Siplast Terapro VTS Waterproofing System

Installer Guide

siplast®

With you every step of the way

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I. System Overview and Products.

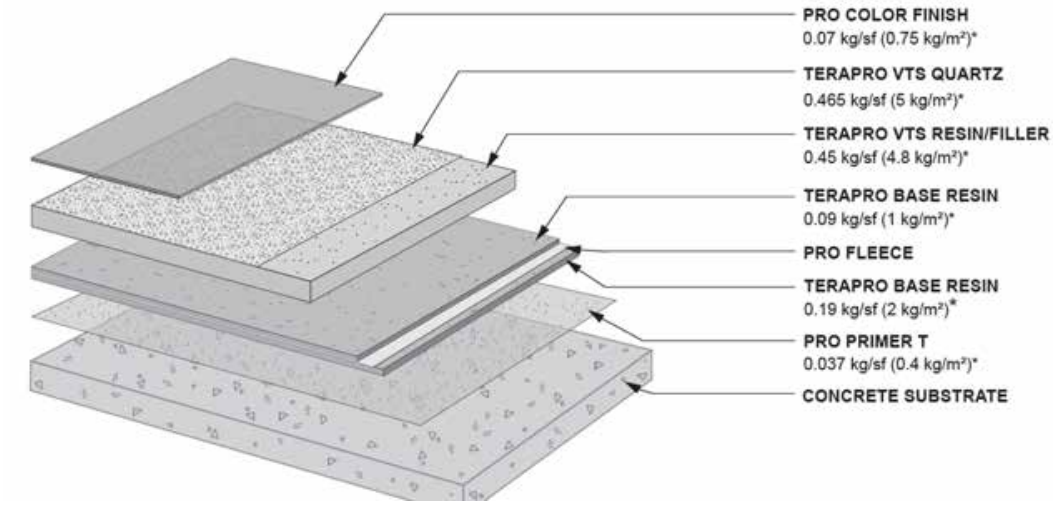
System Overview

The Terapro VTS Waterproofing and Surfacing System is a liquid-applied, PMMA resin-based system designed to provide parking decks/garages with protection from vehicular traffic, weathering, water penetration, and environmental damage. Fast curing Terapro VTS is a tough, durable waterproofing and surfacing system engineered to meet the performance challenges of parking structures. Plus, the Terapro VTS System provides color choice options to create distinctive accents and markings for these normally nondescript areas.

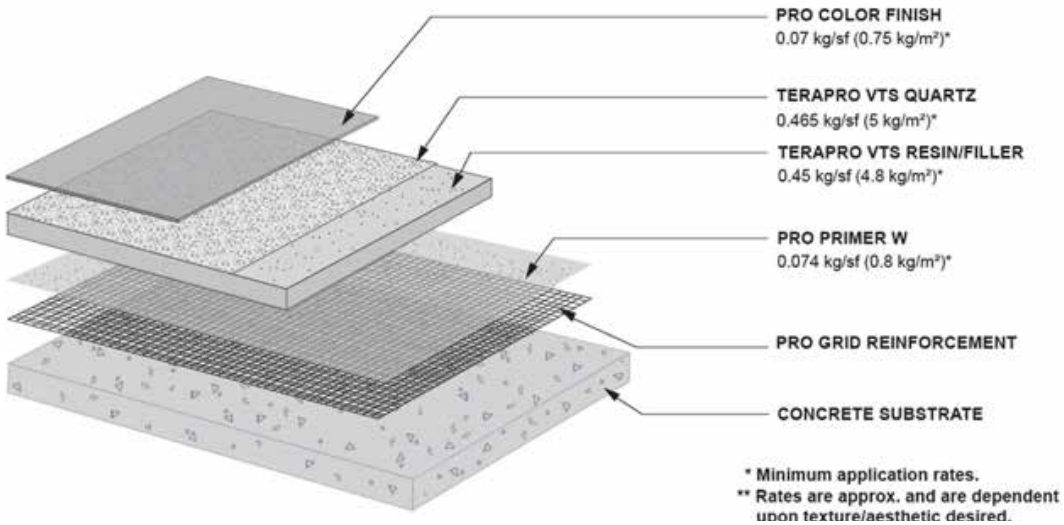
The Terapro VTS Waterproofing and Surfacing system is a layered application consisting of one coat of primer, a thick resin/aggregate based waterproofing/wearing layer and a pigmented finish layer. For applications over occupied (interior) spaces, a reinforced layer is installed over a primed substrate prior to application of the wearing layer and the pigmented finish layer.

Reinforced Systems for Use Over Occupied (Interior) or Conditioned Spaces

Terapro VTS Fleece-Reinforced System
Surfacing: Pro Color Finish and Terapro VTS Quartz Concrete Substrate



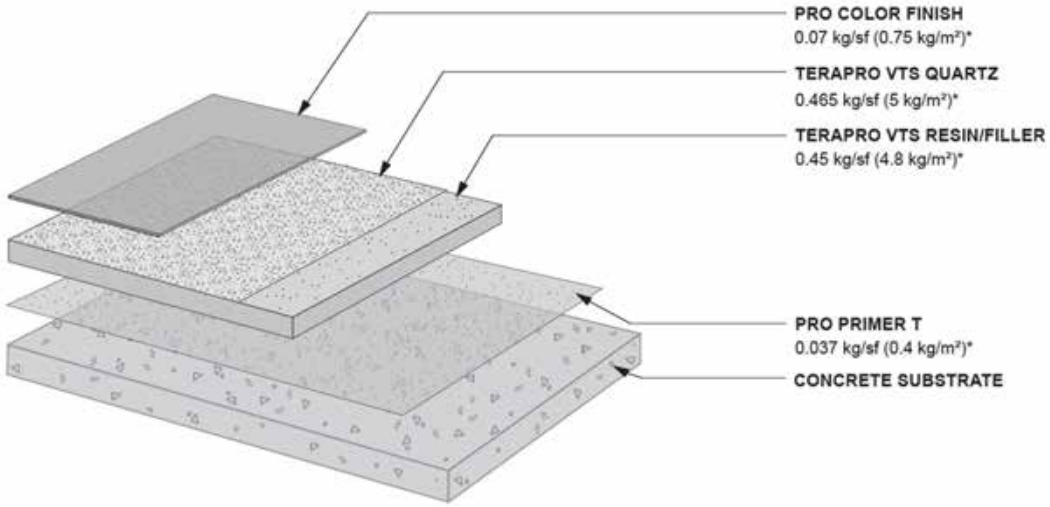
Terapro VTS Grid-Reinforced System
Surfacing: Pro Color Finish and Terapro VTS Quartz Concrete Substrate



* Minimum application rates.
** Rates are approx. and are dependent upon texture/aesthetic desired.

Unreinforced Systems for Use Over Unoccupied (Exterior) or Unconditioned Spaces

Terapro VTS Unreinforced System
Surfacing: Pro Color Finish and Terapro VTS Quartz Concrete Substrate



Products

The following products are used to construct the Terapro VTS Waterproofing and Surfacing System:

Primers
- Pro Primer T Resin
- Pro Primer W Resin
- Pro Primer E Resin

Flashing Membrane
- Terapro Flashing Resin

Waterproofing and Wearing Layers
- Terapro Base Resin
- Terapro VTS Resin
- Terapro VTS Filler

Reinforcement
- Pro Fleece
- Pro Grid Reinforcement

Finish Layers
- Pro Color Finish Resin

Surfacing Products
- Terapro VTS Quartz

Other
- Pro Catalyst Liquid
- Pro Catalyst Powder
- Pro Paste
- Pro Mortar
- Pro Prep
- Pro Prep M

Weather Restrictions

Do not apply Terapro or Pro products if there is a threat of precipitation, condensation is present on the substrate or the ambient temperature is within 5ºF of the dew point. Ambient and substrate temperatures can affect the application of Siplast Terapro and Pro materials. Ambient and substrate temperature restrictions vary by product, and are noted in the product specific sections of this guide.

Protection

Upon completion of new work (including all associated preparation work), use appropriate procedures for protection of finished work during the remainder of the construction period. Protect all areas where membrane has been previously installed.

