Pro Primer E

siplast®

Installer's Guide Supplement

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I. Product Overview

Siplast Pro Primer E is a 2-component, low viscosity, low odor, solvent free, epoxy-based primer that is used for projects that have low-odor requirements and/or where concrete substrate moisture levels exceed those allowable for Siplast PMMA primers.

Weather Restrictions

Do not apply Pro Primer E if there is a threat of precipitation or the ambient or substrate temperature is within 5ºF of the dew point. Ambient and substrate temperatures affect the application of Pro Primer E and temperature guidelines and restrictions are noted in this supplement.

II. Personal Protection & Safety

Refer to the Safety Data Sheet (SDS) for Pro Primer E for PPE and safety information.

III. Storage

Store Pro Primer E indoors in closed containers in a well ventilated, cool dry area away from heat, open flame and direct sunlight. Materials stored on a job site should be kept on a pallet in a shaded, well-ventilated area.

Shelf life of Pro Primer E is 24 months from date of production as indicated on containers.

IV. Installation Materials, Tools, and Equipment

Substrate Preparation

- Blower, vacuum, and broom
- Drum scarifier (always followed-up with shotblast)
- Shot blaster with dust collector / air-pulse compressor
- Hand grinder with carbide disk or other appropriate abrasive wheel

Mixing

- Variable speed drill with ½-inch chuck
- Jiffy Mixer (appropriately sized to allow for full submersion of blades)
- Secondary mixing container

Application

- Infrared thermometer (substrate temperature)
- Conventional thermometer (ambient temperature)
- Squeegee (notched)
- Brush (for scrubbing epoxy into substrate surface)
- Non-shed roller (3/8” nap)

V. Substrate Requirements and Preparation

General Substrate Requirements

All substrates must be free from gross irregularities, loose/unsound/foreign material (such as dirt, ice, snow, grease, bitumen, oil, release/curing/waterproofing agents, paint/coatings), or any other condition/material that may prove detrimental to adhesion of the primer to the substrate. Concrete and masonry surfaces require preparation to generate a substrate suitable for primer application.

Concrete Substrate Requirements

The concrete substrate must have a minimum compressive strength of 3500 psi (25 N/mm^2) and provide for bottom-side venting. Moisture content should be determined as outlined on page 6. Concrete moisture content will dictate application rates of Pro Primer E (see page 6).

Concrete substrates that do not meet Siplast standard guidelines to receive Pro Primer E are listed below.

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Split-slabs with between-slab membrane.
Slab-on-grade construction.
Concrete placed over a metal pan.
Concrete utilizing porous aggregate.
Pre-cast concrete panel construction without a topping slab (including pre-cast “T” or “double-T”s).
Concrete that has been treated with curing or waterproofing agents, including unreacted silicates or soluble salts.
Concrete that has been affected by alkaline silica reaction (ASR).
Concrete that has been previously waterproofed with, or contaminated by, hydrocarbon-based organic materials such as coal tar, asphalt or paving asphalt, or soluble salts.

New Concrete Pours

The mix design for new concrete pours should be submitted to Siplast for review prior to placement. Concrete should be wet-cured if required. Concrete to be primed with Pro Primer E should not be treated with curing agents, components, or waterproofing admixtures of any kind.

Existing Concrete Substrates

Existing concrete substrates should be cored and evaluated by an accredited lab. The number of cores should be sufficient to provide a representation of all areas to be waterproofed. Testing procedures should include ion chromatography and infrared spectroscopy. The depth of carbonation should also be measured to ensure that the entire carbonated cap can be removed during surface preparation. The presence of contaminants, damaged concrete, or ASR may affect adhesion of the primer layer. Contaminants include hydrocarbons or other organic compounds, unreacted silicates, or soluble salts. The lab performing testing should provide an executive summary that outlines findings. Reviewing the performance of an existing coating, waterproofing or roofing system is also recommended when evaluating a concrete substrate. If blistering or loss of adhesion 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 installed.

