

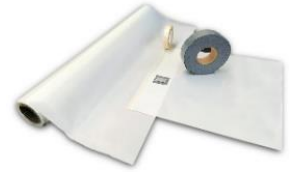
INSTALLATION AND CONSUMPTION – EFFISUS BREATHER FR MEMBRANE

1. Summary

Effisus Breather FR membrane was designed for protection of facades against moisture, driving rain and wind, avoiding corrosion, insulation deterioration and mold growth on the facade elements.

It has an exceptional UV resistance and the existence of a large range of accessories allows its installation on the most demanding project requirements.

The Effisus Breather FR system includes the membrane and several accessories to properly install the membrane.



2. Scope of Usage

In General: Wall lining membrane.

3. Presentation and Product Details

3.1 Effisus Breather FR Membrane

Standard roll width: 1.27m

Roll length: 78,74m.

Thickness: 0.21mm ± 0.006mm

Color: White.

Characteristics: see Table below.

Essential characteristics		Test Method	Result
Thickness		EN ISO 12572	0.21 ± 0.006 mm
Length		-	78.74
Width		-	1.27 m
Reaction to Fire	System	ASTM E84 EN 13501-1	Class A (or Class 1) A2 – s1, d0
	Membrane	EN 13501-1	A1
Resistance to water penetration		EN 1928/EN 13111	W2, pass
Density of vapour flow rate, g (kg/(m ² .s))		EN ISO 12572	8.31 x 10 ⁻⁶ ± 2.81 x 10 ⁻⁷
Water vapour transmission properties (sd-value) (m)		EN ISO 12572	0.013 ± 0.001
Tensile Strength MD/XD (N/50mm)		EN 12311-1	2015 ± 0.37 / 1725 ± 0.28
Elongation at Break MD/XD (%)		EN 12311-1	4.00 ± 0.38 / 3.00 ± 0.36
Nail tear resistance MD/XD (N)		EN 12310-1	328.06 ± 32.44 / 255.42 ± 46.44
Flexibility at low temperature (- 40 °C)		EN 1109	No cracks
Artificial ageing by long term exposure to the combination of UV radiation and elevated temperature and heat		Elongation ^a (%)	5.0 ± 0.22 / 4.00 ± 0.32
		Tensile Strength ^a (N/50mm)	2800 ± 205 / 2210 ± 209
		Resistance to water penetration ^b	W2, pass

^a In accordance with Annex C of EN 13859-2 (EN 12311-1).

^b In accordance with Annex C of EN 13859-2 (EN 1928/EN 13111).

4. Accessories

The Effisus Breather FR system comes with a number of accessories specifically designed to facilitate the application of the membrane.

4.1 Adhesive Tapes

Adhesive tape for moisture proof sealing of Effisus Breather FR Membrane overlap and perimeter sealing. These tapes are suitable for bonding Effisus Breather FR Membrane to smooth, non-porous and porous substrates.

4.1.1 Effisus 2Adjoin DF Tape (fixing to structure / membrane overlaps)

Effisus 2Adjoin DF is a double-sided, airtight, water and moisture-resistant sealing tape, suitable for fixing Effisus Ecofacade, Vapour Barriers, Breather membranes and PE/PA/PP and aluminum foils to metal studs. It is suitable for windtight and water/moisture-proof sealing of external membranes, as well as for rain-proof taping of roof underlay. It is quick and easy to apply using the Effisus 2Adjoin DF Hand Dispenser.



Compatible substrates

Designed for fixing internal membranes to metal sections in dry construction and the fixture of external membranes to hard-based panels (OSB, plywood panels, sheathing boards, gypsum board or the like), hard plastics and window frames.

All other materials in contact with Effisus products should be submitted for further technical evaluation and compatibility.

Roll width: 25mm.

Roll length: 20m.

Colour: Colourless with a polypropylene reinforcement.

4.1.2 Effisus 2Bond DS Tape (sealing membrane edges)

Effisus 2Bond DS is the most efficient solution for sealing two surfaces of the same or different materials, and for sealing any nail/screw penetrations. Effisus 2Bond DS tape is a double-sided adhesive tape, devised using advanced technology with active adhesive sealants. Designed using a chemical arrangement of thermoplastics and non-curing rubber (non-butyl) with an incorporated primer. Effisus 2Bond DS is thoroughly elastic and flexible within a temperature range of 93°C to -57°C.



