the service. Universal Surfacers Systems are not self cleaning and a regular scheduled maintenance program is recommended.

SAFETY:

Material Safety Data Sheets are available from Polymerica and should be consulted prior to use of the product. These products are intended for use by professionals only. Keep away from children and those not trained in the use and potential hazards involved.

Universal Surfacers Systems are multi-component. Workers should wear protection, gloves, goggles and body covering clothing during mixing and application. Clean with soap and warm water.

Note: Always read and follow label and MSDS.

WARRANTY:

POLYMERICA warrants its products to conform to its manufacturing standards. POLYMERICA will replace or refund the purchase price of non-conforming products at the seller's option; such remedy being exclusive of all others and sole remedy available to the buyer. Buyer hereby expressly waives claim to additional damages. Any claim under this warranty must be made in writing within 7 days of discovery of noncompliance and no later than one year from the date of delivery of product. No representative, distributor or applicator of POLYMERICA products is authorized to modify product data or warranty.

IMPORTANT NOTICE:

POLYMERICA products are sold subject only to the expressed warranties contained herein, unless otherwise authorized by POLYMERICA in writing. There are no other warranties by POLYMERICA of any nature whatsoever, expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. Buyer agrees that seller assumes no liability for remote or consequential damages of any kind which result from the use or misuse of this product. Information contained herein is based on data believed to be reliable; however, it is the Buyer's responsibility to satisfy itself of the suitability of the product for a particular purpose.

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