

IR-Eco Roofing & Waterproofing

Impermitek's IR-Eco system is a versatile cold liquid applied fully reinforced waterproofing membrane with exceptional performance across a broad range of new and recovery roofing and waterproofing applications.

The IR-Eco fully reinforced membrane and flashings are required for all roofing and waterproofing applications over conditioned and/or occupied space.

IR-Eco may be applied as a stand-alone system or in combination with Impermitek's Standard Self-Adhered Base Ply, SL Mortar, ImpermiFinish aesthetic topcoat or ImpermiGrip slip-resistant surfacing.

NOTE: This document is to be used in conjunction with appropriate Impermitek resin and accessory component product data sheets (PDS).

Field Membranes

Impermitek field membranes may be applied directly to acceptable prepared substrates or over a self-adhered base-ply as a hybrid system. Impermitek's hybrid systems are preferred for all roofing and waterproofing applications other than vehicular waterproofing with traffic surfacing and protective traffic coating systems which must be applied directly to the structural deck.

All Impermitek waterproofing membranes must be fully reinforced with an appropriate TekMat reinforcement.

Resin Options & Selection

To help ensure optimum application and performance, STORMCURE offers several resin grades for use in applying reinforced cold liquid applied roofing and waterproofing membranes. The appropriate resin is selected based on environmental considerations or specific project conditions and requirements from the following:

Resin:	Ambient Use Temperature:
IR-Eco	36°F - 86°F (2°C – 30°C)

For complete information on the resin coverage rates, use, handling, storage, mixing, hot/cold weather additives (inhibitors & accelerators), and catalyzation, refer to the respective individual product data sheet (PDS) and safety data sheet (SDS).

TekMat Reinforcement Selection, Preparation, & Use

Impermitek field membranes are applied using Impermitek's TekMat, a proprietary fiberglass chopped strand mat (CSM) reinforcement available in the following grades:

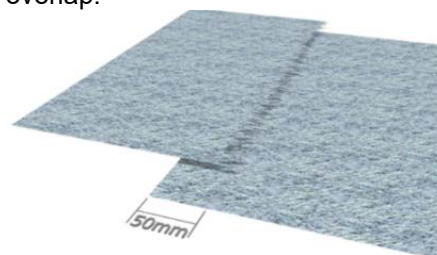
Product:	Mat Weight:
TekMat 225	225 g/m ²
TekMat 450	450 g/m ²

The TekMat reinforcement enhances membrane durability, tear strength, puncture resistance, and crack bridging capabilities. TekMat 225 can be used for most field membrane applications. For additional reinforcement and flashing detailing and transition, TekMat 450 is ideal.

The TekMat must remain clean and dry during storage and use. When not in use, store TekMat in a sealed wrap or container to protect from contaminants. Exposure to moisture (rain, condensation, high humidity, etc.) dust, dirt, and debris will compromise the mat and may cause issues during application. Contaminated mats **MUST** be disposed of and replaced with new. Before use, inspect the mat to ensure there are no damaged, defective, or wet areas present.

Impermitek's TekMat is embedded with a basecoat of resin. To ensure application proficiency, the mat reinforcement should be pre-cut for the day's work before mixing catalyst to any resin. Carefully measure the work area and assess how many runs of mat are needed allowing for a 2-in (50mm) overlap on each width of the mat at side laps and minimum 4 in (100 mm) overlap at end laps.

Impermitek TekMat reinforcement has one straight cut edge and one feathered (torn) edge. When overlapping rolls of mat, a feathered edge should go over a straight edge with a minimum 2-in (50 mm) overlap.



Remove the mat from its polythene bag and lay it on a clean dry surface. Cut the mat with a straight edge and a very sharp razor knife, taking care to protect the substrate or surface below. Re-roll the cut pieces of mat, mark each as needed, and store them in a clean dry location.

Though the reinforcement direction and configuration generally are not an issue, the following are recommended practices:

- Roll out the required lengths so the matting runs perpendicular to the roof slope applied bottom up to avoid backwater laps.
- When applying Impermitek liquid applied membranes over Impermitek's self-adhered base-ply, the TekMat reinforcement should run parallel to the base-ply rows wherever possible.
- On very steep or extreme slopes, the TekMat should be applied parallel to the slope.

IR-Eco Resin Mixing & Use

Before beginning to mix the resin, refer to the IR-Eco product data sheet (PDS) for specific recommendations regarding the suitability for use, temperature ranges, weather additives, and catalyzation.

