

Enershield[®]-HP

Vapor Permeable Air/Water-Resistive Barrier Membrane



Enershield®-HP

DESCRIPTION

ENERSHIELD-HP is a one-component, fluid-applied vapor permeable air/water-resistive barrier based on Silica Fortified Rubber™ chemistry. This waterproof, resilient coating may be spray-, roller-, brush-, or trowel-applied directly to approved above grade wall substrates. It provides excellent secondary moisture protection behind wall claddings including brick, siding, metal panels, EIFS and stucco. A slipsheet is required for stucco claddings. **Do not use ENERSHIELD-HP for below-grade applications or on surfaces subject to water immersion.**

USES

For use over the following exterior wall substrates: Poured concrete/unit masonry, poured concrete/unit masonry treated with ENERSHIELD-FIL, ASTM C1177 type sheathings, including DensGlass™ exterior sheathing, eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, PermaBase™ cement-board by National Gypsum and other cement-boards (ASTM C1325 Type A Exterior), Untreated Exposure I or exterior plywood sheathing (grade C-D or better), Untreated Exposure I OSB, gypsum sheathing (ASTM C79/ASTM C1396).

PACKAGING

27.2 kg per 19-liter pail (60 lbs per 5-gallon pail)
 190.512 kg per 132-liter drum (420 lbs per 35-gallon drum)
 4" SHEATHING FABRIC: 101.5 mm x 54.8 m (4" x 180 ft) roll
 6" SHEATHING FABRIC: 152.4 mm x 54.8 m (6" x 180 ft) roll
 9" SHEATHING FABRIC: 228.5 mm x 54.8 m (9" x 180 ft) roll

COLOR

Gray

COVERAGE

Substrate

ASTM C1177 Type Sheathing

41 m² (450 ft²) per pail

Cement Board

46 m² (500 ft²) per pail

Plywood*

24 m² (265 ft²) per pail

Oriented Strand Board (OSB)

24 m² (265 ft²) per pail

Concrete Masonry Units (CMU)*

Standard Weight 24 m² (265 ft²) per pail

Medium Weight 17 m² (180 ft²) per pail

Light Weight 12 m² (125 ft²) per pail

Poured Concrete*

46 m² (500 ft²) per pail

Concrete / Masonry with ENERSHIELD-FIL Block Filler

46 m² (500 ft²) per pail

* Roll or spray / backroll for optimum coverage rate. Other application methods may provide less coverage. Actual results may vary depending on surface porosity, roughness, moisture uptake or other factors.

Note:

SHEATHING FABRIC saturated with ENERSHIELD-HP, when applied per manufacturer instructions, self gauges to a 0.8-1 mm thickness.

Embed Sheathing Fabric

4" Sheathing Fabric

192 m (630 ft) per pail

6" Sheathing Fabric

128 m (420 ft) per pail

9" Sheathing Fabric

85 m (280 ft) per pail

Features	Benefits
ICC ESR-3209 Evaluation Report	Confirms compliance with IBC, IRC, and IECL requirements.
ABAA evaluated	Approved for projects requiring ABAA specifications and quality assurance
<1% of allowable air leakage per ASTM E2357 Air Leakage of Building Assemblies test	Easily meets air tightness requirements defined by ASHRAE 189.1, ASHRAE 90.1 and ABAA
Meets ASTM D1970 nail sealability requirements with and without Sheathing Fabric	Self sealing performance
One component, low-VOC formulation	Easy to apply, meets VOC requirements in all 50 states
Nonflammable as applied	Workplace safety
Mineral oil and plasticizer free	Will not dry out or crack due to loss of oil / plasticizer over time
Water based	Cleans up with water; solvents and citrus based cleaners not required
Tough, abrasion resistant	Rugged membrane resists damage after installation
Approved for use with BASF EIFS and stucco systems	Full system warranty, seamless membrane for buildings with multiple claddings
Low temperature performance with LT Additive	Extends minimum application temperature to 4°C
180 day outdoor exposure rating	Flexible construction scheduling