Moisture Content Guidelines – Concrete Substrates

Knowing the moisture content of a concrete substrate is critical in generating a scope of work for a particular project. The moisture content will dictate the application rate for Pro Primer E. Siplast recommends measuring moisture content in concrete substrates using ASTM F2170 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes". This method requires drilling holes into the concrete slab followed by placement of sealed sleeves. Relative humidity levels within the slab are then measured over a specified period of time. The depth of the void (hole) allows for a better understanding of the average moisture content throughout the substrate, rather than simply measuring near-surface moisture content values. An alternative for evaluating moisture content is ASTM F1869 "Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride". This is a non-destructive test method that measures moisture movement through a concrete slab. Relative humidity and calcium chloride testing require specific ambient conditions for the testing period. This may preclude performing moisture testing under hot, cold or wet weather conditions. Siplast does not perform moisture content testing. Siplast recommends that moisture testing be performed by an ICRI certified Concrete Slab Moisture Testing Technician (CCMTT). The choice of the test method and final acceptance of the concrete substrate is the responsibility of the design authority and/or waterproofing contractor. Siplast recommends retention of all testing results as well as documenting locations where testing was performed.

Pull-off and Water Droplet Testing - Concrete Substrates

Pull-off (adhesion) testing can be used to identify a weak surface cap or the presence of contaminants that may affect primer adhesion. Pull-off testing is performed using a device outlined in ASTM D7234. The concrete is first prepared using the same technique proposed for the overall project, or at a minimum, a CSP 3. A 50 mm dolly is then set over the prepared substrate in a full bed of the primer and allowed to cure. Pull-off testing should provide a minimum value of 220 psi to be considered acceptable.

Water droplet testing is performed by simply placing a droplet of water over the prepared concrete surface. If the water droplet beads and resists absorption, it is a sign that the primer may not penetrate the substrate and additional concrete evaluation/preparation is required. If the bead penetrates the concrete within 30 seconds, the concrete is absorptive.

It is important to note that the pull-off and water droplet testing should not be relied upon as a substitute for pretesting of concrete cores.

Preparation of Concrete Substrates

Concrete preparation methods should be chosen based upon how much of the concrete surface must be removed and the desired concrete surface profile (CSP). For existing concrete substrates, core testing will provide the information needed to determine the amount (depth) of concrete to be removed from the surface. The carbonated cap and any concrete affected by contaminants must be removed in its entirety. Concrete surfaces should be prepared to a profile designated by the International Concrete Repair Institute (ICRI) as CSP 3. Preparation methods include shotblasting or scarification followed by shotblasting. Multiple passes with a scarifier or shotblaster may be required to remove foreign materials from the concrete surface, achieve the desired depth of preparation and generate a CSP 3. Siplast does not recommend the use of a scarifier as the sole means of surface preparation. While grinding may be considered for

preparing concrete flashing substrates, it is important to note that generation of a CSP 3 can prove difficult and requires significant effort. Acid etching is not approved under any circumstances. Concrete preparation must be immediately followed by application of the primer. Exposure of the prepared concrete surface to the elements or traffic may result in contamination that can adversely affect primer adhesion.

Concrete Cracks and Joint Treatments

Cracks and joints should be prepared and treated in accordance with Siplast details. Differential substrate movement at cracks and between divided areas can affect the aesthetics of a Parapro or Terapro System as well as potentially compromise long-term water-tight integrity. Dynamic (moving) cracks should be investigated, and the cause(s) addressed, before primer and roofing/waterproofing system application. Siplast details and recommendations for crack and joint preparation/treatment are intended to provide methods on a best-effort basis to construct a watertight roofing or waterproofing system. Mechanical expansion joint systems should be considered for waterproofing structural expansion joints.

Concrete & Masonry Walls

Masonry and concrete walls should be prepared in the same manner as horizontal concrete substrates. While grinding may be considered for preparing concrete flashing substrates, it is important to note that generation of the desired CSP can prove difficult. The glaze on tile and brick substrates should

VI. Measuring & Mixing Pro Primer E

General Measuring & Mixing Guidelines

Pro Primer E should only be mixed when it can be applied immediately.