Impermitek Weather Additives (Accelerators and Inhibitors)

Specific weather additives may be used with individual resin grades, depending on ambient temperature. Refer to specific resin and additive PDS for information regarding additive use and temperature guidelines:

Weather Additive:	Use:
IR-Eco Accelerator	Speeds up cure in low temperatures
IR-Eco Inhibitor	Slows down cure at high temperatures

Impermitek's weather additives should only be added when temperature conditions permit and strictly in accordance with recommended guidelines.

The weather additive must be thoroughly mixed into the IR-Eco resin before mixing the resin with the Catalyst Powder.

IMPORTANT: The catalyst must never be allowed to come into direct contact with either weather additive prior to being mixed with the resin. Accelerators and inhibitors are not a replacement for the Catalyst Emulsion.

Mixing Weather Additives with the Resin

Add the complete can of IR-Eco Accelerator/Inhibitor (ensure that full contents of the can are transferred) into a full can of IR-Eco resin. Using a slow-speed (200 to 400 rpm) mechanical agitator,

thoroughly mix the entire container of resin for two minutes or as required to ensure the additive is thoroughly dissolved and incorporated into the resin.

Mark the can mixed with additive "Low Temperature Accelerator Added" or "High Temperature Inhibitor Added" accordingly. Once the additive is fully mixed, the resin may be poured off into smaller batches for catalyzing and application as required.

Impermitek Resin Catalyzing
Please, refer to the IR-Eco PDS for information regarding Catalyst Emulsion addition and temperature guidelines. The Catalyst Emulsion is added based on the volume of resin being used and temperature at time of application.

The temperature ranges and catalyst additions shown on IR-Eco PDS are to be used as a guide. Always test the pot life in the jobsite conditions with a test mix at the suggested catalyst level and adjust up or down as needed before starting the application. When batch mixing, thoroughly mix the entire drum of resin before pouring it into a second container or adding catalyst.

The catalyst emulsion is measured and added to the resin using a calibrated measure (beaker or 15 ml tablespoon). Catalyze only the amount of resin that can be used within 10-15 minutes. Add the Catalyst Emulsion to the resin component and stir using a mixing stick or slow-speed (200 to 400 rpm) mechanical mixer with spiral agitator for 2-4 minutes or until the catalyst has sufficiently dissolved taking care not to aerate the resin.



IR-Eco Consumption Rates

After mixing, IR-Eco is applied at the approximate consumption rates as follows:

Recommended Coverage Rates using TekMat 225 gal/100 ft² (L/m²)			
Substrate	Basecoat	Topcoat	Total
Smooth (CSP3)	2.94 (1.2)	1.23 (0.5)	4.18 (1.7)
Medium (CSP4)	3.40 (1.4)		4.67 (1.9)
Rough (CSP5)	4.17 (1.7)		5.40 (2.2)

Recommended Coverage Rates using TekMat 450 gal/100 ft² (L/m²)			
Substrate	Basecoat	Topcoat	Total
Smooth (CSP3)	3.68 (1.5)	1.23 (0.5)	4.91 (2.0)
Medium (CSP4)	4.17 (1.7)		5.40 (2.2)
Rough (CSP5)	4.91 (2.0)		6.14 (2.5)

NOTE: The above coverage rates are for guidance only and it is the responsibility of the installer to ascertain the exact coverage rates based on job-site conditions. The amount of resin required varies depending on the roughness and porosity of the substrate. Rough or highly porous surfaces will significantly reduce coverage rates.

Membrane Basecoat Application

Before applying the IR-Eco resin, ensure that substrates are prepared and primed correctly in accordance with the relevant application guidelines. All flashing and detailing work, including angle changes and joints, should be completed and cured prior to application to the main work area. Mask off the designated work area as necessary. Ensure temperature and surfaces are within the application temperature guidelines. Minimum cure and maximum re-coat times should always be followed.

After mixing, apply the catalyzed resin basecoat to clean and prepared substrate at the required consumption using approved Impermitek rollers or brushes.

The basecoat application is performed by applying the first two thirds resin onto the substrate, embedding and working the TekMat reinforcement into the resin. Embed TekMat reinforcement into the wet basecoat of resin using appropriate pressure with the Impermitek Roller. Immediately apply the final one third of the resin over the mat with Impermitek rollers to fully encapsulate the TekMat reinforcement.

