

**EFISOL**

Solutions for thermal insulations



**Polyurethane based**  
thermal insulation  
under waterproofing membrane  
for self protected  
flat roof

efi:green duo

**SOPREMA**  
GROUP

# lightweight, effective and strong



EFIGREEN DUO INSULATION IS INTENDED TO  
NEW FLAT ROOFS OR RENOVATION.

## efigreen duo

- Non-accessible, technical, trafficable flat roofs including surfaces protected by tiles on pedestals, roof gardens, in plain or mountain climates.
- Nature of the substrate\*:
  - Masonry with a slope of 0 to 5 %
  - Wood and wood derivative panels with a slope of 1 to 5%



# 10 reasons to choose Efigreen Duo

**1** thickness: 100 mm gives a  $R_0 = 4.35$

**2** Lightweight

**3** Quick and easy to install

**4** High mechanical resistance

**5** Technical Application Document (DTA) - CSTB (France)

**6** Easy to cut

**7** Thermal French regulations 2005:  
■ Efigreen Duo 80 mm minimum  
■ Efigreen Duo 100 mm reference

**8** HCFC/HCF-free

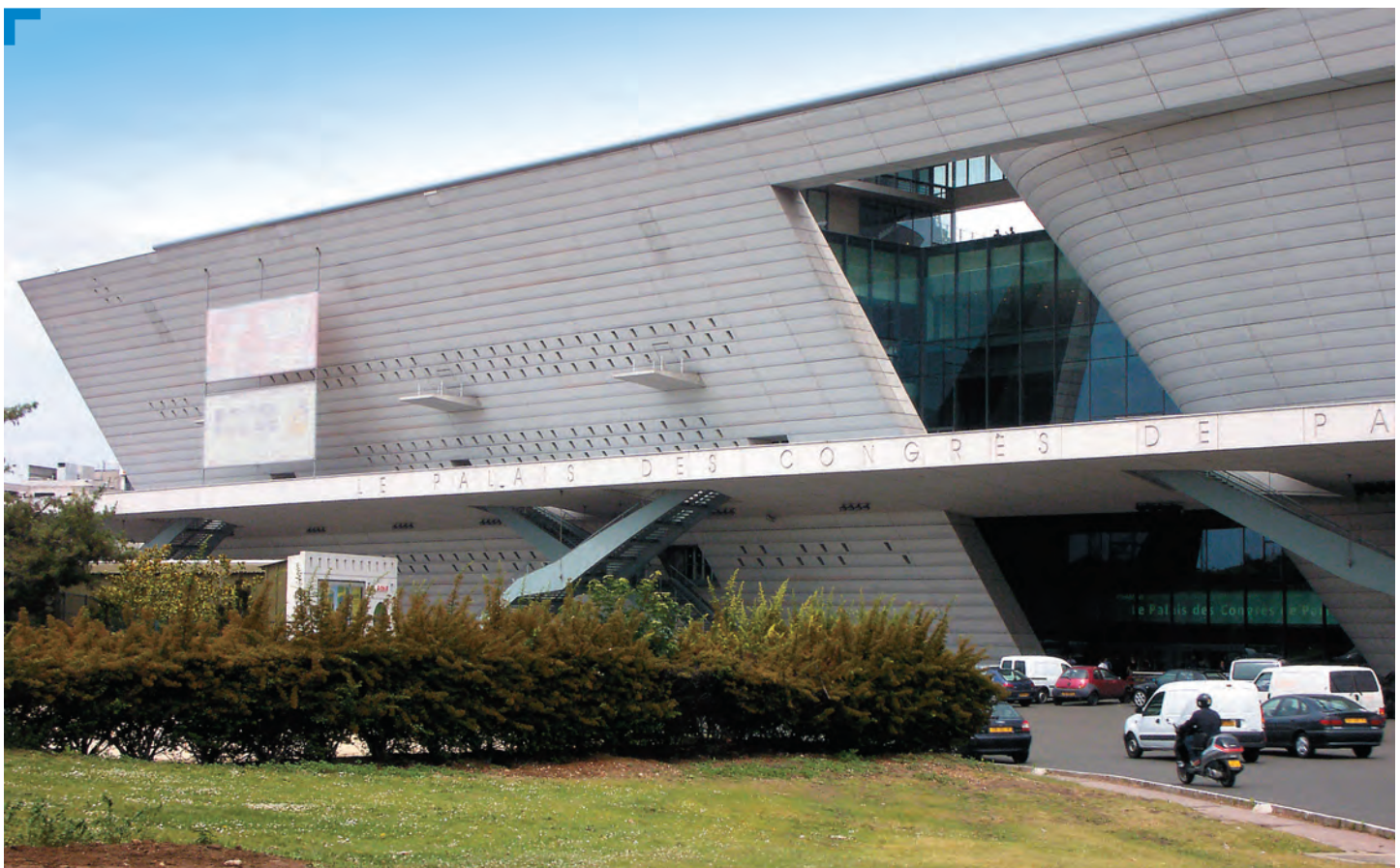
**9** Contains no fibres

**10**  $\lambda_D = 0.023 \text{ W/(m.K)}$

## the benefits



Effective, economical and lightweight, Efigreen Duo is particularly suited to thermal insulation on flat roof





# simple & effective

## + product

### 2 types of installation:

- Efiguren Duo in 1 layer\*\*
- Laid in 2 layers: gluing of only one of the 2 layers\*\*
- $R_D$  max: 12.20 (m<sup>2</sup> K/W)

