

## DEFEND/V

### (SPECIAL REINFORCED ELASTOPLASTOMERIC DISTILLED POLYMER-BITUMEN WATERPROOFING MEMBRANES TO FORM A VAPOUR BARRIER)

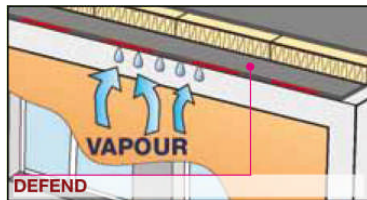
#### HOW TO KEEP THE THERMAL INSULATION OF A ROOF DRY?

##### Description

The DEFEND Series membranes are used as a vapour barrier layer of thermal insulation materials in construction covers. These membranes consist of non-porous, elastoplastomeric polymer-bitumen which, in itself, is an excellent barrier against vapour migration.

There are three types of membranes: DEFEND/V for the vapour barrier on roofing of rooms with low and medium humidity (RH at 20°C ≤ 80%). It is protected with a rot-proof reinforced fiberglass mat. It is also used as a sub-layer for double-layer waterproofing coats, to give dimensional stability to the top layer reinforced with polyester.

DEFEND ALU/V for the vapour barrier on roofing of insufficiently ventilated rooms with high humidity (RH at 20°C ≥ 80%). It is reinforced with a 60 micron aluminum foil, which is insuperable by vapour migration. The foil is associated with a fiberglass mat which increases its stability and mechanical resistance.



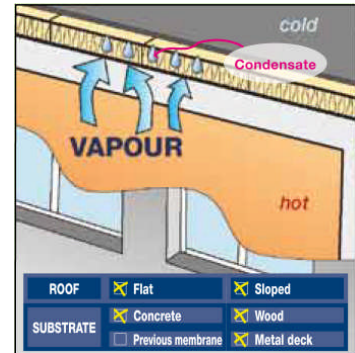
DEFEND ALU POLYESTER for the vapour barrier of movement susceptible floors, which cover insufficiently ventilated rooms with high humidity (RH at 20°C ≥ 80%). It is reinforced with a 12 micron aluminum foil coupled to a non-woven fabric in composite elastic polyester, stabilized with fiberglass. The upper face of the membrane is lined with fine silk screen printed talcum, whereas the lower face is lined with Flamina flame-melt embossed film. The adhesion of the membranes on the laying surface and sealing of the overlaps is

carried out by flame, heating the lower face with a propane gas torch, until Flamina thermo-retracts, thus activating the adhesiveness of the compound.

##### Applications field

Membranes DEFEND ALU/V and DEFEND ALU POLYESTER are exclusively used as a vapour barrier, whereas DEFEND/V can also be used as an additional layer in the composition of waterproofing coats.

We can supply special multi-purpose vapour barriers with the upper face embossed (bubble effect): PROMINENT/V, PROMINENT POLYESTER and PROMINENT ALU POLYESTER. Flame applied insulating panels can be bonded on these barriers, without using melted bitumen. It also produces DIFFUSER ALU/V, with bitumen bubbles on the underside for draining vapour condensed upstream of the vapour barrier.



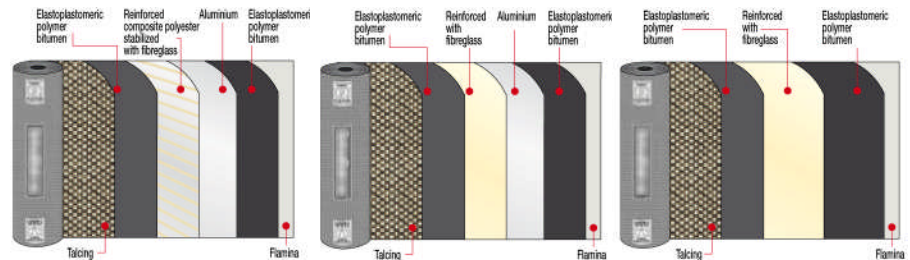
Method of use	Torch Application	Hot Air Applicatio	Nailing	With Oxidized Bitumen
		✓	✓	✓