II. Personal Protection and Safety

Refer to the Safety Data Sheet (SDS) for each Terapro and Pro product for specific safety information. Terapro and Pro Resins are flammable, and are harmful if inhaled, swallowed, or absorbed through the skin. They can cause skin, eye, and respiratory irritation, and may cause skin and respiratory sensitization.

Do not smoke around Terapro or Pro Resins. Keep the products away from open flame, fire, or ignition sources. Avoid breathing Terapro or Pro Resin vapor and Pro

Catalyst Powder dust. Use the products with adequate ventilation or respiratory protection as needed to keep exposure below threshold limit values (TLV). Do not ingest the products, and avoid contact with eyes, skin, and clothing. Wear suitable gloves and eye/face protection. Wash thoroughly after handling Terapro and Pro products. Keep the products out of reach of children.

First aid information is available on Terapro and Pro product Safety Data Sheets (available at www.siplast.com) and product containers.

III. Product Storage

Store Terapro and Pro products indoors in closed containers in a well-ventilated, cool, dry area away from direct sunlight, heat, open fire, ignition sources, oxidizing agents, strong acids, and strong alkalis.

Resin products may auto-polymerize at temperatures greater than 140°F (60°C). Resin product shelf life Terapro/Pro Resins and Pro Catalyst is 6 months from ship date. The shelf life of resin products will be reduced if the products are stored at temperatures above 77°F (25°C). Pro Catalyst is extremely heat sensitive. Proper storage is important to help ensure handling safety and maintain product quality. The storage temperature of Pro Catalyst should not exceed 77°F (25°C). The reactivity and effectiveness of Pro Catalyst will decrease progressively when stored under high temperature conditions.

Exposure of Pro Catalyst to a temperature of 122°F (50°C) or higher can result in self-accelerating decomposition. Self-accelerating decomposition is signaled by the presence of bright white smoke, and can create temperatures in excess of 500°F (260°C), depending on the environmental conditions and quantity of catalyst present. Such temperatures can be hazardous in the presence of flammable materials. Therefore, Pro Catalyst should never be subjected to conditions that can result in self-accelerating decomposition.

During application, store materials on the job site on a pallet in a shaded, well-ventilated area. In unshaded areas, cover materials with a white, reflective tarp in a manner that allows for air circulation beneath the tarp.

IV. Installation Materials, Tools, and Equipment

Substrate Preparation
- Blower, vacuum, & broom
- Drum scarifier
- Shot blaster with dust collector/air-pulse compressor
- Hand grinder with polycrystalline diamond wheel
- Hand grinders with carbide disk or other appropriate abrasive wheel
- Pro Prep or Pro Prep M
- Pro Paste
- Pro Primer T, Pro Primer W, Pro Primer E
- Pro Mortar

Mixing
- Light colored plastic tarps or sheeting
- Variable speed drill with 1/2-inch chuck
- Industrial mortar mixer (auger type)
- Mixing agitator
- Mixing stir sticks
- 1-tablespoon measure
- Plastic mixing buckets (1 and 5-gallon)
- Battery operated scale with 40-lb (20-kg) capacity

Application
- Tape (masking and duct tape)
- Pro Grout Tape
- Margin trowel
- Application brushes
- Application rollers
- 4", 9" and 18" low-shed roller covers and frames
- Pro Spiked Roller
- Flat trowel and cement finishing trowel
- Pro Stub Rollers - Blue and Red (Red is for application of VTS Resin/Aggregate Filler layer only)
- Pro Prep or Pro Prep M
- Heavy-duty scissors
- Disposable heavy duty butyl rubber or nitrile gloves

Miscellaneous
- Clean cotton rags
- Plastic garbage bags
- Box or razor knife
- Infrared thermometer
- Tape measure
- Chalk line

IV. Substrate Requirements, Preparation, and Repair

General Substrate Preparation

All substrates must be free from gross irregularities, loose or unsound material, foreign material (such as dirt, ice, snow, water, grease, bitumen, oil, release/curing agents, paint/coatings), or any other condition that would be detrimental to the adhesion of the catalyzed primer and/or resin to the substrate. Most surfaces require preparation to generate a substrate suitable to receive Terapro or Pro materials.

Substrate preparation guidelines appear in the following chart below, however, unique requirements can vary for a particular situation. In applications where adhesion to a substrate not listed in the chart is required, please contact the Siplast Technical Department at 1-800-922-8800 for information on testing such substrates for adhesion with a laboratory or field bond test.

Substrate	Preparatory Guidelines	Pro Primer W Required	Pro Primer T Required	Pro Primer E Required
Steel, Galvanized Steel, Lead	1, 2, 3, 4			
Stainless Steel, Copper, Aluminum	1, 2, 3, 4, 9			
Galvalume Metal (not approved)				
Paint/Coating	7			
Concrete (horizontal)	1, 5		•	
Concrete (vertical)	1, 5	•		
Concrete (high moisture content)	1, 5, 11			•
Concrete Repair Materials	1, 5, 8	•		
Clay, Ceramic Tiles, Brick, CMU	1, 6	•		
Mortar	1, 5	•		

Key to Preparatory Guidelines:

1. Substrate must be clean, dry, and free from gross irregularities, loose material, knots, unsound material, or any foreign material (such as dirt, ice, snow, water, grease, oil, release/curing agents, paint/coatings, sap, glue), or any other condition that would be detrimental to the adhesion of the catalyzed primer and/or resin to the substrate.
2. Remove rust or other oxidation layers.
3. Lightly abrade surface prior to cleaning with Pro Prep or Pro Prep M.
4. Wipe thoroughly with Pro Prep or Pro Prep M prior to application of resins. Allow Pro Prep or Pro Prep M a minimum of 20 minutes drying time after application before continuing. The next application process should be completed within 60 minutes of cleaning with Pro Prep or Pro Prep M.
5. Prepare horizontal cement-based substrates by shot blasting or scarifying followed by shot blasting to ensure that laitance or foreign material and the surface layer are completely removed. Prepare cement or masonry flashing substrates by shot blasting or grinding. New cement-based substrates must be at least 28 days old, properly cured, and meet Siplast moisture content guidelines.
6. Grind surface to remove glaze. Tiles must be on a sound bed without cavitation. Ensure that no moisture is present beneath tiles.
7. Remove all paints and coatings.
8. Refer to concrete repair product manufacturer requirements and Siplast requirements for suitability as a substrate for waterproofing materials. Perform adhesion testing to determine the suitable primer. Prepare by shot blasting.
9. Qualify/prepare substrate and prime with Rust-Oleum™ High Performance V2100 System Enamel Primer (Rust-Oleum part #2182838 Flat Gray) in accordance with Rust-Oleum specifications.

10. Following priming, fill joints between plywood panels with Pro Paste and allow to cure. Reinforce the joints using a 6-inch (150 mm) wide strip of Pro Fleece and Terapro Flashing Resin. An alternative is to prime panels using Pro Primer W and tape joints between panels and panel edges at all walls, perimeters, and penetrations using Eternabond Webseal.
11. See the section covering Pro Primer E on page 13 for concrete substrate evaluation, testing and preparation.

Contact Siplast Technical Support for specific preparation requirements for materials not listed in the above table.

Concrete and Masonry Substrates
Concrete Substrate Requirements

General

The concrete substrate should have a minimum compressive strength of 3500 psi (25 N/mm^2), provide for bottom-side venting, and have a maximum moisture content as indicated in the section titled Moisture Content Guidelines on page 4.

Polymer-modified or fast setting mortar/concrete products are acceptable if they have been tested/approved in advance by Siplast. Contact Siplast Technical Services for a list of products that have been tested and approved.

Concrete construction types that require project-specific review by Siplast Technical Support include:

- Split-slabs with a between-slab vapor impermeable membrane.
- Slab-on-grade construction.
- Concrete placed over a metal pan (including vented metal).
- Concrete with a moisture content exceeding published maximums.
- Concrete “T”-type constructions or pre-cast concrete panel construction without an overlay of reinforced concrete.
- Concrete utilizing porous aggregate (lightweight structural concrete).

Concrete substrates listed below should not be considered as a substrate for a Terapro VTS System.