## INSULATION AS BASE

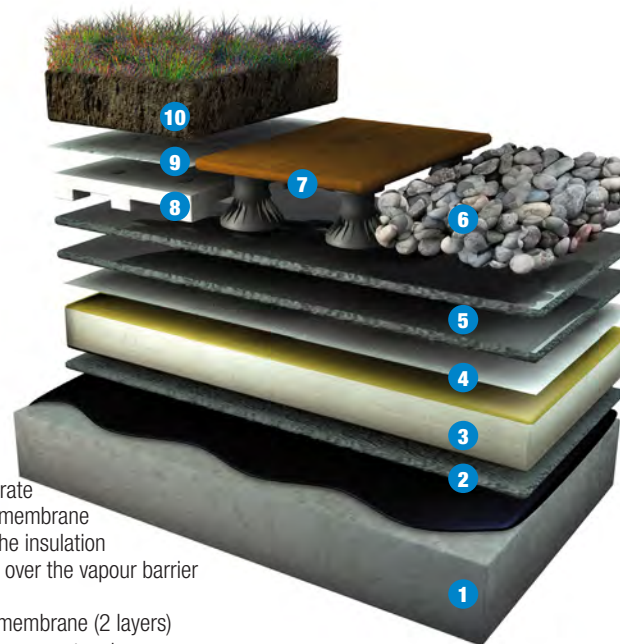
### Efiguren Duo consisted of

- 1 - An HCFC/HFC-free polyurethane foam.
- 2 - A multi-layer composite facing.

**Efiguren Duo** allows significant savings on supplies (adhesive) and installation times.

The multi-layer facing guarantees the stability and durability of the insulation.

## USE OF EFIGREEN DUO IN 1 OR 2 LAYERS



- 1 Concrete substrate
- 2 Vapour barrier membrane
- 3 Application of the insulation in 1 or 2 layers over the vapour barrier
- 4 SopraVoile 100
- 5 Waterproofing membrane (2 layers)
- 6 Gravel 7 Tiles on support pads
- 8 Filter layer 9 Drainage layer 10 Sopranature green roof or garden roof

Ballasted applications Laid as the work progresses		
Ballasted applications compliant with DTU 43	Tiles on pedestals*	Garden roofs compliant with DTU, series 43

### Loose laid waterproofing system

separating membrane	
SopraVoile 100 with conventional waterproofing membrane	Without If the waterproofing membrane has an underside with an anti-adhesive treatment.

### Laying the insulation

Laid in 1 layer	Laid in 2 layers up to 2 x 140 mm
Loose laid	1 <sup>st</sup> or 2 <sup>nd</sup> layer cold adhered

- with no limitation of surface area for hard ballast and tiles on pedestals
- limited to a wind pressure 3927 Pa for loose ballast

\*\* See the installation conditions in the DTA.