With a highly advanced microsealant and removable siliconized release liner on each side, 2Bond DS Tape is designed to seal Effisus Breather FR onto building perimeters and connections to porous surfaces, creating a tight, permanent and waterproof membrane. It is quick and easy to apply on smooth surfaces using Effisus Setup PR Cleaner or any non-residue cleaner.

Compatible substrates

2Bond DS is fit for use on a wide range of construction substrates, both porous and non-porous, including concrete, cement particle sheathing boards, glass fibre and gypsum, masonry, brick, ceramic, metal, galvanized steel, coated and non-coated aluminium, polycarbonate, glass, natural stone, gypsum and OSB boards, wood, fiberglass, EPDM, SBS, modified APP, PP, PE and polystyrene etc. Connections with other non-proprietary membranes (Breather, EPDM, etc.) should be adequately designed to ensure optimum compatibility. All other materials in contact with Effisus products should be submitted for further technical evaluation and tested for compatibility.

Roll width: 25mm or 50 mm.

Roll length: 15.25m.

Colour: Grey.

4.2 Accessories: Others

4.2.1 Effisus Coat NP Primer

Primer to prepare surfaces before bonding Effisus Breather FR Membrane. In porous, damp conditions or when applying within a temperature range of 5 °C to -10 °C, use Effisus Coat NP Primer for surface treatment before applying Effisus 2Bond DS Tape. Solvent and Volatile Organic Compound (VOC) free.



4.2.2 Effisus Setup PR Cleaner

Solution for cleaning smooth surfaces before applying Effisus accessories to bond the membrane. Effisus Setup PR Cleaner is a ready-to-use solvent-based cleaning agent perfect for cleaning any soiled contact surfaces.



5. Production, marketing and technical solution

Up-Way Systems supplies Effisus Breather FR Membranes and accessories. Testing of all our manufactured goods is carried out and continuously recorded under industry-standard laboratory conditions, with the additional guarantee of periodic external inspections.

6. Installation Instructions

6.1 General Guidelines

It is the end user's responsibility to ensure the quality of installation by following the installation instructions in this document and by periodically checking the installed materials. Up-Way Systems is always available, upon request, to train working staff.

6.1.1 Storage

Effisus Braether FR Membrane and system accessories should be stored on a hard, clean and dedicated stand, in a place that can protect them from extreme weather conditions or the risk of puncture. Materials should be kept within a temperature range of 5°C - 20°C.



Figure 1 - Effisus Breather FR Membrane - Delivery.

Rolls should be stored flat on their sides, on a smooth, clean, dry surface, under cover, protected from sunlight and extreme weather conditions or the risk of puncture.

6.1.2 Installation Conditions

- Effisus Breather FR Membrane should be carefully transported and applied, to avoid sharp substrate edges, dust and debris contamination and the risk of tearing or loss of integrity.
- Bonding should be carried out on clean, dry, grease and dust-free supports.
- Surface preparation: before applying any Effisus Breather FR System accessories, surfaces must be thoroughly cleaned using Effisus Setup PR Cleaner. The substrate should also be degreased completely. A primer should be used for surface preparation and treatment of porous surfaces, or application within a temperature range of 5°C - 10°C to improve surface adhesion of the Effisus membrane system. Allow the primer to dry to the touch (no material transfer). Dry time will vary depending on ambient temperature and humidity (typically less than 20 minutes).
- Effisus Breather FR Membrane should always be applied to a high density, rigid substrate or mineral wool (or similar), minimizing insufficient cohesion to the substrate.
- Effisus Breather FR Membrane should not be tensioned.
- Effisus Breather FR Membrane should be applied using the accessories recommended in this document.
- In case of precipitation (rain, snow, dense fog or any risk of condensation), application of the adhesive/sealant must be suspended.
- After installation, the Effisus Breather FR Membrane should not have any loose ends exposed to wind or work done by other contractors, and should be protected with protective boards, insulation or metallic sheeting.
- All other materials in contact with Effisus products should be submitted for further technical evaluation and tested for compatibility.