- Concrete that has been treated with curing compounds, surface densifiers or waterproofing agents that cannot be removed in their entirety.
- Concrete contaminated/affected by hydrocarbons, organic compounds such as bitumen (asphalt) or coal tar, alkaline silica reaction (ASR), alkaline aggregate reaction (AAR), chlorides (salts), or unreacted silicates.

New Concrete Pours

Submit the mix design for new concrete pours to Siplast for review prior to placement. Allow new concrete to cure for a minimum of 28 days in accordance with American Concrete Institute (ACI) Bulletin 308 – Guide to Curing Concrete. Concrete should not utilize curing agents, penetrating release agents, or be treated with waterproofing materials, as these materials can affect primer penetration and/or adhesion.

Ensure that concrete substrates have a moisture content that is below published values at the time of primer application. New concrete pours may require an extended exposure time before an acceptable moisture content is reached. To prevent delays in system installation, the use of Pro Primer E should be considered when concrete moisture content is anticipated to be high at the time of waterproofing system application. For this reason, Pro Primer E is recommended for all new construction projects.

Evaluation of Existing Concrete Substrates

Existing concrete should be cored (3 inches in diameter with a depth of 2 inches) and evaluated by an accredited lab. The number of cores should be sufficient to provide a representation of all areas to be waterproofed. Recommended testing procedures include ion chromatography and infrared spectroscopy. The depth of carbonation should also be determined. The presence of contaminants in the concrete may affect the adhesion of the primer layer. Contaminants include hydrocarbons or other organic compounds, unreacted silicates and chlorides. Concrete affected by alkaline-silica reaction (ASR) or alkaline-aggregate-

reaction (AAR) should not be considered as a substrate for a Terapro System. The lab should recommend the remedial work required to bring the concrete substrate into a condition suitable to receive the Terapro system. Reviewing the performance of an existing coating, roofing, or waterproofing system is also recommended when evaluating a concrete substrate. If blistering or loss of adhesion of the existing coating/waterproofing is evident, the source of the problem should be investigated and addressed with a plan of action before the existing system is removed and a new system applied.

Moisture Content Guidelines – Concrete Substrates

High moisture levels in both new and existing concrete substrates can adversely affect the adhesion of a Terapro System. The presence of moisture can prevent the Pro Primer from penetrating the concrete and affect adhesion. Excessive moisture present beneath a Terapro System can also transport soluble salts into the condensation zone beneath the primer, resulting in concrete degradation or osmotic blistering, which can disbond the primer from the concrete surface after the system has been in service for a period of time.

Siplast recommends testing for moisture content in the form of measuring relative humidity within the concrete slab. Relative humidity testing requires specific ambient conditions for the testing period. This may preclude performing moisture testing under hot, cold, or wet weather conditions.

ASTM F2170 “Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes” requires that holes be drilled into the concrete slab. Plastic sleeves are then inserted into the holes. Relative humidity levels within the sleeved cavity are then measured following an equilibrium period. The depth of penetration allows for an understanding of the moisture percent throughout the core of the substrate, rather than the near-surface readings calculated using other test methods.

For a direct application of Pro Primer T or Pro Primer W to a concrete substrate, the following are Siplast guidelines for maximum relative humidity (RH) based upon testing in accordance with the above-listed protocol. The use of Pro Primer E or an approved epoxy-based moisture mitigation system should be considered when the relative humidity within the slab is expected to be above 75% at the time of waterproofing system application.

ASTM Method	Maximum Limit
ASTM F2170	75% Relative Humidity

Siplast does not perform moisture content evaluations. Most independent labs that provide services to design firms that utilize concrete in construction offer the above test. The final acceptance of the concrete substrate is the responsibility of the design authority and/or waterproofing contractor.

Adhesion Testing of Concrete Substrates

Adhesion testing is an excellent indicator of the presence of a weak surface cap (typically carbonated concrete) or unforeseen contaminants such as sealers, oils, or surface moisture that can affect adhesion of the primer layer, although it should not be relied upon as the sole means of evaluation. Adhesion testing is required for all concrete surfaces to be considered as a substrate for a Terapro System.

Adhesion to concrete is evaluated using a device conforming to ASTM D7234 that utilizes a 50-mm aluminum dolly. The concrete surface should be prepared using the same techniques of surface preparation that will be required, or at minimum, ground to a CSP 2 profile. The dolly is then adhered to the concrete deck surface using the applicable primer for the project. The adhesion value must exceed 220 psi to be considered acceptable.

The results of adhesion testing performed by Siplast personnel are strictly for informational purposes and should be evaluated by the design authority and waterproofing contractor to verify the accuracy, adequacy, and appropriateness of the results.

Preparation of Concrete Substrates

Concrete preparation methods should be chosen based upon how much of the surface requires removal and the desired concrete surface profile (CSP). For existing concrete substrates, core evaluation will provide the information needed to determine the amount (depth) of concrete to be removed from the surface. Concrete affected by carbonation and/or contamination must be removed in its entirety. Concrete surfaces should be prepared to a profile designated by the International Concrete Repair Institute (ICRI) as CSP 2 through CSP 4 if Pro Primer W or Pro Primer T is to be used and a CSP 3 if Pro Primer E will be used.

Preparation methods for concrete substrates include shotblasting, or scarification followed by shotblasting. Multiple passes with scarification and shot blasting equipment may be required to remove materials from the concrete surface and achieve the desired concrete preparation depth and surface profile. While grinding may be considered for preparation of concrete flashing substrates, it is important to note that generation of the desired surface profile using a grinder can prove difficult. Concrete preparation should be immediately followed by application of the appropriate Pro Primer without exception. Prolonged exposure of the prepared concrete surface to the elements or traffic conditions may result in contamination and such contamination can adversely affect Pro Primer adhesion.

Concrete Cracks and Joint Treatments

Before application of the Terapro VTS System, cracks and joints should be prepared and treated in accordance with Siplast details. Siplast recommendations for crack and joint preparation and treatment are intended to provide methods on a best effort basis to construct a watertight waterproofing system. Differential substrate movement at cracks and between divided areas can affect the aesthetics of Terapro surfacing components and potentially compromise long-term waterproofing performance. Dynamic (moving) cracks should be investigated, and the causes addressed, before system application. Mechanical expansion joint systems should be considered for treatment of structural expansion joints.

Substrate Leveling & Patching

Following preparation and priming with the appropriate Pro Primer (if required), low areas may be leveled using Pro Paste. Pro Mortar may be used for areas requiring a thickness in excess of 5 mm. See Section IX on page 15 for additional information on the use of Pro Paste and Pro Mortar.

Concrete & Masonry Walls

Masonry walls should be prepared in the same manner as concrete substrates. Terapro materials must not be applied over soft or scaling brick or masonry, faulty mortar joints, or walls with broken, damaged, or leaking coping. Siplast guarantees exclude leaks or damage to the Terapro System resulting from moisture entry through walls above the termination of the Terapro Flashing System.

VI. Measuring and Mixing Terapro and Pro Resins General Guidelines

Resins used in Terapro Waterproofing and Surfacing Systems are fast setting and should only be catalyzed as needed. Depending upon the resin type and ambient temperatures, the amount of catalyst needed will vary.

Mixing Terapro and Pro Resins

Thoroughly mix the entire drum of uncatalyzed Terapro or Pro Resin for 2 minutes prior to pouring off into a second container when batch mixing. This will redistribute liquids and solids that may have separated during storage. Terapro VTS Resin is combined with Terapro VTS Filler to create a wearing layer or waterproofing/wearing layer mixture. Terapro VTS Filler is added to Terapro VTS Resin and the mixture is then catalyzed with Pro Catalyst. Catalyze only the amount of resin/filler combination that can be used within the anticipated pot life. Add Pro Catalyst Liquid or Powder to the resin/filler combination. Stir for a minimum 2 minutes using a slow-speed mechanical agitator (a mixing stick can be used for small batches) before applying to the substrate.

Liquid Measure of Resins

The amount of Pro Catalyst Liquid or Powder that should be used is based on the weight of the uncatalyzed Terapro or Pro Resin. Resins have different volumes for the same

measure of weight. A portable, battery-operated scale is the most accurate means for field measuring resins and Pro Catalyst. When a scale is not available, the approximate liquid measure on the following chart may be used for field measurement of Terapro and Pro Resins.