- Pro Primer E should be a minimum of 60ºF (15ºC) at the time of mixing.
- Use the proper personal protection when handling and mixing Pro Primer E.
- Pro Primer E should only be mixed in full batch quantities.
- Do not alter mixing ratios.
- Do not thin or extend Pro Primers.
- Do not fill Pro Primer E with rheology modifiers such as fumed silica.

Mixing Pro Primer E

Pro Primer E is supplied in kit form that requires mixing in full batch quantities.

1. 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.
2. 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. Ensure that the bottom and sides of the container are fully scraped to disperse any materials that may have settled.

3. Pour the mixed material into a clean, secondary container and mix again for an additional 30 seconds.

VII. Application of Pro Primer E

General Application Guidelines

Priming with a Pro Primer is required prior to application of Parapro Roofing/Flashing Systems and Terapro Waterproofing/Flashing Systems over qualified/prepared concrete substrates.

Pro Primer E may be applied when the ambient and substrate temperatures are between 45ºF (8ºC) and 95ºF (35ºC). Pro Primers 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.

Mixing Pro Primer E

1. Perform the water droplet test as described on page 3.

2. Wet the qualified/prepared concrete substrate and ensure that it is in a saturated-surface-dry (SSD) condition. Saturated-surface-dry is a condition in which the substrate is wetted but no standing/ponding water should be present.

3. Pour Pro Primer E in sufficient quantity (see chart on page 6 for minimum application rates) over the area to be treated and uniformly distribute using a notched squeegee.

4. Use a long-handled scrub brush to scrub the primer into the concrete surface.

5. Follow the scrubbing process by using a non-shed roller to ensure that the Pro Primer E is distributed evenly.

6. Measure primer layer using a wet mil gauge.

7. If primer fully absorbs into the concrete substrate, or dry spots are visible, an additional layer will be required.

8. Allow the primer to cure for 12 hours.

9. Carefully inspect the cured Pro Primer E. The primed substrate should exhibit a smooth surface, free from dry areas, outgassing channels and pinholes. If dry areas, outgassing channels or pinholes are found, sand the surface, clean with hot water, allow to dry, and apply an additional layer of Pro Primer E. Failure to address dry areas, outgassing channels and pinholes may result in blistering of the Parapro or Terapro System.

10. Application of the Parapro Roofing or Terapro Waterproofing System must be initiated within 48 hours of application of the Pro Primer E.

11. If the 48 hour exposure period is exceeded, immediately contact Siplast Technical Support for options.

Liquid Measure

The coverage and yield of Pro Primer E is based upon weight. A portable, battery operated scale is the most accurate means for field measuring primers. When a scale is not available, the approximate liquid measure on the chart to the right can be used for field measurement of Pro Primer E.

Density	Liquid Measure
liter/kg	kg/liter
0.92	1.09

Application and Coverage Rates

ASTM F2170 (Relative Rumidity)	Pro Primer E Application Rate			Yield	Yield
	kg/ft²	kg/m²	liter/ft²	per 1 kg kit (sf)	per 10 kg kit (sf)
75% to 100% RH	0.046	0.5	0.042	21.5	215
Up to 75% RH	0.032	0.35	0.029	31	310

ASTM F1869 (moisture vapor emission rate-lb/per 100 sf/24 hours)	Pro Primer E Application Rate			Yield	Yield
	kg/ft²	kg/m²	liter/ft²	per 1 kg kit (sf)	per 10 kg kit (sf)
3 lbs to 15 lbs	0.046	0.5	0.042	21.5	215
up to 3 lbs	0.032	0.35	0.029	31	310

Pro Primer E Application Rate			Thickness	Thickness
kg/ft²	kg/m²	liter/ft²	mils	mm
0.046	0.5	0.042	18	0.45
0.032	0.35	0.029	12	0.30

The application and yield rates indicated above are minimum values and do not include waste such as the resin required to saturate roller covers and brushes.