Air/Water-Resistive Barriers

TEST RESULTS

	RESULT
Air Leakage of Air Barrier Assemblies ASTM E 2357	0.0007 l/s·m ² (0.0001 cfm/ft ²) @ 75 Pa (1.57 psf) positive / post conditioning 0.0014 l/s·m ² (0.0003 cfm/ft ²) @ 75 Pa (1.57 psf) negative / post conditioning
Air Permeance of Building Materials ASTM E 2178	0.0049 l/s·m ² @ 75 Pa (0.00098 cfm/ft ² @ 1.57 psf)
Rate of Air Leakage ASTM E 283	0.0185 l/s·m ² @ 75 Pa (0.0037 cfm/ft ² @ 1.57 psf)
Water Vapor Transmission ASTM E 96 Method B	18 Perms (grains/Hr. in Hg. ft ²) @ 0.25 mm wet film thickness 14 Perms (grains/Hr. in Hg. ft ²) @ 0.5 mm wet film thickness
Pull-Off Strength of Coatings ASTM D 4541	Pass - Min. 110 kPa (15.9 psi) or substrate failure (Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood; pvc and galvanized flashing)
Nail Sealability (without Sheathing Fabric) ASTM D 1970	Pass - No water penetration at galvanized roofing nail penetration under 127 mm (5") head of water after 3 days at 4°C
Compound Stability (Elevated Temperature) ASTM D 5147 Section 15	No flowing, dripping or drop formation up to 177°C
Surface Burning ASTM E 84	Class A Flame Spread (<25) Class A Smoke Developed Spread (<450)
Multi-Story Fire Tests NFPA 285	Passed using several wall designs. Engineering analyses available upon request.
Fire Resistance ASTM E119/UL 263	Will not add or detract from the rating of a fire resistive wall assembly
Drainage Efficiency ASTM E 2273	99%



TEST RESULTS

ICC-ES AC 212 Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing

Sequential Testing - Structural, Racking, Restrained Environmental Conditioning and Water Penetration

- | | |
|--|---|
| 1. Structural: ASTM E 1233 Procedure A | No cracking at joints or interface of flashing |
| 2. Racking: ASTM E 72 | No cracking at joints or interface of flashing |
| 3. Restrained Environmental Conditioning: ICC-ES AC 212 | No cracking at joints or interface of flashing |
| 4. Water Penetration : ASTM E 331 | No water penetration after 90 min @ 299 Pa (6.24 psf)
Tested over OSB and gypsum sheathing |

Sequential Testing - Weathering

- | | |
|--|--|
| 1. UV Light Exposure: ICC-ES AC 212 | No cracking or bond failure to substrate |
| 2. Accelerated Aging: ICC-ES AC 212 | No cracking or bond failure to substrate |
| 3. Hydrostatic Pressure Test:
AATCC 127-1985 | No water penetration at 55 cm (21.7") water column for 5 hours |

Freeze-Thaw
ASTM E 2485 (Method B) No sign of deleterious effects after 10 cycles (Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood)

Water Resistance
ASTM D 2247 No sign of deleterious effects after 14 day exposure (Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood)

Tensile Bond
ASTM C 297 >103 kPa (15 psi) Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood, CMU; pvc and galvanized flashing

Tensile Bond (before & after freeze-thaw)
ASTM C 297 >103 kPa (15 psi) avg; no failure of the lamina after 10 cycles freeze-thaw (Tested over various substrates)

ICC-ES AC 148 Acceptance Criteria for Flexible Flashing Materials

Sequential Testing - Weathering

- | | |
|--|--|
| 1. UV Light Exposure: ICC-ES AC 148 | No cracking or bond failure to substrate |
| 2. Accelerated Aging: ICC-ES AC 148 | No cracking or bond failure to substrate |
| 3. Hydrostatic Pressure Test:
AATCC 127-1985 | No water penetration at 55 cm (21.7") water column for 5 hours |

Peel Adhesion
ASTM D 3330 Method F Tested over ASTM C1177 glass-mat sheathing, OSB, plywood, pvc and uncoated aluminum

After UV Exposure Pass

After Accelerated Aging Pass

After Elevated Temperature Exposure Pass

After Water Immersion Pass

Nail Sealability after Thermal Cycling
ASTM D 1970 (Modified), AAMA 711 Pass

Tensile Strength after UV Exposure
ASTM D 5034, AAMA 711 All samples meet the minimum requirement of 3.5 N/mm (20 lbs/in)

Cold Temperature Pliability
ASTM D 1970, AAMA 711 No cracking after bending around a 25 mm (1") mandrel after 2 hour exposure to -18°C

Resistance to Peeling
AAMA 711 No signs of distress or failure after 24 hours of exposure at room temperature, 50°C, 65°C, 80°C



Enershield®-HP

MIXING

1. Use directly from original packaging or prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product.
2. Mix ENERSHIELD-HP with a clean, rust-free paddle and drill until thoroughly blended. Dilution of ENERSHIELD-HP is not recommended.
3. Additives other than LT ADDITIVE are not permitted.
4. Close container when not in use.
5. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

APPLICATION

Job Conditions

To apply ENERSHIELD-HP at ambient temperatures below 4°C but greater than -4°C, thoroughly blend 1 full quart of LT ADDITIVE with one full 5-gallon pail of ENERSHIELD-HP. When using LT ADDITIVE, extended drying time can be expected. Do not apply ENERSHIELD-HP to frozen or frost-laden substrates.

Do not apply ENERSHIELD-HP in ambient temperatures below 4°C or onto substrates below 4°C unless LT ADDITIVE is used.

Walls shall be capped to prevent moisture and precipitation from entering wall during construction.

Limit the weather exposure of ENERSHIELD-HP to a maximum of 180 days.