Resin Type	Density Kilograms per liter	Volume liters per kilogram
Pro Primer T	1.0 kg/liter	1.0 liter/kg
Pro Primer W	1.0 kg/liter	1.0 liter/kg
Pro Primer E	1.09 kg/liter	0.92 liter/kg
Terapro Flashing Resin	1.4 kg/liter	0.72 liter/kg
Terapro Base Resin	1.4 kg/liter	0.72 liter/kg
Terapro VTS Resin	1.0 kg/liter	1.0 liter/kg
Pro Color Finish	1.0 kg/liter	1.0 liter/kg
Pro Paste	1.4 kg/liter	0.72 liter/kg

Pro Catalyst Mixing Ratios & Measurements

The amount of Pro Catalyst Liquid or Powder added to Terapro and Pro Resins is based on the weight (or associated volume) of the resin used, and varies with the ambient temperature and type of resin.

Measure of Pro Catalyst

Pro Catalyst Liquid is supplied in 10-cup containers and is measured using a culinary-type cup or a 1-tablespoon measuring spoon. A measuring cup and spoon are supplied with each container of Pro Catalyst Liquid.

Pro Catalyst Powder is supplied in a vented box containing ten pre-measured 0.1 kg (100 gram) bags for a total of 1 kilogram per box. A 1-tablespoon measuring spoon (10 grams) is included with each box of Pro Catalyst Powder.

Whenever possible, pre-measured bags of Pro Catalyst should be used for mixing.

The amount of Pro Catalyst Liquid or Powder added to Siplast PMMA resins should never be less than indicated in the mixing ratio tables. If resin mixed with the required catalyst does not offer sufficient pot life, the resin temperature may be too high.

All resins must be fully cured within 2 hours of installation. If the resin is not cured within 2 hours, the product has not been mixed properly, has been misapplied, or both, and must be re- moved in its entirety. The area should then be prepared and new product applied.

Terapro and Pro Resins may be field measured using the following conversions:

Pro Catalyst Liquid Mixing Charts

Pro Catalyst Liquid Mixing Chart Pro Primer T and Pro Primer W Resins						
Resin Quantity	2% Catalyst Ambient Temperature 77°F to 95°F (25°C to 35°C)		4% Catalyst Ambient Temperature 41°F to 77°F (5°C to 25°C)		6% Catalyst Ambient Temperature 32°F to 41°F (0°C to 5°C)	
	Tablespoons	Cups	Tablespoons	Cups	Tablespoons	Cups
1 kg (1 liter)	2	n/a	4	n/a	6	n/a
10 kg (10 liters)	n/a	1	n/a	2	n/a	3
Substrate temperature range for application of Pro Primer W, T, and R Resins is 32°F to 95°F (0°C to 35°C).						

Pro Catalyst Liquid Mixing Chart Pro Paste Resin						
Resin Quantity	Ambient Temperature 77ºF to 95ºF (25ºC to 35ºC)		Ambient Temperature 41ºF to 77ºF (5ºC to 25ºC)		Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)	
	Tablespoons	Cups	Tablespoons	Cups	Tablespoons	Cups
1.0 kg (1.0 liter)	2	n/a	4	n/a	6	n/a
Substrate temperature range for application of Pro Paste Resin is 32°F to 122°F (0°C to 50°C).						

Pro Catalyst Liquid Mixing Chart Summer Grade Terapro Base Resin and Terapro Flashing Resin				
Resin Quantity	Ambient Temperature 68ºF to 104ºF (20ºC to 40ºC)		Ambient Temperature 59ºF to 68ºF (15ºC to 20ºC)	
	Tablespoons	Cups	Tablespoons	Cups
1.0 kg (1.0 liter)	2	n/a	4	n/a
10.0 kg (10.0 liters)	n/a	1	n/a	2
20 kg (14.3 liters)	n/a	2	n/a	4
Substrate temperature range for application of Summer Grade Terapro Resins is 59°F to 122°F (15°C to 50°C).				

Pro Catalyst Liquid Mixing Chart Winter Grade Terapro Base Resin and Terapro Flashing Resin						
Resin Quantity	Ambient Temperature 59ºF to 68ºF (15ºC to 20ºC)		Ambient Temperature 41ºF to 59ºF (5ºC to 15ºC)		Ambient Temperature 23ºF to 41ºF (-5ºC to 5ºC)	
	Tablespoons	Cups	Tablespoons	Cups	Tablespoons	Cups
1.0 kg (1.0 liter)	2	n/a	4	n/a	6	n/a
10.0 kg (10.0 liters)	n/a	1	n/a	2	n/a	3
20 kg (14.3 liters)	n/a	2	n/a	4	n/a	6
Substrate temperature range for application of Winter Grade Terapro Resins is 23°F to 77°F (-5°C to 25°C).						

Pro Catalyst Liquid Mixing Chart Terapro VTS Resin/Filler (full batch with 10 kg of VTS Resin and full bag of VTS Filler)		
Ambient Temperature 77ºF to 95ºF (25ºC to 35ºC)	Ambient Temperature 41ºF to 77ºF (5ºC to 25ºC)	Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)
1 cup	2 cups	3 cups
Substrate temperature range for application of Terapro VTS Resin is 32°F to 122°F (0°C to 50°C).		

Pro Catalyst Liquid Mixing Chart Pro Color Finish						
Resin Quantity	Ambient Temperature 59ºF to 95ºF (15ºC to 35ºC)		Ambient Temperature 41ºF to 59ºF (5ºC to 15ºC)		Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)	
	Tablespoons	Cups	Tablespoons	Cups	Tablespoons	Cups
1 kg (1.0 liter)	2	n/a	4	n/a	6	n/a
10.0 kg (10.0 liters)	n/a	1	n/a	2	n/a	3
Substrate temperature range for application of Pro Color Finish is 32ºF to 95ºF (0ºC to 35ºC).						

Pro Catalyst Powder Mixing Charts

Pro Catalyst Powder Mixing Chart Pro Primer T and Pro Primer W Resins												
The amount of Pro Catalyst Powder used with Pro Primers varies from a minimum of 2% to 6% maximum by weight, depending upon the ambient temperatures as indicated in the following table:												
Resin Quantity	2% Catalyst Ambient Temperature 77ºF to 95ºF (25ºC to 35ºC)				4% Catalyst Ambient Temperature 41ºF to 77ºF (5ºC to 25ºC)				6% Catalyst Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)			
	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags
1.0 kg (1.0 liter)	20	0.02	2	n/a	40	0.04	4	n/a	60	0.06	6	n/a
5.0 kg (5.0 liters)	100	0.1	n/a	1	200	0.2	n/a	2	300	0.3	n/a	3
10.0 kg (10.0 liters)	200	0.2	n/a	2	400	0.4	n/a	4	600	0.6	n/a	6
Substrate temperature range for application of Pro Primer W and T Resins is 32ºF to 95ºF (0ºC to 35ºC).												

Pro Catalyst Powder Mixing Chart Summer Grade Terapro Base Resin and Terapro Flashing Resin								
The amount of Pro Catalyst Powder used with Summer Grade Resin varies from a minimum of 2% to 4% maximum by weight, depending upon the ambient temperatures as indicated in the following table:								
Resin Quantity	2% Catalyst Ambient Temperature 68ºF to 104ºF (20ºC to 40ºC)				4% Catalyst Ambient Temperature 59ºF to 68ºF (15ºC to 20ºC)			
	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp	0.1-kg Bags
1.0 kg (1.0 liter)	20	0.02	2	n/a	40	0.04	4	n/a
10.0 kg (7.2 liters)	200	0.2	n/a	2	400	0.4	n/a	4
20.0 kg (14.3 liters)	400	0.4	n/a	4	800	0.8	n/a	8
Substrate temperature range for application of Summer Grade Terapro Resins is 59°F to 122°F (15°C to 50°C).								