6.2 Effisus Breather FR Membrane Fixing

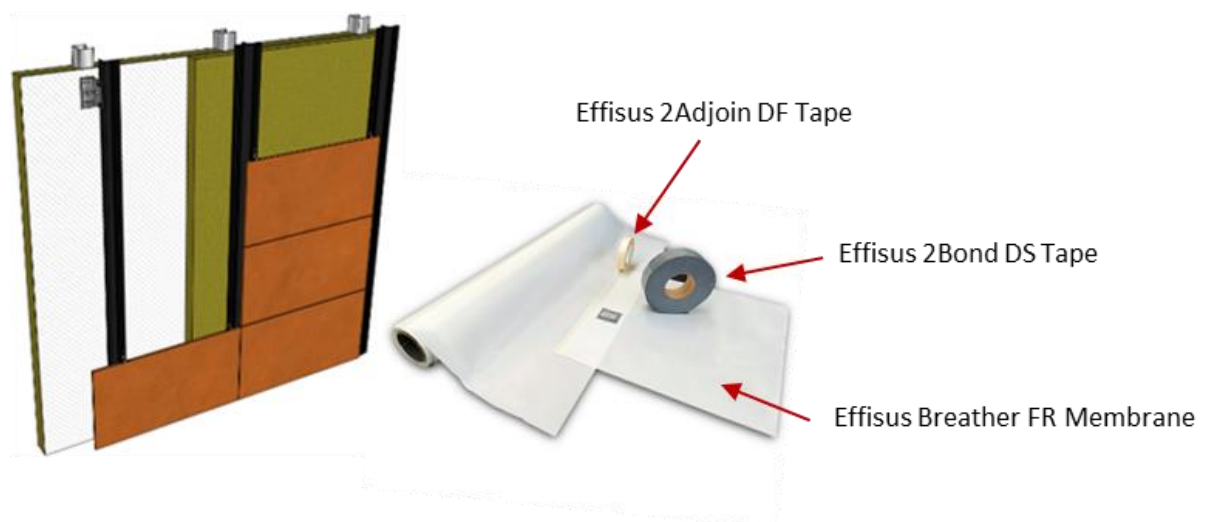


Figure 2 - Effisus Breather FR System.

6.2.1. Fixing membrane to the substrate

6.2.1.1 Effisus 2Adjoin DF Tape

Effisus Breather FR membrane should be applied to the sheathing board using a 25mm-wide band of Effisus 2Adjoin DF Tape, with a maximum spacing of 500mm//500mm. The membrane should immediately be mechanically fixed on its edges, with a maximum spacing of 2m//2m.

If the membrane is applied on the sheathing board, the Effisus Breather FR membrane does not need to be mechanically fixed.

For more information on this accessory and its compatibility with other materials, see 4.1.

Note: When applying the membrane in front of the insulation, the Effisus 2Adjoin DF Tape has the function of temporarily secure the Effisus Breather FR membrane until it is mechanically fixed.

6.2.1.2 Effisus 2Bond DS Tape (Alternative)

The Effisus Breather FR membrane should be fixed using a 25mm-wide band of Effisus 2Bond DS Tape, with a maximum spacing of 500mm//500mm.

For more information on this accessory and its compatibility with other materials, see 4.1.

6.2.2 Overlapping Joints

Upper layers should always overlap lower layers to facilitate the runoff of rain water and to avoid water accumulation at the overlap joints.

- Horizontal joints should overlap by 100mm minimum.
- Vertical joints should overlap by 150mm minimum and be staggered or offset wherever possible (see Figure 3).

