

POLYARMOR® UC Mortar 90-000

Urethane Concrete Mortar Resin System

APPLICATION

CHARACTERISTICS

STORAGE: Materials should be stored in original un-opened containers indoors between 65°F (18°C) and 90°F (32°C) and at or below 50% RH. Protect liquids from freezing.

SHELF LIFE: Un-opened containers 1 year from date of manufacture.

PACKAGING KITS/ PART NUMBERS/ Coverage:
Volume Mix Ratio for liquids: .75A: 1B: .25 water (3:4:1)
Mortar Aggregates are neutral and Polyol is pre-pigmented Dark Red (DR) and Grey (GR)

POLYARMOR® UC-HT-DR (1/4" Hand Trowel Dark Red) 18 sq ft @ 1/4"
POLYARMOR® UC MORTAR 90-000-DR-A/HG (.375 gal); POLYARMOR® UC MORTAR 90-000-B/HG (1/2 gal); Water (1 pint- 1 quart); POLYARMOR® UC-HT/48" (46#)

POLYARMOR® UC-SF-DR (1/4" Semi-Flowable Trowel Dark Red) 30 sq ft @ 1/4"
POLYARMOR® UC MORTAR 90-000-DR-A/1SF (.75 gal); POLYARMOR® UC MORTAR 90-000-B/1 (1 gal); Water (1 quart); POLYARMOR® UC-SF/60" (60#)

POLYARMOR® UC-CV-DR (Cove and Vertical Dark Red) 20 sq ft @ 1/4"
POLYARMOR® UC MORTAR 90-000-DR-A/HG (.375 gal); POLYARMOR® UC MORTAR 90-000-B/HG (1/2 gal); Water (1 pint); POLYARMOR® UC-CV/48" (48#)

POLYARMOR® UC-TS-DR (1/8-1/4 Thin Set Dark Red) 34 sq ft @ 3/16"
POLYARMOR® UC MORTAR 90-000-DR-A/1SF (.75 gal); POLYARMOR® UC MORTAR 90-000-B/1 (1 gal); Water (1 quart); POLYARMOR® UC-TS/42" (42#)

POLYARMOR® UC-LC-DR (Lock Coat Dark Red) 360 sq ft @ 12 mils
POLYARMOR® UC MORTAR 90-000-DR-A/1SF (.75 gal); POLYARMOR® UC MORTAR 90-000-B/1 (1 gal); Water (1 quart); POLYARMOR® UC-LC/15" (15#)

Note: Use POLYARMOR® UC MORTAR 90-000-GR-A/1SF for grey mortars.*

OPTIONS:

To fill deep areas in concrete or to re-slope the concrete substrate, a suitable fast setting concrete mortar can be installed prior to the Polyarmor® UC Mortar. The repair concrete mortar will need to be shot blasted the following day prior to installing the Polyarmor® UC Mortar. Contact Visuron Technologies, Inc. for approved sources.

*Neutral aggregate kits can be pigmented to a non-standard color using a Color Pack. Color packs designated as CP-UC***P can be used with unpigmented POLYARMOR® UC MORTAR 90-000-A/1SF and up-pigmented POLYARMOR® UC Mortar kits. Many standard colors are available; please contact Visuron Technologies, Inc. IM for available colors.*

Traction: Colored Quartz Aggregate or other suitable angular aggregate can broadcast into wet mortar and then lock coated with POLYARMOR® UC-LC or POLYARMOR® URETHANE 90-150 urethane.

It is highly recommended when applying POLYARMOR® UC-TS mortars, a broadcast of red or grey colored 3M brand broad cast grade colored quartz be applied and lock coated with pigmented POLYARMOR® UC-LC mortar system for a thicker/denser uniform floor appearance.

LIMITATIONS:

Substrates: Polyarmor® UC Mortar must be applied to well prepared clean concrete substrates (they CANNOT be applied over existing epoxies).

Contamination and surface defects (fisheyes): If contaminants of oils, silicones, mold release agents and/or others are present. Top coats of Polyarmor® UC Mortar may fish-eye or crawl away from the surface. Surface contaminants should be removed with a suitable detergent prior to application. Solvent cleaning of silicone contaminants may make the situation worse; please contact the lab for additional recommendations. Polyarmor® UC Mortars may amber over time from UV exposure.

Polyarmor® UC Mortars: POLYARMOR® UC-HT/SF/CV/TS/LC are self priming, three component "Urethane Concrete Mortars" supplied in Dark Red or Grey colors. **Polyarmor® UC Mortars** are chemical and thermal shock resistant and are designed to be mix with a specific aggregate to obtain the desired application technique. The application techniques ranges from "Hand Trowel" POLYARMOR® UC-HT, "Semi-Flowable" POLYARMOR® UC-SF, "Cove and Vertical" POLYARMOR® UC-CV, "Thin Set broadcast" POLYARMOR® UC-TS, and "Lock Coat" POLYARMOR® UC-LC. Depending on the aggregate selected, application thickness can range from 1/8" to 3/8" with a typical application thickness of "1/4".