Pro Catalyst Powder Mixing Chart
Winter Grade
Terapro Base Resin and Terapro Flashing Resin

The amount of Pro Catalyst Powder used with Winter Grade Resin varies from a minimum of 2% to 6% maximum by weight, depending upon the ambient temperatures as indicated in the following table:

Resin Quantity	2% Catalyst Ambient Temperature 59ºF to 68ºF (15ºC to 20ºC)				4% Catalyst Ambient Temperature 41ºF to 59ºF (5ºC to 15ºC)				6% Catalyst Ambient Temperature 23ºF to 41ºF (-5ºC to 5ºC)			
	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags
1.0 kg (1.0 liter)	20	0.02	2	n/a	40	0.04	4	n/a	60	0.06	6	n/a
10.0 kg (7.2 liters)	200	0.2	n/a	2	400	0.4	n/a	4	600	0.6	n/a	6
20.0 kg (14.3 liters)	400	0.4	n/a	4	800	0.8	n/a	8	1200	1.2	n/a	12

Substrate temperature range for application of Winter Grade Resin is 23ºF to 77ºF (-5ºC to 25ºC).

Pro Catalyst Powder Mixing Chart
Terapro VTS Resin/Filler (full batch with 10 kg of VTS Resin and full bag of VTS Filler)

Ambient Temperature 77ºF to 95ºF (25ºC to 35ºC)			Ambient Temperature 41ºF to 77ºF (5ºC to 25ºC)			Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)		
g	kg	0.1-kg Bags	g	kg	0.1-kg Bags	g	kg	0.1-kg Bags
200	0.2	2	400	0.4	4	600	0.6	6

Substrate temperature range for application of Terapro VTS Resin is 32°F to 122°F (0°C to 50°C).

Pro Catalyst Powder Mixing Chart
Pro Color Finish

The amount of Pro Catalyst Powder used with Pro Color Finish varies from a minimum of 2% to 6% maximum by weight, depending upon the ambient temperatures as indicated in the following table:

Resin Quantity	2% Catalyst Ambient Temperature 59ºF to 95ºF (15ºC to 35ºC)				4% Catalyst Ambient Temperature 41ºF to 59ºF (5ºC to 15ºC)				6% Catalyst Ambient Temperature 32ºF to 41ºF (0ºC to 5ºC)			
	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags	g	kg	Tblsp.	0.1-kg Bags
1.0 kg (1.0 liter)	20	0.02	2	n/a	40	0.04	4	n/a	60	0.06	6	n/a
10.0 kg (10.0 liters)	200	0.2	n/a	2	400	0.4	n/a	4	600	0.6	n/a	6

Substrate temperature range for application of Pro Color Finish is 32ºF to 95ºF (0ºC to 35ºC).

VII. Pro Primer T and Pro Primer W Application

General Application Guidelines

Priming with catalyzed Pro Primer T Resin is required prior to application of Terapro VTS Systems where horizontal areas of concrete are to be treated. Pro Primer W is required for vertical concrete surfaces, over Pro Grid Reinforcement on horizontal concrete surfaces, and other substrates as outlined in the substrate preparation chart on page 4. Pro Primer E may be required for concrete substrates having a high moisture content. For specific priming requirements, refer to the substrate preparation chart on page 4 of this guide.

See the table below for ambient and substrate temperature limitations when applying Pro Primer T or Pro Primer W.

Ambient & Substrate Temperature Limitations Pro Primer T and Pro Primer W	
Minimum Ambient and Substrate Temperature	32°F (0°C)
Maximum Ambient and Substrate Temperature	95°F (35°C)

Discontinue primer application when the ambient and/or substrate temperature is outside of the range outlined above. In warm temperatures, shade the substrate for a sufficient period of time both prior to and during application, as necessary, to maintain substrate temperatures below 95°F (35°C).

Pro Primer W and Pro Primer T are applied with a roller and can be covered with Terapro Base Resin, Terapro Flashing Resin, or Terapro VTS Resin/Filler after the primer is cured, generally a minimum of 45 minutes following application.

Pro Primers should be applied when ambient and substrate temperatures are falling rather than rising to minimize the potential for pinholing. Pro Primer T and Pro Primer W can be exposed for up to 6 months. If work is interrupted for more than 12 hours, or the surface of the primer becomes dirty or contaminated from exposure to the elements, thoroughly clean the in-place and cured primer with Pro Prep or Pro Prep M. Pro Prep and Pro Prep M should be allowed a minimum of 20 minutes drying time after application before continuing. Following the drying time, the next application process should be completed within 1 hour.

Application Rates (minimum) Pro Primer T and Pro Primer W	
Pro Primer W over Wood, Plywood, Vertical Concrete and other Substrates Listed on page [--]	0.037 kg/sf (3.7 kg/sq) (0.4 kg/m²)
Pro Primer T over Horizontal Concrete	
Pro Primer W over Pro Grid Reinforcement loose laid on Horizontal Concrete	0.074 kg/sf (7.4 kg/sq) (0.8 kg/m²)

NOTE: Application rates will vary with substrate type, surface profile, and porosity. In all cases, a continuous film of cured primer is required prior to application of subsequent layers of Terapro and Pro resins. Increase the primer application rate over absorptive substrates such as cement boards.

Pot Life and Set/Cure Times for Pro Primer W and Pro Primer T

Pot life and set/cure times noted below are approximate and may vary with ambient conditions. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual pot life and set/cure times should be established in the field, based on actual field conditions.

Approximate Pot Life & Set/Cure Times at 68°F (20°C) Pro Primer T and Pro Primer W	
Pot Life	15 minutes
Rain Proof	25 minutes
Ready for Next Coat	45 minutes

NOTE: Pot life will be reduced if the resin or liquid/aggregate mixture is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the liquid resin and aggregate are at the low range of minimum storage temperature during/following catalyzation and prior to application. In warm temperatures, the substrate should be shaded for a sufficient period of time both prior to and during application, as necessary, to maintain substrate temperatures below published maximums.

VIII. Pro Primer E

General Information

Priming with Pro Primer E is required prior to application of Terapro Systems over approved concrete substrates where the moisture content is higher than that allowable for application of PMMA-based Pro Primers.

Mixing Pro Primer E

Pro Primer E is supplied in kit form that requires mixing in full kit quantities. Maintain Pro Primer E at a minimum of 60°F (15°C) at the time of mixing. Pierce a hole through the rubber membrane in the lid and continue through the bottom of the lid well. Ensure that Part B in the upper reservoir fully drains into the lower reservoir containing Part A – this may require several piercings. Stir mixture for 5 minutes using a Jiffy Mixer at low speed (approximately 300 rpm) to generate a homogeneous, streak-free consistency. Keep the mixer blades fully submerged during stirring to avoid trapping air. Pour the mixed material into a clean, secondary container and mix again for an additional 30 seconds. Ensure that the bottom and sides of the container are fully scraped to disperse any materials that may have settled.

Application of Pro Primer E

See the information below for ambient and substrate temperature limitations when applying Pro Primer E.

Ambient & Substrate Temperature Limitations Pro Primer E	
Minimum Ambient and Substrate Temperature	45°F (8°C)
Maximum Ambient and Substrate Temperature	95°F (35°C)

In warm temperatures, the substrate should be shaded for a sufficient period of time, as necessary, to maintain substrate temperatures below 95ºF (35ºC). Pro Primer E should always be applied when ambient and substrate temperatures are falling rather than rising to minimize the potential for the formation of pinholes in the applied primer. Ensure that the primer system will be protected from direct sunlight, wind, precipitation/condensation, and bond-inhibiting surface contaminants (dust, dirt and tear-off debris) during the curing process.

Prior to application of Pro Primer E, wet the qualified and prepared concrete substrate and ensure that it is in a saturated-surface-dry (SSD). Saturated-surface-dry is a condition in which the substrate is wetted but no standing or ponding water is present. Pro Primer E is applied with a brush or roller. Following application, use a brush to scrub the primer into the concrete surface. Follow the scrubbing process by using a non-shed roller to ensure that the Pro Primer E is distributed evenly and that there is a continuous layer of primer. The use of a spiked roller is recommended if outgassing is experienced. Allow the primer to cure for 12 hours. Pro Primer E must be overlaid with catalyzed Terapro resins within 48 hours of primer application without exception. Thoroughly clean the Pro Primer E surface with warm water or Pro Prep or Pro Prep M prior to application of Terapro or Pro resins. Allow the water and/or Pro Prep or Pro Prep M to fully dry before application of Terapro or Pro resins.