Note: The matting should be allowed to soften (approximately 2-minutes) before finishing with the Impermitek roller. Properly incorporated matting will appear “swirly” where no straight fibers remain.



Basecoat applied at correct coverage with matting fully consolidated and “swirly” appearance.



Resin basecoat with under saturated and underworked matting.

Inspect the applied basecoat while wet and correct any areas with insufficient resin (voids, prominent fibers, or spots remaining white) by applying additional resin as required and ensuring a closed, pinhole-free surface is achieved. Following application, allow the basecoat to cure (30 – 60 minutes in normal conditions). Perform a final check for pinholes, protruding fiberglass strands, or other deficiencies and correct those accordingly before applying the topcoat.

Note: On flat open surfaces, the initial 2/3 of basecoat resin may be spread using V-notch rakes or squeegees as follows:

Normal application:	where appropriate basecoat may be spread using 3/8-in steel v-notch rake.
Steep slope:	where appropriate basecoat may be spread using 1/4-in steel v-notch rake.

Membrane Topcoat Application

The resin topcoat should be applied as soon as possible, up to a maximum overcoating time of 7 days. The basecoat must be fully cured before applying the topcoat. Changing ambient conditions should be monitored throughout the day to adjust catalyst ratios and cure times accordingly.

When an area of previously applied IR-Eco resin basecoat is left exposed to the elements for extended periods or has been contaminated, cleaning or repair may be required before the topcoat is applied.

At tie-ins, clean cured resin basecoat using Impermitek Cleaner before application of the topcoat.

IMPORTANT: If 7 days have passed before the topcoat is applied, the in-place basecoat must be lightly sanded, wiped, and cleaned with Impermitek Cleaner to open another 7 day topcoat application window. If left for longer than 14 days, the basecoat with reinforcement must be reapplied.

Daily Work Joints & Tie-Ins

At the completion of each day's work, ensure that all TekMat reinforcement applied with the basecoat is completely embedded in the IR-Eco resin with the coat extending at least 2" (50mm) beyond the edge of the mat.

All basecoat and topcoat tie-ins should be prepared by cleaning and drying the previously applied resin and wiping down with Impermitek Cleaner to ensure sufficient adhesion.

Basecoat tie-ins require applying catalyzed resin over the in-place cured resin and ensuring that the TekMat reinforcement overlaps the existing mat by at least 2" (50mm).

NOTE: For basecoat and topcoat work joints and/or tie-ins, masking tape is recommended to produce a neat joint.

DO NOT attempt to "feather" the resin as thinly applied resin can result in under-cure.

Best Practices for Optimum Topcoat Color Consistency

Impermitek's resins are engineered to offer the highest performance in addition to an aesthetically pleasing and colorfast finish. Due to the nature of their rapid setting technology, variable environmental factors such as temperature and exposure to direct sunlight during cure, use of weather additives (accelerators and inhibitors), and varying levels of catalyst powder can all cause minor color variations in the finished membrane topcoat color and appearance.

The following actions will help to minimize potential color variation with the membrane topcoat application:

- Use the same batch numbers for the entire topcoat application. This applies to the resins and pigment additives where applicable.
- In instances where batch numbers cannot be maintained, blend and mix batches together to create a single distinct color batch.
- Apply topcoat in a single wet-to-wet application across the entire work area.
- Wherever possible, apply the topcoat at a uniform

temperature and sun exposure using the same weather additives and catalyst ratios.

- Avoid using resin mixed with additives adjacent to areas of resin without additives.
- When working in areas where there is constant shading or shadows, use temporary covers to provide consistent shade across the whole work area and avoid application in
- Be consistent using linear roller strokes and follow the same application procedure throughout.
- For large work areas that cannot be top coated in a single wet-to-wet application, mask off a checkerboard grid pattern and topcoat to clean lines, peeling tape before the resin cures.
- DO NOT attempt to over paint areas of cured resin topcoat or "feather" the resin, as thinly applied resin can result in under-cure.