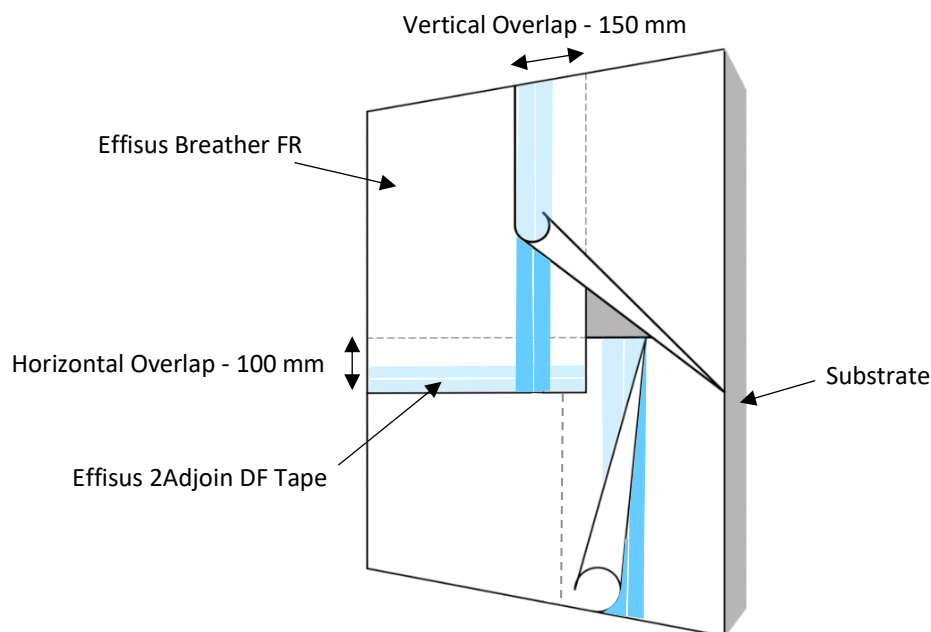


Figure 3 - Effisus Breather FR Membrane – Overlapping Joints.

6.2.2.1 Effisus 2Adjoin DF Tape

Joints should be sealed with 2 bands 25mm-wide of Effisus 2Adjoin DF Tape.

6.2.2.2 Effisus 2Bond DS Tape (Alternative)

Joints should be sealed with 2 bands 25mm-wide of Effisus 2Bond DS Tape.

6.2.3 Perimeter sealing

6.2.3.1 Effisus 2Bond DS Tape

Effisus Breather FR Membrane should be sealed continuously around the membrane perimeter and in all locations interrupting the continuity of the membrane, such as window frames, doors, perforations or the like, using a 25 mm-wide band of Effisus 2Bond DS Tape.

If there is any risk of sliding or stress to the membrane, this should be mechanically fixed around the its edges.

For more information about this accessory and its compatibility with other materials see 4.1.

6.2.4 Perforations sealing

All nail/screw perforations <25mm in diameter should be sealed with a 50mm x 50mm patch of Effisus 2Bond DS Tape, a double-sided adhesive/sealant tape (thickness > 1,50mm). Irregularly shaped facade perforations over 25mm in diameter should be studied in detail on a case-by-case basis by the Effisus Technical Department.

To seal cables, pipes and other perforations, Effisus has a variety of solutions that can be used to seal them. For projects with high requirements or unusual shapes, Effisus developed customized solutions capable of accommodating the most difficult perforations in any type of project.

Note: For more information about this Effisus Solutions please contact Effisus Technical Department.

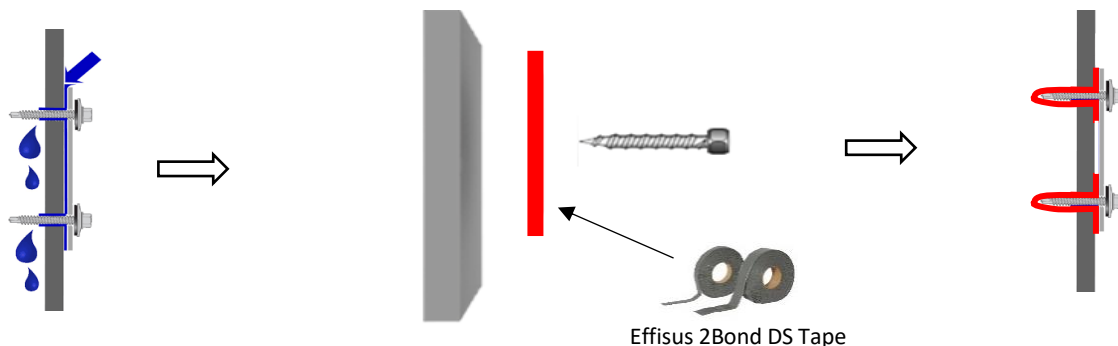


Figure 4 - Nails/screw perforations membrane sealing.

6.2.5 Bond between Effisus Breather FR Membrane – Effisus Ecofacade Membrane

Bonds between an Effisus Breather FR Membrane and an Effisus Ecofacade (EPDM) Membrane should be made using a 25 mm-wide band of Effisus 2Bond DS Tape, or an 8mm-diameter bead of Effisus Bonding Adhesive KF+P paste adhesive.