Application Rates (minimum) Pro Primer E	
Pro Primer E over approved concrete substrate having an internal RH of up to 75%	0.032 kg/sf (3.2 kg/sq) (0.35 kg/m²)
Pro Primer E over approved concrete substrate having an internal RH of 75% to 100%	0.046 kg/sf (4.6 kg/sq) (0.5 kg/m²)

NOTE: Application rates vary with substrate type, surface profile, and porosity. In all cases, a continuous film of cured primer is required prior to application of subsequent layers of Terapro or Pro resins.

Pro Primer E Pot Life, Set/Cure Times and Maximum Exposure Times

Pot life and set/cure times noted below are approximate and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual pot life, set/cure times and pot life should be established in the field, based on actual field conditions. The maximum exposure time of Pro Primer E should not be exceeded.

Pot Life & Set/Cure Times Pro Primer E	
Pot Life (approx.)	30 minutes
Typical Set/Cure Time for Pro Primer E prior to application of Terapro or Pro Resins (typical)	12 hours
Maximum exposure time prior to application of Terapro or Pro Resins	48 hours

IX. Pro Paste Resin and Pro Mortar

Pro Paste Resin and Pro Repair Mortar – General Information

Pro Paste Resin is a PMMA-based paste used for remediation of depressions in substrate surfaces or other irregularities prior to application of the Terapro System.

Pro Mortar consists of separate resin and aggregate components that are mixed to create a concrete patching product. Pro Mortar has a compressive strength similar to that of structural concrete. Approved concrete substrates are prepared and primed using the appropriate Pro Primer prior to application of Pro Paste.

The resin and/or aggregate/resin mixture itself should be within storage temperature guidelines at the time of catalyzation to ensure that the product maintains a workable pot life. Discontinue application when ambient or substrate temperatures are outside of published acceptable ranges.

Provide adequate shade over the substrate area both prior to and during application as necessary to maintain surface temperatures below the maximum.

Pro Paste Resin and Pro Repair Mortar, as with all Terapro and Pro resin products, may require the application of a Pro Primer product before application. See the table on page 4 for specific substrate preparation guidelines.

Pro Paste and Pro Mortar are typically applied by trowel and can be covered with Pro Primer, the Terapro Flashing System, or the Terapro System after the Pro Paste or Pro Mortar is set.

Application of Pro Paste and Pro Mortar

See the information below for ambient and substrate temperature limitations when applying Pro Paste and Pro Mortar.

Ambient & Substrate Temperature Limitations Pro Paste and Pro Mortar	
Ambient Temperature Range	32°F to 95°F (0°C to 35°C)
Substrate Temperature Range	32°F to 122°F (0°C to 50°C)

When Pro Paste or Pro Mortar are to be applied over a Pro or Terapro product, thoroughly clean the surface of the in- place resin product with Pro Prep or Pro Prep M. This step is required even if the Pro or Terapro product has been recently applied. Pro Prep or Pro Prep M should be allowed a minimum of 20 minutes of drying time after application before continuing. Following the Pro Prep or Pro Prep M drying time, complete the Pro Paste or Pro Mortar application process within 1 hour.

Due to its porosity, catalyzed Pro Mortar should not be exposed to precipitation or allowed to be exposed overnight. If Pro Mortar will not be overlaid with the Terapro System immediately following application, seal the surface using Pro Primer W or Pro Primer T at a minimum rate of 0.037 kg/sf (3.7 kg/sq) (0.4 kg/m^2).

Application/Coverage Rates (approximate) and Maximum Thickness per Lift Pro Paste	
Application rate per 1 mm of thickness	0.13 kg/sf (1.4 kg/m^2)
Maximum Thickness per Lift	5 mm (3/16”)

Yield Per Unit and Minimum/Maximum Thickness per Lift Pro Mortar	
Yield per Unit (one pail of Pro Mortar and two bags of Pro Mortar Aggregate)	10 board feet
Minimum Thickness per Lift	3/16” (5 mm)
Maximum Thickness per Lift	2” (50 mm)

Pro Paste and Pro Mortar Pot Life and Set/Cure Times

Pot life and set/cure times noted below are approximate and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual pot life, set/cure times and pot life should be established in the field, based on actual field conditions.

Pot Life & Set/Cure Times at 68ºF (20ºC) Pro Paste	
Pot Life	15 minutes
Rain Proof	30 minutes
Ready for Next Coat	1 hour
Pro Mortar	
Ready for Next Coat	45 minutes
Stress Resistant	1 hour

NOTE: Pot life will be reduced if the resin or resin/aggregate mixture is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the liquid resin and aggregate are at the low range of minimum storage temperature during/following catalyzation and prior to application. Minimum set times noted above are approximate and may vary. The information provided is based on laboratory conditions and is intended for use as a guideline only. Actual set/cure times should be established in the field, based upon actual field conditions.

X. Pro Fleece Reinforcement Resin

Pro Fleece is a polyester fleece reinforcement layer used in Terapro Flashing Systems and Terapro Waterproofing Systems over occupied (interior) spaces and is also used for joint/crack treatment. Pro Fleece Reinforcement is required for all flashing applications and for field applications on projects where guarantee coverage beyond 15 years is specified.

Pro Fleece Sizes

Rolls of Pro Fleece are available in three widths: 41-inch (1050 mm) for use in construction of the Terapro VTS Waterproofing System, and 12-inch (315 mm) and 25-inch (630 mm) for use in in construction of the Terapro Flashing System.

XI. Pro Grid Reinforcement

Pro Grid Reinforcement is a fiberglass scrim reinforcement layer used in field applications of Terapro Waterproofing Systems over occupied (interior) spaces.

Pro Grid Sizes

ProGrid Reinforcement is available in a 47-inch (1194 mm) wide roll for use in construction of the Terapro VTS Waterproofing System.

XII. Terapro Flashing System

Terapro Flashing System – General Application Guidelines

Terapro Flashing Resin, when catalyzed, is combined with Pro Fleece to form a monolithic, reinforced flashing membrane used for flashing details. Terapro Flashing Resin is available in two formulations: Summer Grade and Winter Grade. Care should be taken to ensure that the correct formulation of Terapro Flashing Resin (Summer Grade or Winter Grade) is chosen for the application based upon the ambient temperature. All flashing/penetration applications installed in conjunction with the Terapro Waterproofing and Surfacing System must be completed prior to the field waterproofing membrane application.

See the information below for ambient and substrate temperature limitations when applying Terapro Flashing Resin.

Ambient & Substrate Temperature Limitations Terapro Flashing Resin	
Summer Grade Terapro Flashing Resin Ambient Temperature Range	59°F to 95°F (15°C to 35°C)
Summer Grade Terapro Flashing Resin Substrate Temperature Range	59°F to 122°F (15°C to 50°C)
Winter Grade Terapro Flashing Resin Ambient Temperature Range	23°F to 68°F (-5°C to 20°C)
Winter Grade Terapro Flashing Resin Substrate Temperature Range	23°F to 77°F (-5°C to 25°C)

NOTE: Discontinue resin application when the ambient and/or substrate temperatures are outside of the ranges listed above. In warm temperatures, the substrate should be shaded for a sufficient period of time both prior to and during application, as necessary, to maintain substrate temperatures below published minimums.

An even, generous base coat of catalyzed Terapro Flashing Resin is applied to the substrate with a roller or brush. Pro Fleece reinforcement is worked into the wet, catalyzed Terapro Flashing Resin base coat using a roller or brush to fully embed the fleece into the resin and remove trapped air. Overlap Pro Fleece a minimum of two inches (51 mm). An additional coat of catalyzed Terapro Flashing Resin must be placed between all layers of overlapping fleece. Extend catalyzed Terapro Flashing Resin a maximum of 1/4-inch beyond the Pro Fleece reinforcement. Apply an even, generous top coat of catalyzed Terapro Flashing Resin immediately following embedment of the Pro Fleece to ensure full saturation of the fleece reinforcement.
If work is interrupted for more than 12 hours, or the surface of the catalyzed Terapro Flashing Resin becomes dirty or contaminated from exposure to the elements, thoroughly clean the transition area with Pro Prep or Pro Prep M. Pro Prep and Pro Prep M should be allowed a minimum of 20 minutes drying time after application before continuing work. Following the drying time, the next application process should be completed within 1 hour.