Surface Preparation

Substrate shall be dry, clean, sound and free of release agents, paint or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 10').

Unsatisfactory conditions shall be identified and corrected before application of ENERSHIELD-HP.

Equipment

Use a 20 mm (3/4") nap roller or paint brush. If spraying, refer to *Spray Application of Enershield-HP/Enershield-I/Enershield-FIL* technical bulletin for spray application equipment and application instructions (available at www.enershield.basf.com).

Note: If using roller application, it is necessary to pre-wet the synthetic roller pad with water and spin out the excess water. The pre-wetting only needs to be done once at the start of application.

Procedure

1. Substrate shall be of a type acceptable by BASF and shall be installed per substrate manufacturer's instructions and local code requirements.
2. Apply ENERSHIELD-HP and/or MAXFLASH™ Liquid Flashing Membrane to fasteners, sheathing joints, and rough openings as outlined in *Enershield Application Guidelines for Joint Treatment and Flashing Rough Openings on Framed Construction* technical bulletin or *Enershield Application Guidelines for Flashing Rough Openings on Concrete and Masonry Construction* technical bulletin (available at www.enershield.basf.com).

- 3.a. Immediately place and center SHEATHING FABRIC over wet ENERSHIELD-HP at knot holes and check cracks that may exist in plywood or OSB. Completely saturate SHEATHING FABRIC with ENERSHIELD-HP.
 - b. If using roller, brush, or trowel application, allow to dry to the touch before applying ENERSHIELD-HP to entire wall surface. If spraying, "wet on wet" application is acceptable.
 4. Refer to *Spray Application of Enershield-HP / Enershield-I / Enershield-FIL* technical bulletin for spray application equipment and application instructions.
 - 5.a. Apply ENERSHIELD-HP to DensGlass™ exterior sheathing, eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, PermaBase™ cement-board by National Gypsum and other cement-boards (ASTM C1325 Type A Exterior), gypsum sheathing (ASTM C79/ASTM C1396) and concrete with a 20 mm (3/4") nap roller, stainless steel trowel, brush or spray gun to a consistent, minimum 0.254 mm wet thickness that is free of voids and pin holes. A fully loaded roller pad is required to obtain a consistent, minimum 0.254 mm wet thickness.
 - b. Apply ENERSHIELD-HP at a minimum of 0.25 mm wet film thickness on concrete/masonry substrates that have received a fully cured application of ENERSHIELD-FIL Block Filler. For concrete/masonry substrates that have not been treated with ENERSHIELD-FIL Block Filler, two (2) minimum 0.25 mm applications of Enershield-HP are required.
- Note: Lightweight CMU or other CMU with high porosity may require additional Enershield-HP to produce an acceptable result.**
- c. Apply ENERSHIELD-HP to plywood and OSB sheathing using a 20 mm (3/4") nap roller or spray to a consistent, minimum 0.25 mm wet film thickness. Visually inspect to determine whether the sheathing surface is fully coated and free of voids and pinholes. Repair as required to produce a continuous coating. Apply a second 0.25 mm wet film coat of ENERSHIELD-HP to produce a total wet film thickness of 0.5 mm.
 - d. Visually inspect the ENERSHIELD-HP for voids, pinholes, surface deficiencies, etc. Repair deficiencies and areas that are not intact. Apply additional ENERSHIELD-HP as necessary such that ENERSHIELD-HP is free of voids, pinholes, etc. All sheathing joints, terminations, inside and outside corners must be reinforced with 10.16 cm (4") or 22.86 cm (9") SHEATHING FABRIC or TF MEMBRANE 10.16 cm (4") or 22.86 cm (9").

Drying Time

Allow to dry completely, typically 2 to 4 hours at 25°C and 50% relative humidity. Protect from rain and from temperatures less than 4°C until dry.



LIMITATIONS

Shipping & Storage

Protect BASF materials during transportation and installation to avoid physical damage. Store BASF materials in a cool, dry place protected from freezing. Store at no less than 4°C. Protect from extreme heat and direct sunlight.

Stacking

Do not stack pallets.

Shelf Life

Approximately 2 years, properly stored in original containers.

TECHNICAL SUPPORT

Consult the BASF Technical Services Department for specific recommendations concerning all other applications. Consult the Enershield website, www.enershield.basf.com, for additional information about products and systems.

HEALTH AND SAFETY

Follow good safety and industrial hygiene practices during handling and installing products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read Safety Data Sheet (SDS) and related literature on this product before specification and/or installation (available at www.enershield.basf.com).

Solids

74% solids

VOC Content

17 g/l, or 0.14 lbs/gal less water and exempt solvents per ASTM D2369 (based in part on EPA method 24).

WARRANTY

BASF warrants this product to be free from manufacturing defects and to meet the technical properties on the current Product Bulletin, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. In the absence of an extended warranty issued by BASF, any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on BASF's present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. BASF reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.



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