Loading Table (in Metric Tons)	Product specifications			Loading in 20' FCL	
	Thickness	m <sup>2</sup> /roll	Rolls/pallet	Pallets	M <sup>2</sup>
Defend ALU V (aluminium+fiberglass)	2 mm	20 m <sup>2</sup>	25	20	10000
Defend ALU Polyester (aluminium + polyester)	3 mm	10 m <sup>2</sup>	30	20	6000
Defend V (fiberglass)	4 mm	10 m <sup>2</sup>	24	20	4800

CATEGORY	CHARACTERISTICS				ENVIRONMENTAL					METHOD OF USE				
														
SPECIAL ELASTOPLASTOMERIC FOR SPECIFIC USES	WATERPROOF	VAPOUR BARRIER	REACTION TO FIRE	ECO GREEN	ASBESTOS FREE	TAR FREE	CHLORINE FREE	RECYCLABLE	NON DANGEROUS WASTE	EXHAUSTED OIL FREE	TORCH APPLICATION	HOT AIR APPLICATION	NAILING	APPLICATION WITH MOLTEN BLOWN BITUMEN

**TECHNICAL SPECIFICATIONS**

	STANDARD	T	Defend ALU V			Defend ALU Polyester			Defend V		
			2mm	3mm	4mm	2mm	3mm	4mm	2mm	3mm	4mm
Reinforcement			Aluminum foil and fiberglass			Aluminium foil and non-woven composite polyester stabilized with fiberglass			Fiberglass		
Thickness	EN 1849-1	±0,2 ±12%	2mm	3mm	4mm	2mm	3mm	4mm	2mm	3mm	4mm
Mass per Unit Area	EN 1848-1		1x20m	1x10m		1x20m	1x10m		1x20m	1x10m	
Watertightness	EN 1928 – B	≥	60 kPa	60 kPa		60 kPa	60 kPa		60 kPa	60 kPa	
Shear resistance L/T	EN 12317-1	20%	450/350 N/50mm			250/120 N/50mm			300/200 N/50mm		
Maximum tensile force L/T	EN 12311-1	-20%	450/350 N/50mm			250/120 N/50mm			300/200 N/50mm		
Elongation L/T	EN 12311-1	15%	3%/3%			15%/20%			2%/2%		
Resistance to impact	EN 12691 – A		NPD	700 mm		NPD			NPD		
Resistance to tearing (nail shank) L/T	EN 12310-1	-30%	NPD	70/70 N		100/100 N			70/70 N		
Flexibility to low temperature	EN 1109	≤	-10°C			-10°C			-10°C		
Flow resistance at high temperature	EN 1110								120°C		
Water vapour transmission after ageing	EN 1931 EN 1296-1931	-20%	μ = 150.000 NPD			μ = 150.000 NPD			μ = 150.000 NPD		
Reaction to Fire - Euroclass	EN 13501-1		E			E			E		
External fire performance	EN 13501-5		F roof			F roof			F roof		
Thermal specifications											
Thermal conductivity			0.2 W/mK			0.2 W/mK			0.2 W/mK		
Heat capacity			2.6KJ/K	3.9KJ/K	5.2KJ/K	2.6KJ/K	3.9KJ/K	5.2KJ/K	2.6KJ/K	3.9KJ/K	5.2KJ/K



**Finishing**

**a) EMBOSSING**

**FLAMINA.** The embossing on the lower surfaces of the membranes finished with Flamina film makes it possible to lay the product precisely and quickly; forming a smooth surface when melted with the torch. It indicates the correct melting temperature and lets the film retract faster. The embossing also enables optimal vapour diffusion; in spot bonded and loose laid installation, in the points where it remains intact, preventing blisters and swelling.

**b) TALCING.** The talcing of the top face is carried out with a technique which evenly spreads the very thin talc over the top surface with a special pattern, preventing accumulation or zones without talc. This new system allow a quick unroll and gives the surface a pleasant aspect, which enable to torch it faster if compared to the other coarser mineral finishes.