MIXING: Mix and apply one complete kit at a time. Working time including mixing is limited to 15-20 minutes. Surface will harden and become unworkable after 20-30 minutes. Mix equipment and tools will need to be cleaned multiple times during the application to keep materials from setting up prematurely.

For Polyarmor® POLYARMOR® UC-HT & Polyarmor® POLYARMOR® POLYARMOR® UC-CV

Premix in a pail .375 gallons of polyol resin POLYARMOR® UC MORTAR 90-000-XX-A/HG, 1/2 gallon of hardener POLYARMOR® UC MORTAR 90-000-B/HG and 1-2 pints of water. Mix with a high speed drill for 1 min. Transfer to the mix bucket of the KOL mixer while running. Add the bag of POLYARMOR® POLYARMOR® UC-HT/42 or POLYARMOR® POLYARMOR® UC-CV/48 aggregate into the running mortar mixer.

MIX: Mix all components together for 2 minutes.

Immediately transfer to screed box to apply to the floor or cove. **DO NOT LEAVE ANY MORTAR IN THE MIXER AS IT WILL HARDEN!**

APPLY POLYARMOR® POLYARMOR® UC-HT: at a rate of 1/4" to the floor surface using a screed box. Trowel the wet mortar to compact the material, remove voids and make the floor smooth and dense. Care should be taken not to over trowel as blisters can develop. Misting the wet mortar with mineral spirits solvent will lubricate the trowel and help close the surface. Broad cast any optional top aggregate while mortar is wet.

CURING (DRYING): Allow the mortar to cure (dry) for a minimum 4-8 hours after application at 75°F (24°C) and 50% RH before applying the POLYARMOR® UC-LC cementitious lock coat. Only open the floor to light traffic after sufficient cure, allow more time for low temperatures and higher humidity or for heavier traffic. Full coating properties may take up to 24 hour to 3 days to develop.

For POLYARMOR® UC-SF

Premix in a pail .75 gallons of polyol resin POLYARMOR® UC MORTAR 90-000-XX-A/1SF, 1 gallon of hardener POLYARMOR® UC MORTAR 90-000-B/1 and 1 -2 quarts of water. Mix with a high speed drill for 1 min. Transfer to the mix bucket of the KOL mixer while running. Add the bag of POLYARMOR® UC-SF/60 aggregate into the running mortar mixer.

MIX: Mix all components together for 2 minutes.

Immediately transfer to screed box to apply to the floor or cove. **DO NOT LEAVE ANY MORTAR IN THE MIXER AS IT WILL HARDEN!**

APPLY POLYARMOR® UC-SF: at a rate of 1/4" to the floor surface using a screed box. Trowel the wet mortar to compact the material, remove voids and make the floor smooth and dense. Care should be taken not to over trowel as blisters can develop. Misting the wet mortar with mineral spirits solvent will lubricate the trowel and help close the surface. Broad cast any optional top aggregate while mortar is wet.

CURING (DRYING): Allow the mortar to cure (dry) for a minimum 4-8 hours after application at 75°F (24°C) and 50% RH before applying the POLYARMOR® UC-LC cementitious lock coat. Only open the floor to light traffic after sufficient cure, allow more time for low temperatures and higher humidity or for heavier traffic. Full coating properties may take up to 24 hour to 3 days to develop.

For POLYARMOR® UC-TS & POLYARMOR® UC-LC

Premix in a pail .75 gallons of polyol resin POLYARMOR® UC MORTAR 90-000-XX-A/1SF, 1 gallon of hardener POLYARMOR® UC MORTAR 90-000-B/1 and 1 -2 quarts of water. Mix with a high speed drill with mud mixer for 1 min. Add the bag of POLYARMOR® UC-TS/42 or POLYARMOR® UC-LC/15 aggregate to the mix pail while mixing.

MIX: Mix all components together for 2 minutes.

Immediately transfer and to apply to the floor.

APPLY POLYARMOR® UC-TS: at a rate of 1/8-3/16" to the floor surface using a cam rake. Roll the wet mortar with a porcupine or loop roller to remove all air, to compact the material, remove voids and make the floor smooth and dense. Allow the thin set to set up for a few minutes then broadcast 3M color quartz any while mortar is wet. No need to broadcast to excess.

CURING (DRYING): Allow the mortar to cure (dry) for a minimum 4-8 hours after application at 75°F (24°C) and 50% RH. Sweep off excess quartz broadcast. Apply the POLYARMOR® UC-LC cementitious lock coat to the floor with a flat 12" window squeegee. Back roll with a 1/4" mohair roller. Only open the floor to light traffic after sufficient cure, allow more time for low temperatures and higher humidity or for heavier traffic. Full coating properties may take up to 24 hour to 3 days to develop.