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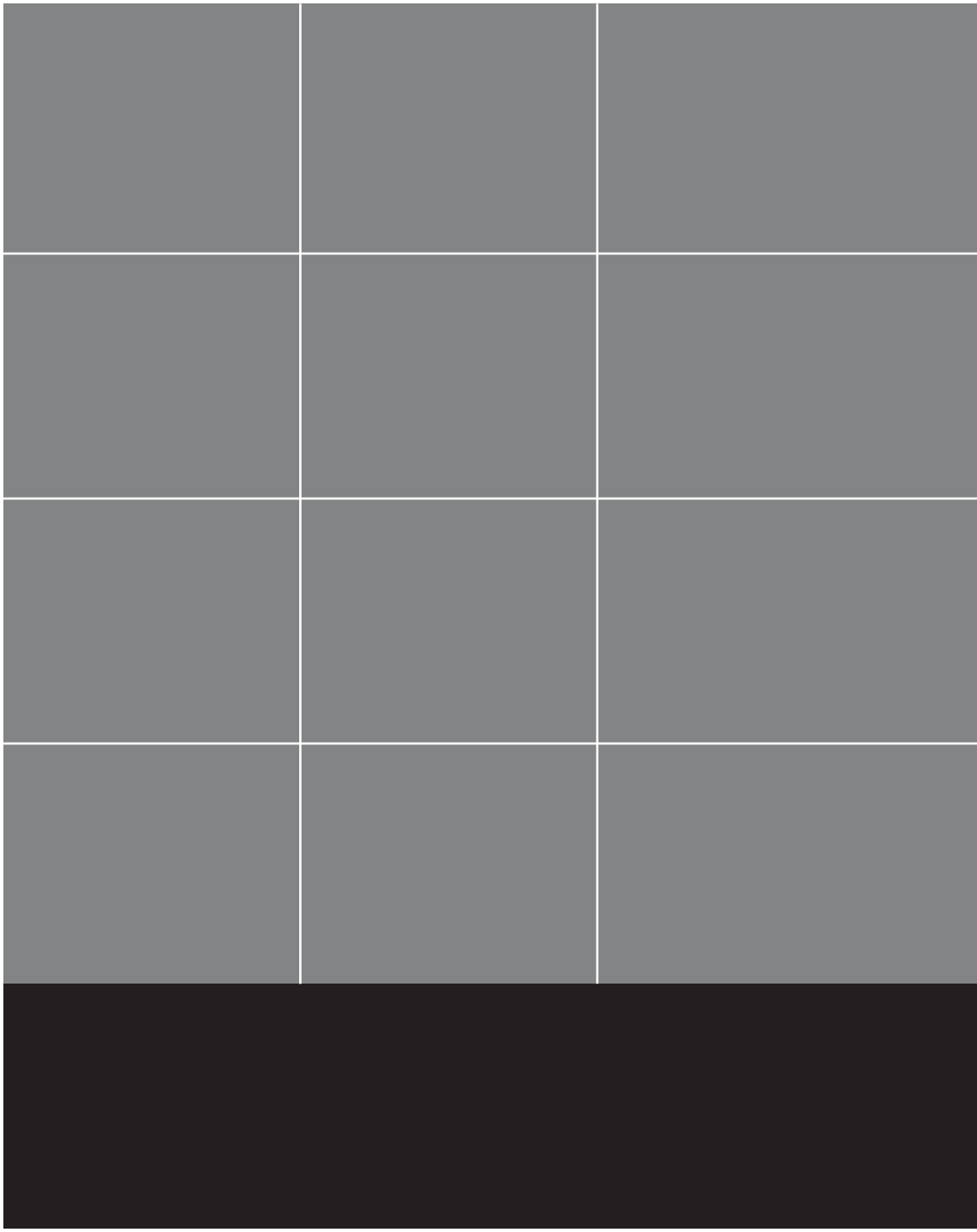
For information on Siplast Roofing and Waterproofing Systems, scan our QR Code.



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