Application Quality Control

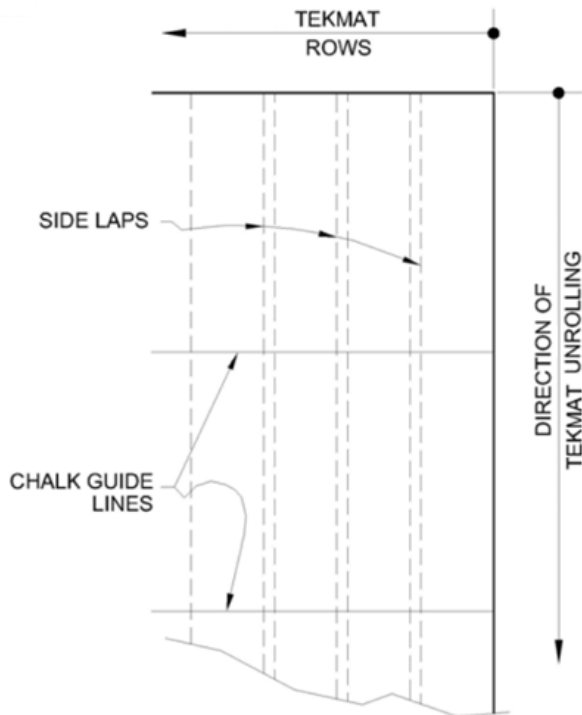
Wet film thickness gauges cannot be used to measure wet film mil thickness and resin consumption with liquid-applied reinforced membranes. For Impermitek reinforced membranes, resin consumption and membrane thickness are gauged by monitoring surface profile, distances, and volume of resin applied.

The following table shows typical consumptions per can of Impermitek IR-Eco resin using TekMat reinforcement:

Approximate coverage distance per 4 gal (15 L) can with TekMat 225		
Substrate	BaseCoat Ft (m)	Topcoat Ft (m)
Smooth (CSP3)	+/-42.6 (12.9)	+/-102 (31)
Medium (CSP4)	+/-36.3 (11.1)	
Rough (CSP5)	+/-30.0 (9.1)	

Approximate coverage distance per 4 gal (15 L) can with TekMat 450		
Substrate	BaseCoat Ft (m)	Topcoat Ft (m)
Smooth (CSP3)	+/-34.1 (10.4)	+/-102 (31)
Medium (CSP4)	+/-30.0 (9.1)	
Rough (CSP5)	+/-25.6 (7.7)	

After confirming the approximate surface profile and recommended resin consumption, a chalk-line grid can be applied on the substrate defining coverage distances per can of resin. The grid should be applied perpendicular to the TekMat reinforcement roll-out direction as follows:



Substrate Quality Control

Determinations of bond strength and moisture content should be performed periodically by the contractor throughout the course of work. Bond strength and adhesion can be monitored at the job site using both qualitative and quantitative means depending on the type of system application.

For most roofing and waterproofing applications, bond testing may be performed by means of an adhesive peel test. For waterproofing and surfacing applications, bond testing should be performed with an appropriate adhesion tester.

Tests should be performed on completely cured sample membrane applied adjacent to work at start-up, and intervals as required throughout the project assuring specified adhesion with a minimum of three tests per 5000 ft² (465 m²). In the event where the tensile bond strength is lower than the minimum recommended, additional substrate preparation should be performed and testing repeated to verify suitability of substrate. The contractor must immediately notify Impermitek if tensile bond test results are below the recommended criteria.

Refer to Impermitek Technical Data Sheet regarding field adhesion testing for additional information.

Crew Size & Workforce

The appropriate workforce must be determined by the applicator on a job-to-job basis based on project size, complexity, scheduling, and access. A typical size crew usually consists of approximately 5 people, with a designated mixer, a runner, and 3 applicators.

Application of field membrane areas typically requires two workers per run working a roll. Larger applications may have multiple staggered runs working at the same time. Applying runs of large wall flashings are also done best with two people working together, while small penetrations and flashings can be done by a single individual.



DISCLAIMER

The purpose of this guide is to provide fundamental information and important design and/or application considerations for Impermitek roofing, waterproofing and surfacing assemblies. Impermitek manufactures and sells roofing, waterproofing, and traffic surfacing materials and does not practice architecture or engineering.

Impermitek is not responsible for the performance or damage to its products caused by improper building design, construction flaws, or defects in workmanship. These guidelines should not be construed as being all-inclusive, nor should they be considered as a substitute for good application practices. This document and/or any other literature produced by or on behalf of Impermitek are offered for the purpose of guidance and must be evaluated and modified as needed, by the Designer of Record and or applicator for each individual project.

The design and use responsibility of Impermitek products remains with the architect, engineer, roofing contractor, or owner. Please consult your design professional for more information. Impermitek's responsibility is limited to the terms and conditions of the project warranty, which takes effect only when issued in writing by Impermitek to the customer. Specimen warranties are available on request.