See Section XV – Summary of Application Rates and Unit Coverage on page 21 for Terapro Flashing Resin application rates and coverage per unit.

Terapro Flashing Resin Pot Life and Set/Cure Times

Pot life and set/cure times noted below are approximate, and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Actual pot life and set/cure times should be established in the field, based on actual field conditions.

Approximate Pot Life & Set/Cure Times at 68°F (20°C) Terapro Flashing Resin	
Pot Life	15 minutes
Rain Proof	30 minutes
Ready for Next Coat	45 minutes
Ready for Foot Traffic	2 hours

NOTE: Pot life will be reduced if the resin or liquid/aggregate mixture is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the liquid resin and aggregate are at the low range of minimum storage temperature during/following catalyzation and prior to application. Minimum set times noted above are approximate and may vary. The information provided is based on laboratory conditions and is intended for use as a guideline only. Actual set/cure times should be established in the field, based upon actual field conditions.

XIII. Terapro Flashing System – Application Images

Using tape, mask the perimeter of the area to be flashed to ensure a clean edge. Prime the substrate with Pro Primer W or Pro Primer T (depending on substrate) and allow to cure for 45 minutes.

Over the primed substrate, apply a base coat of catalyzed Terapro Flashing Resin at with a roller or brush. Work Pro Fleece reinforcement into the wet, catalyzed flashing resin base coat using a roller or brush to fully embed the fleece in the resin and remove trapped air.

Apply an even top coat of Terapro Flashing Resin immediately following embedment of the fleece to ensure full saturation of the fleece. Remove tape before the resin sets.

XIV. Terapro VTS Waterproofing System

General Application Guidelines

Terapro Base Resin, when catalyzed, forms the waterproofing layer in a fleece reinforced Terapro VTS Waterproofing System. Terapro Base Resin is available in two formulations: Summer Grade and Winter Grade. Terapro VTS, when catalyzed and blended with Terapro VTS Filler, serves as the wearing layer in a fleece reinforced Terapro VTS Waterproofing System and serves as the waterproofing and wearing layer in an unreinforced or grid reinforced quartz-surfaced Terapro VTS Waterproofing System. Terapro VTS Quartz is broadcast over the wet Terapro VTS Resin/Filler Layer and the system then receives a layer of Pro Color Finish with optional Pro Accent Chips. All flashing applications are to be completed before application of the Terapro VTS System field membrane.

See the information below for ambient and substrate temperature limitations when applying Terapro Base Resin, Terapro VTS Resin/Filler and Pro Color Finish.

Ambient & Substrate Temperature Limitations Terapro Base Resin	
Summer Grade Terapro Base Resin – Ambient Temperature Range	59°F to 95°F (15°C to 35°C)
Summer Grade Terapro Base Resin – Substrate Temperature Range	59°F to 122°F (15°C to 50°C)
Winter Grade Terapro Base Resin – Ambient Temperature Range	23°F to 68°F (-5°C to 20°C)
Winter Grade Terapro Base Resin – Substrate Temperature Range	23°F to 77°F (-5°C to 25°C)

Ambient & Substrate Temperature Limitations Terapro VTS Resin/Filler	
Terapro VTS Resin/Filler – Ambient Temperature Range	32ºF to 95ºF (0ºC to 35ºC)
Terapro VTS Resin/Filler – Substrate Temperature Range	32ºF to 122ºF (0ºC to 50ºC)

Ambient & Substrate Temperature Limitations Pro Color Finish	
Pro Color Finish – Ambient and Substrate Temperature Range	32ºF to 95ºF (0ºC to 35ºC)

NOTE: Ambient and substrate temperatures should be monitored on a regular basis. Discontinue resin application when the ambient and/or substrate temperatures are outside of the ranges listed above. In warm temperatures, the substrate should be shaded for a sufficient period of time both prior to and during application, as necessary, to maintain substrate temperatures below published minimums.

Application Guidelines – Fleece Reinforced Terapro VTS Systems

After priming with the appropriate Pro Primer and treatment of joints/cracks, apply an even, generous waterproofing layer of catalyzed Terapro Base Resin to the substrate with a stub roller. Pro Fleece reinforcement is then worked into the wet, catalyzed Terapro Base Resin waterproofing layer using a roller to fully embed the fleece in the resin and remove trapped air. At side and end laps, overlap Pro Fleece a minimum of 2 inches (51 mm). Apply an additional coat of catalyzed Terapro Base Resin between all layers of overlapping fleece. Apply an even, generous top coat of catalyzed Terapro Base Resin immediately following embedment of the fleece to ensure full saturation of the fleece reinforcement. Allow the waterproofing layer of Terapro Base Resin to cure for a minimum of 45 minutes before application of the Terapro VTS Resin/Filler mixture.

After the reinforced Terapro Base Resin has cured, the Terapro VTS Resin/Filler mixture is trowel-applied or applied using a stub roller. An 18” wide pin/spiked roller is then rolled over the applied mixture to ensure even distribution of the mixture and to reduce trowel or roller marks. Immediately after rolling the mixture, broadcast Terapro VTS Quartz into the VTS Resin/Filler mixture before the mixture sets (cures). Allow the wearing layer of Terapro VTS Resin and Terapro VTS Quartz to cure for a minimum of 1 hour before application of the next layer of resin. Remove excess Terapro VTS Quartz prior to application of the Pro Color Finish.

Apply Pro Color Finish as the finish layer. Allow the system to cure for 2 hours before exposure to foot or vehicular traffic.

See Section XV – Summary of Application Rates and Unit Coverage on page 21 for application rates and coverage per unit.

Application Guidelines – Grid Reinforced Terapro Systems:

Loose lay a layer of Pro Grid Reinforcement over the prepared concrete substrate. Prime the prepared concrete substrate and Pro Grid Reinforcement using Pro Primer W. After priming, the Terapro VTS Resin/Filler mixture is trowel-applied or applied using a stub roller. An 18” wide pin/spiked roller is then rolled over the applied mixture to ensure even distribution of the mixture and to reduce trowel or roller marks. Immediately after rolling the mixture, broadcast Terapro VTS Quartz into the VTS Resin/Filler mixture before the mixture sets (cures). Allow the wearing layer of Terapro VTS Resin and Terapro VTS Quartz to cure for a minimum of 1 hour before application of the next layer of resin. Remove excess Terapro VTS Quartz prior to application of the Pro Color Finish.

Note: Epoxy primer should only be used in conjunction with Grid Reinforced Terapro Waterproofing Systems to prepare concrete substrates with a moisture value greater than 75% relative humidity in accordance with ASTM F2170. Epoxy primer is not approved for embedment of grid reinforcement and should only be used in addition to Pro Primer W in such applications.

Apply Pro Color Finish as the finish layer. Allow the system to cure for 2 hours before exposure to foot or vehicular traffic.

See Section XV – Summary of Application Rates and Unit Coverage on page 21 for application rates and coverage per unit.

Application Guidelines – Unreinforced Terapro Systems:

After priming with the appropriate Pro Primer and treatment of joints/cracks, the Terapro VTS Resin/Filler mixture is trowel-applied or applied using a stub roller. An 18” wide pin/spiked roller is then rolled over the applied mixture to ensure even distribution of the mixture and to reduce trowel or roller marks. Immediately after rolling the mixture, broadcast Terapro VTS Quartz into the VTS Resin/Filler mixture before the mixture sets (cures). Allow

the wearing layer of Terapro VTS Resin and Terapro VTS Quartz to cure for a minimum of 1 hour before application of the next layer of resin. Remove excess Terapro VTS Quartz prior to application of the Pro Color Finish.

Apply Pro Color Finish as the finish layer and if Pro Accent Chips are utilized, immediately broadcast the chips onto the wet finish layer surface using a hopper gun to generate the desired aesthetic. Allow the system to cure for 2 hours before exposure to foot traffic.

See Section XV – Summary of Application Rates and Unit Coverage for application rates and coverage per unit.

Terapro Base Resin, Terapro VTS Resin and Pro Color Finish Pot Life and Set/Cure Times

Pot life and set/cure times noted below are approximate, and may vary. The information provided is based on laboratory conditions, and is intended for use as a guideline only. Pot life will be reduced if the resin or liquid/aggregate mixture is at higher temperatures. Pot life can be maximized by storing product under controlled conditions and ensuring that the liquid resin and aggregate are at the low range of minimum storage temperature during/following catalyzation and prior to application.