TECHNICAL SUPPORT: For application questions, please contact your VISURON TECHNOLOGIES, INC. salesman or technical service.

DISPOSAL: Dispose in accordance with federal, state, and local regulations.

USES

Formulated specifically for the food and beverage industry and offers ideal use in "can't dry" environments, areas subject to thermal cycling, floors that will see high impact and hot water dumping. Additionally, Polyarmor® UC urethane concrete mortars are resistant to intermittent live steam cleaning required for routine sanitation and clean up. Polyarmor® UC mortars are semi-rigid and move with the thermally induced expansion and contraction of concrete substrates, while maintaining superior chemical resistance to chemicals such as strong oxidizing agents, organic acids and aromatic solvents.

ADVANTAGES

- Pigment supplied in the aggregate.
- Virtually odorless
- High chemical resistance
- Rapid cure (hours, not days)
- Moisture vapor tolerant
- Resistant to bacteria, fungi, mildew and mold (does not promote bacterial growth)
- Excellent impact and abrasion resistance
- Seals concrete, protecting against dirt and spills
- Resists staining and major chemical spills of cleaning and industrial chemicals
- Complies with VOC regulations for Industrial Maintenance Coatings in the OTC and CA.

MATERIAL PROPERTIES*:

Properties	Test Method	Results
Flash Point	ASTM D3278	≥215 °F (102° C)
Volume Solids (mixed resin)	ASTM D2369	85-90 %
Mixed Viscosity (resin only)	ASTM D2196	400-700 cPs
Dry Time	ASTM D5895	Tack Free 4-6 hr Dry 6-10 hr Full Cure 7 days
VOC-Volatile Organic Compound	ASTM D3960	0 g/l

CURED PROPERTIES*:

Properties	Test Method	Results
Abrasion Resistance Tabor H-10, mg loss/1000 cycles/1000g mass	ASTM D4060	100 mg
Coefficient of Friction- COF James Test	ASTM D2047	0.55 0.65(w/NS-36)
Tensile Strength	ASTM C370	1,050 psi
Compressive Strength	ASTM C579A	8,200 psi
Flexural Strength	ASTM C790	2,050 psi
Adhesion to Concrete	ASTM D4541	350 psi concrete failure
Impact	ASTM D2794	160 in.lbs Direct & Reverse
Thermal Coefficient of Linear Expansion	ASTM C531	1.1x10 ⁻⁵ in/in/°F
Application Thickness		3/16" minimum

*Properties and results are based on laboratory testing at 72°F (22°C) 50% RH, theoretical calculations and estimates. Typical properties, as stated, are to be considered as representative of current production and should not be treated as specifications.

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RECOMMENDED APPLICATION

Depending on the PolyArmor UC Mortar selected, application thickness can range from 1/4 inch to 3/8 inch for standard applications of UC-HT or UC-SF. For deep filling use PolyArmor UC Mortar HT up to 2 inch thick. The addition of clean pea gravel can be used to extend the mix.

PolyArmor UC TS can be applied from 1/8 inch to 5/16 inch including the broadcast of color quartz with a lock coat of UC-LC.

CHEMICAL RESISTANCE*:

Polyarmor® UC Mortar	1 Day	7 Days
ACIDS, INORGANIC		
10% Hydrochloric	E	E
30% Hydrochloric	F	P
10% Nitric	E	E
50% Phosphoric	G	F
37% Sulfuric	E	E
ACIDS, ORGANIC		
10% Acetic	G	F
10 % Citric	E	G
Oleic	E	E
ALKALIES		
10% Ammonium Hydroxide	E	E
50% Sodium Hydroxide	E	E
SOLVENTS		
Ethylene Glycol	G	G
Isopropanol	E	E
Methanol	P	P
d-Limonene	E	E
Jet Fuel	E	E
Gasoline	G	F
Mineral Spirits	E	E
Xylene	E	G
Methylene Chloride	P	P
MEK	P	P
PMA	G	G
MISCELLANEOUS		
20% Ammonium Nitrate	E	E
Brake Fluid	E	E
Bleach	E	E
Motor Oil	E	E
Skydrol®500B	E	E
Skydrol®LD4	E	E
20% Sodium Chloride	E	E
10% TSP	E	E

*Based on spot testing of the clear coating after 14 days of cure. Pigmented versions may see reduced chemical resistance and staining.

Legend: E- Excellent (Not Effected) - Recommended
G-Good (Limited Negative Effect) - Short Term Exposure
F-Fair (Moderate Negative Effect) - Not recommended
P-Poor (Unsatisfactory) - No Resistance to Exposure

INSPECTION AND APPLICATION:

Caution! Follow all precautions and instructions prior to installation.