\* See admissible loads under each pedestal, according to absolute compaction table.



## APPLICATION/USE



1. Cutting and installation of the insulation loose and in staggered pieces



2. Laying of the 1<sup>st</sup> layer of waterproofing membrane on **Sopravole 100**



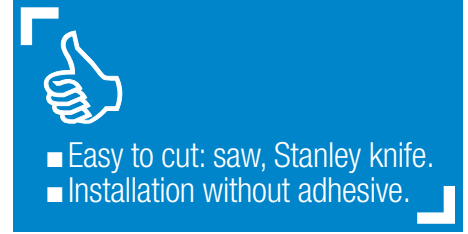
3. Heat welding the overlaps of the 1<sup>st</sup> layer of waterproofing



4. Welding of the 2<sup>nd</sup> waterproofing layer



5. Gravel in place



## application

## SPECIFICATIONS

Characteristics		Values specified	Units	Standards and references
Weight	Net core density	32.5 ± 2.5	kg/m³	EN 1602
Dimensions	Length x Width	600 x 600 ± 3	mm	EN 822
	Thickness	30 à 140 ± 2	mm	EN 823
Mechanicals	Compressive stress for 10% compression	≥ 200	k Pa	EN 826
	Compressibility class	Class C		UEAtc guide
	Critical service strength (Css)	Min. Css = 0.10 (1 layer)	MPa	NF P 10-203 (DTU 20.12) and CSTB Notes 3230_V2 November 2007
		Min. Css = 0.09 (2 layers)		
	Deformation in service (ds)	min. ds 1.0 max ds 1.8 (1 layer)	%	
		min. ds 1.0 max ds 1.9 (2 layers)		
Dimensional stability	Residual dimensional variation at 20°C after stabilisation at 80°C	≤ 0.3	%	Over 3 days at 80°C + 24 hrs at 23
	Bending under the influence of temperature gradient 80°/20°C	≤ 3	mm	UEAtc guide

## THERMAL PERFORMANCES

Thermal resistances												
Thickness PU (mm)	30	40	50	60	70	80	90	100	110	120	130	140
R <sub>p</sub> (m <sup>2</sup> K/W)	1.25	1.70	2.15	2.60	3.05	3.45	3.90	4.35	4.80	5.20	5.65	6.10

## ABSOLUTE COMPACTION (MM) ON MASONRY SUBSTRATE UNDER DISTRIBUTED LOADS

Load kPa	Thicknesses (mm)												
	40	60	80	100	120	140	160	180	200	220	240	260	280
4.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2	0.2	0.2	0.2	0.2	0.2
20	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8
30	0.2	0.3	0.4	0.5	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.0	1.1
40	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
60	0.4	0.6	0.7	0.9	1.1	1.2	1.4	1.5	1.6	1.8	1.9	-	-

## TECHNICAL DATA

INSULATION															
Proprieties		Value		Unit		Standard									
Thermal Conductivity ( $\lambda_D$ )		0.023		W/(m.K)		ACERMI									
DIMENSIONS															
Lght. (mm)		wdth. (mm)		Thickness (mm)											
600		600		30	40	50	60	70	80	90	100	110	120	130	140
Foam colour: cream (colour not contractually binding).															
Marking of panels: on edge.															
Packaging: plastic stretch film.															
Storage: protected from rain or sun.															

## OTHER CHARACTERISTICS

Characteristics		Values specified	Units	Reference standards
Mechanical	Apparent modulus of elasticity under compressive load	8,000 to 10,000	k Pa	EN 826
Hygro-Thermal	Absorption of water by immersion	3	g/100 cm³	Immersion bare foam - 2 days at 20°C
Dimensional stability	Linear variation: - depends on hygrometry - depends on temperature	0.1	%	between 5 and 90%. RH at 23°C
		1	%	between + 20 and -25 and between + 20 and 70°C



### EFISOL by SOPREMA at your service

Looking for a sales contact in order to discuss a future project or a project that is under way? Any questions about the implementation of our product range?

#### Contact SOPREMA Export Department

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Find all the information on [www.soprema.com](http://www.soprema.com)



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