Pot Life & Set/Cure Times ((approx.) at 68°F (20°C)) Terapro Base Resin, Terapro VTS Resin/Filler and Pro Color Finish	
Pot Life	15 minutes
Rain Proof	30 minutes
Ready for Next Coat (Terapro Base Resin and Pro Color Finish)	45 minutes
Ready for Next Coat (Terapro VTS Resin/Filler)	1 hours
Ready for Foot or Vehicular Traffic	2 hours

NOTE: Actual pot life and set/cure times should be established in the field, based upon actual field conditions.

XV. Summary of Application Rates and Unit Coverage

Terapro Flashing Resin Application Rates				
Layer	Application Rate* (min)			Coverage per Unit**
	kg/ft²	liter/ft²	kg/m²	ft²
Pro Primer W and Pro Primer T	0.037	0.037	0.4	270 ft² per 10-kg pail
Pro Primer E	See Section VIII (Pro Primer E)			
Terapro Flashing Resin – Base Coat	0.19	0.13	2	n/a
Terapro Flashing Resin – Top Coat	0.12	0.09	1.3	n/a
Terapro Flashing Resin – Total	0.31	0.22	3.3	32 ft² per 10-kg pail

NOTE: Application rates are listed as minimum values. Resin may require an increased rate over porous substrates or those having a rough profile to ensure complete coverage and thickness.

Fleece Reinforced Terapro VTS System				
Layer	Application Rate* (min)			Coverage per Unit*
	kg/ft²	kg/sq	kg/m²	ft²
1. Concrete Substrate				
2. Primer Layer – Pro Primer T	0.037	3.7	0.4	270 ft² per 10-kg pail
Primer Layer – Pro Primer E	See Section VIII (Pro Primer E)			
3. Waterproofing Layer #1 Terapro Base Resin	0.19	18.6	2.0	n/a
4. Reinforcing Fleece – Pro Fleece				560 ft² per 41" roll
5. Waterproofing Layer #2 Terapro Base Resin	0.09	9.0	1.0	n/a
Terapro Base Resin Total of Layer #1 + Layer #2	0.028	28	3	36 ft² per 10-kg pail
6. Wearing Layer – Terapro VTS Resin and VTS Filler Mixture	0.45	45	4.8	72 ft² per 10-kg pail and bag of Terapro VTS Filler
7. Surfacing – Terapro VTS Quartz	0.465	46.5	5	50 ft² per 50-lb bag
8. Finish Layer – Pro Color Finish	0.06	6	0.65	166 ft² per 10-kg pail

Grid Reinforced Terapro VTS System				
Layer	Application Rate* (min)			Coverage per Unit*
	kg/ft²	kg/sq	kg/m²	ft²
1. Concrete Substrate				
2. Pro Grid Reinforcement				1,762 ft² per 47" roll
3. Primer Layer – Pro Primer W	0.074	7.4	0.8	135 ft² per 10-kg pail
4. Waterproofing/Wearing Layer – Terapro VTS Resin and VTS Filler Mixture	0.45	45	4.8	72 ft² per 10-kg pail and bag of Terapro VTS Filler
5. Surfacing – Terapro VTS Quartz	0.465	46.5	5	50 ft² per 50-lb bag
6. Finish Layer – Pro Color Finish	0.06	6	0.65	166 ft² per 10-kg pail

Unreinforced Terapro VTS System				
Layer	Application Rate* (min)			Coverage per Unit*
	kg/ft²	kg/sq	kg/m²	ft²
1. Concrete Substrate				
2. Primer Layer – Pro Primer T	0.037	3.7	0.4	270 ft² per 10-kg pail
Primer Layer – Pro Primer E	See Section VIII (Pro Primer E)			
3. Waterproofing/Wearing Layer – Terapro VTS Resin and VTS Filler Mixture	0.45	45	4.8	72 ft² per 10-kg pail and bag of Terapro VTS Filler
4. Surfacing – Terapro VTSl Quartz	0.465	46.5	5	50 ft² per 50-lb bag
5. Finish Layer – Pro Color Finish	0.06	6	0.65	166 ft² per 10-kg pail

XVI. Reinforced Terapro VTS System Application Images

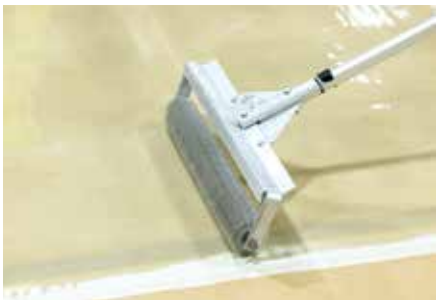
Primer and Waterproofing Components

Priming
Over the prepared concrete substrate, apply the applicable Pro Primer using a roller.

Waterproofing Layer #1
Apply a base layer of Terapro Base Resin using a stub roller.

Fleece Reinforcement
Install a layer of Pro Fleece into the wet Terapro Base Resin and use a roller to embed the fleece into the resin and to remove trapped air. Utilize a minimum 2-inch overlap between overlapping sheets of fleece. An additional coat of Terapro Base Resin must be placed between all layers of overlapping fleece.fleece.

Waterproofing Layer #2
Using a roller, apply a top coat of Terapro Base Resin immediately following embedment of the Pro Fleece to ensure full saturation of the fleece reinforcement. Allow to cure for 45 minutes.



Wearing Layer
Apply Terapro VTS Resin/Filler mixture using a trowel or stub roller and follow up with a spiked roller.

Surfacing
Immediately broadcast Terapro VTS Quartz to refusal into the Terapro VTS wearing layer. Allow to cure for 2 hours and sweep away loose/excess quartz.

Color Coat
Install a layer of Pro Color Finish using a roller over the Terapro VTS Quartz.

XVII. Grid Reinforced Terapro VTS System Application Images

Grid Reinforced System Application: Primer and Grid Reinforcement Components

Grid Application
Loose lay a layer of Pro Grid Reinforcement over the prepared substrate, butting sides and ends.

Primer Application
Prime the prepared concrete substrate and grid reinforcement using catalyzed Pro Primer W at the rate of 0.074 kg/sf (0.8 kg/m^2). Allow the Pro Primer W resin to cure for a minimum of 45 minutes.

Resin Application
Apply catalyzed Terapro VTS Resin/Filler mixture evenly over the previously applied reinforced primer layer using a trowel or stub roller at the rate of 0.45 kg/sf (4.8 kg/m^2).

Resin Application
Immediately following the application of the Terapro VTS Resin/Filler and while the resin is wet, use a spiked roller to smooth and level the surface.

Surfacing
Following the spiked roller and while the Terapro VTS Resin/Filler mixture is still wet, broadcast Terapro VTS Quartz into the wet Terapro VTS Resin/Filler until refusal. Allow the Terapro VTS Resin/Filler to cure for 2 hours and sweep and remove loose/ excess quartz.

Color Coat
Apply a smooth, even layer of catalyzed Pro Color Finish using a roller.

XVIII. Unreinforced Terapro VTS System Application Images

Grid Reinforced System Application: Primer and Grid Reinforcement Components

Priming
Prime the prepared concrete substrate with Pro Primer T at a minimum rate of 0.037 kg/sf – 3.7 kg/sq (0.4 kg/m²). Allow to cure for 45 minutes.

Waterproofing / Wearing Layer
Apply Terapro VTS Resin/Filler mixture using a trowel or stub roller at a minimum rate of 0.45 kg/sf – 45 kg/sq (4.8 kg/m²). Follow up with a spiked roller over the entire surface.

Surfacing Application
Immediately embed a full covering of VTS Quartz into the Terapro VTS waterproofing layer at a minimum rate of 0.465 kg/sf – 46.5 kg/sq (5.0 kg/m²). Allow to cure for 2 hours.

Color Coat
Sweep away loose excess VTS quartz. Install a layer of Pro Color Finish at a minimum rate of 0.07 kg/sf – 7 kg/sq (0.75 kg/m²).

The finished application is ready for vehicular traffic after 3 hours..

With you every step of the way

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