CHECK THE SUBSTRATE CONCRETE: Substrate concrete must be free of curing membrane, silicate surface hardener, paint, or sealer and be structurally sound. If you suspect the concrete has been treated or sealed, prepare substrate for complete removal of treatment.

CHECK FOR MOISTURE: Concrete must be dry to slightly damp before applications of this floor mortar. Test concrete for moisture vapor transmission (MVT) using calcium chloride testing ASTM F1869 or in-situ RH testing ASTM F2170. Do not exceed a maximum result of 3 pounds per 1000 sq. ft. over 24 hours or a value below 70% RH (internal concrete humidity).

EXCLUSION: Testing for MVT is critical, however it does not guarantee against future problems. If there is no vapor barrier or the vapor barrier is damaged, this can contribute to floor failure. Contamination to concrete from oils, chemicals, excessive salts or Alkali Silica Reaction (ASR) may also contribute to floor failure.

CHECK THE TEMPERATURE AND HUMIDITY: During the application and cure of the coating, the substrate temperature, material temperature and room conditions should be maintained between 65°F (18°C) and 90°F (32°C). Relative Humidity (RH) should be limited to 30-80%. DO NOT apply coatings unless the floor temperature is more than five degree over the dew point.

APPLICATION EQUIPMENT:

- Protective equipment and clothing as called for in the MSDS.
- "KOL Mixal" electric powered mortar mixer (Model M-61-BM 1HP)
- Screed Box/Screed Rake/ Cam Rake.
- Hand Trowel.
- Drill motor mixer with mud mix blade.
- Porcupine roller/Loop roller/ 1/4 " Mohair roller.
- Surface grinders.
- Vacuum equipment.

PREPARATION:

Surface dirt, grease, oil and contaminants must be removed by detergent scrubbing and rinsing with clean (clear) water.

Concrete Scarification or Heavy Shot Blasting (bare concrete): Is a preferred method of surface preparation.

Diamond Grind (bare concrete): Results of grinding may vary depending on technique and the hardness of the concrete.

JOINTS: Construction joints may need to be re-built and re-cut and then filled with semi-rigid joint filler. Isolation or expansion joints must be filled with a flexible material designed for expansion and should not be coated over. All construction/control joints in the concrete must be honored in the POLYARMOR® UC- Mortar (IE: Re-cut and filled in the mortar). Control joints must be filled with a semi-rigid joint compound such as PolyPro Sealant 35-000 or PolyPro Sealant 45-000.

RECOAT: Polyarmor® UC Mortar can be re-coated with VISURON TECHNOLOGIES, INC. POLYARMOR® UC-TS/LC after grinding the old UC surface.

BARE CONCRETE APPLICATION: Polyarmor® UC Mortar MUST BE APPLIED OVER bare add well prepared concrete. Under most conditions a primer is not required or recommend. Applications of Polyarmor® POLYARMOR® UC-TS (IE: 1/8 inch) may require a primer seal coat of Polyarmor® POLYARMOR® UC-Primer to seal the concrete surface to control air movement through the concrete (See appropriate product data sheet for application instructions).

READ MATERIAL SAFETY DATA SHEET (MSDS) FOR SAFETY AND PRECAUTIONS. USE PRODUCT AS DIRECTED. FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.

MAINTENANCE GUIDELINES:

Allow floor mortar to cure at least 3 days before cleaning by mechanical means (IE: sweeper, scrubber, disc buffer, high pressure wash).

CARE: Increased life of the floor will be seen with proper maintenance and will help maintain a fresh appearance of your new VISURON TECHNOLOGIES, INC. floor. Regularly sweep your new floor as ground in dirt and grit can quickly dull the finish thus decreasing the life of the coating. Spills should be removed quickly as certain chemicals may stain and can permanently damage the finish.

Only soft nylon brushes or white pads should be used on your new floor coating. Premature loss of gloss can be caused by hard abrasive bristle Polypropylene (Tynex®) bushes.

Use only neutral non butyl cleaning detergents on your floor coating. Test any new cleaning product on a non-conspicuous area prior to using to avoid damage to the floor.

CAUTION: Heavy objects dragged across the surface will scratch all floor coatings. Avoid gouging or scratching the surface.

Pointed items or heavy items dropped on the floor may cause chipping or concrete pop out damage. Plasticizer migration from rubber tires can permanently stain the floor coating. If a rubber tire is planned to set on the floor for a long period of time, place a piece of acrylic sheet between the tire and the floor to prevent tire staining. Rubber burns from quick stops and starts from lift trucks can heat the coating to its softening point causing permanent damage and marking.

REPAIR: Repair gouges, chip outs, and scratches as soon as possible to prevent moisture and chemical under cutting and permanent damage to the floor coating.



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