6.2.6 Bond between Effisus Breather FR membrane – Effisus Vapour FR membrane

Bonds between an Effisus Breather FR and an Effisus Vapour FR Membrane should be made using 2 bands 25 mm-wide of Effisus 2Adjoin DF Tape or 2 bands 25 mm-wide of Effisus 2Bond DS Tape.

7. Repairs

In case of puncture to the membrane, sealing of the damaged area is essential, using a patch of Effisus Breather FR Membrane with a compatible sealant accessory. This patch should be at least a distance of 100mm in every direction from the location of the damaged Effisus Breather FR Membrane.

Effisus 2Bond DS Tape should be applied at a distance of $\approx 50\text{mm}$ to 25mm from the patch edges.

The repairing patch of Effisus Breather FR should be adhered/sealed to the membrane using 2 bands 25 mm-wide of Effisus 2Bond DS Tape, see Figure 5.

1 – Cut a Patch of Effisus Breather FR at least 100mm larger than the tear to the Effisus Breather FR (in every direction).

2 – Apply 2 bands 25 mm-wide of Effisus 2Bond DS Tape to the Effisus Breather FR membrane $\approx 50\text{mm}$ and 25mm from the membrane edge.

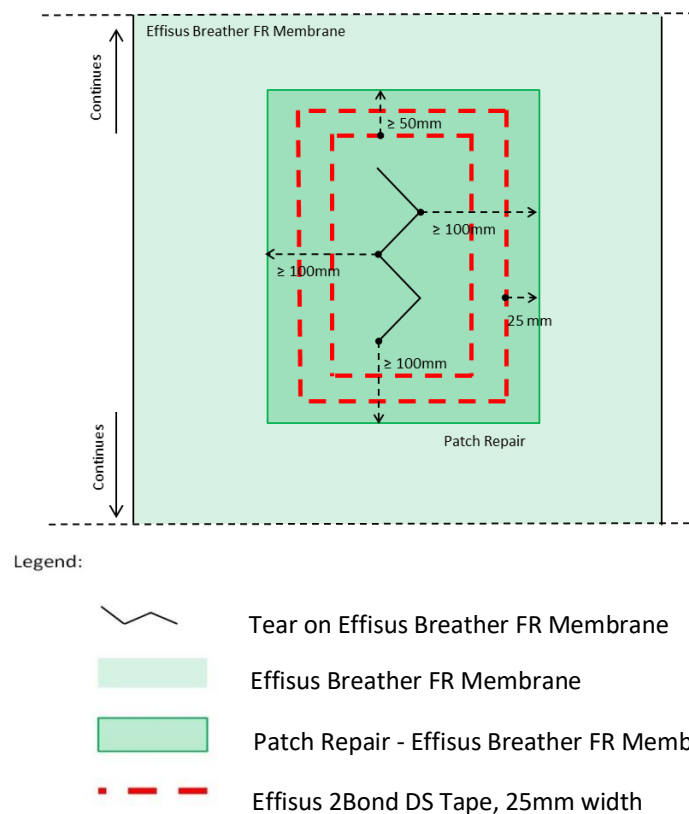


Figure 5 - Effisus Breather FR Membrane - Repair works

8. Compatibility

Effisus Breather FR Membranes are compatible with all traditional building materials. However, if in doubt, carry out a compatibility test and consult Up-Way Systems.

Whenever Effisus Breather FR Membranes are to be used in vigorous work environments (workshops, laboratories, etc.) Up-Way Systems must be consulted.

9. Accessories Consumption

Accessories Consumption				
Product	Colour	Delivery	Consumption	Storage
Effisus Coat NP Primer	Black	4,5kg Can	At 5cm application width: 10-15g/m, depending on substrate.	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.
Effisus Setup PR Cleaner	Clear	1l Can	35m ² /litre	Cool, dry, frost-proof, protect from direct sunlight. Keep container tightly closed.

10. Test Results and Certification

Technical details are presented in this document. Effisus Breather FR obtained class A2, s1-d0 rating as a System and class A1 rating as a Membrane to Test Standard EN13501, and Class A (or class 1) on ASTM E84.

The Effisus Breather FR membranes has CE certification and DoP based on EN 13859:2, Flexible sheets for waterproofing. Definitions and characteristics of underlays. Underlays for walls (EN 1928, EN 13111, EN ISO 12572, EN 12311-1, EN 12310-1, EN 1109 and artificial ageing).

For further information contact Up-Way Systems.