



# EFIGREEN DUO+ - EFIGREEN DUO+ XL

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** are rigid polyisocyanurate foam (PIR) thermal insulation boards for the building, coated with facings on both sides.

## User application

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** are used for the thermal insulation of waterproofed roof terraces as non load-bearing thermal insulation panel, support for loose-laid waterproofing system under heavy protection.

## Composition

EFIGREEN DUO+ - EFIGREEN DUO+ XL	
Rigid polyurethane foam	Beige colour
Facing	Multilayer

## Packaging

EFIGREEN DUO+ - EFIGREEN DUO+ XL		
Dimensions	Length x width	EFIGREEN DUO+ from 30 to 160 mm: 600 mm x 600 mm EFIGREEN DUO+ XL from 100 to 160 mm: 1200 mm x 600 mm
	Thickness	Refer to ACERMI* certificate
	Finishing	Straight edge panel
Packaging		Panels are packed on non-stackable wrapped pallet
Marking		Each package is CE labelled
Storage		On flat support, away from weather Any colour change of the foam does not affect product performance
* ACERMI: French association for certification of insulation materials		

### ACERMI certificate no 12/006/761

Certified thermal conductivity:

Thickness (mm)	Thermal resistance										
	30	35	40	45	50	55	60	66	70	75	80
R (m <sup>2</sup> .K/W)	<b>1.30</b>	<b>1.50</b>	<b>1.80</b>	<b>2.05</b>	<b>2.25</b>	<b>2.50</b>	<b>2.75</b>	<b>3.00</b>	<b>3.20</b>	<b>3.40</b>	<b>3.65</b>
Thickness (mm)	85	90	95	99	100	105	110	115	120	125	130
R (m <sup>2</sup> .K/W)	<b>3.85</b>	<b>4.10</b>	<b>4.35</b>	<b>4.50</b>	<b>4.55</b>	<b>4.80</b>	<b>5.00</b>	<b>5.25</b>	<b>5.50</b>	<b>5.70</b>	<b>5.95</b>
Thickness (mm)	133	135	140	145	150	155	160				
R (m <sup>2</sup> .K/W)	<b>6.10</b>	<b>6.15</b>	<b>6.40</b>	<b>6.65</b>	<b>6.85</b>	<b>7.10</b>	<b>7.30</b>				

## Characteristics - CE marking

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** are a rigid insulation panel for buildings and complies with EN 13165 "Factory made rigid polyurethane foam (PU) products".

Essential characteristics	Performances		Harmonised Technical Specification
Thermal conductivity – $\lambda_D$ (W/(m.K))	<b>0.023</b>	<b>0.022</b>	<b>EN 13165: 2012 + A2:2016</b>
Thickness – d (mm)	<b>from 30 to 35</b>	<b>from 40 to 160</b>	
Thermal resistance – $R_D$ (m <sup>2</sup> .K/W)	<b>1.30 to 1.50</b>	<b>1.80 to 7.30</b>	
Thickness tolerance	<b>T2</b>		
Reaction to fire	<b>NPD</b>		
Durability of reaction to fire against heat exposure, weathering, ageing/ degradation	<b>(a)</b>		
Thermal resistance durability against heat exposition, weather conditions, aging/ and damage Durability characteristics	<b>NPD</b>		
Dimensional stability	<b>NPD</b>		
Deformation under specified compressive load and temperature conditions	<b>NPD</b>		
Determination of thermal resistance and thermal conductivity values after ageing	<b>(b)</b>		
Compressive strength	<b>CS(10\Y) 200</b>		
Tensile strength	<b>NPD</b>		
Durability of reaction to fire against heat exposure, weathering, ageing/ degradation Compressive creep	<b>NPD</b>		
Water permeability Short term water absorption	<b>WS(P)0.2</b>		
Long term water absorption	<b>NPD</b>		
Flatness after partial immersion	<b>NPD</b>		
Water vapour transmission	<b>NPD</b>		
Acoustic absorption	<b>NPD</b>		
Release of dangerous substances inside buildings	<b>(c)</b>		
Continuous glowing combustion	<b>(c)</b>		

(a): Polyurethane fire resistance does not degrade with time.

(b): Any variation of thermal conductivity and thermal resistance is processed and taken in account in the declared values (Annex C for thermal conductivity and dimensional stability for the thickness).

(c): European test methods are ongoing.

Additional characteristics	Performances	Test method
Useful dimensions length x width	<b>600 ± 3 mm x 600 ± 3 mm 1200 ± 3 mm x 600 ± 3 mm</b>	<b>EN 13165:2012 +A2:2016</b>
Thickness	<b>30 to 160 ± 2 mm</b>	
Squareness	<b>≤ 3 mm / m</b>	



## Characteristics (outside CE marking)

Characteristics	Performances	Test method
Compressibility classification at 80°C under 40 kPa	C	UEAtc guideline § 4.51 (CSTB book 2662-v2)
Curving under thermal gradient	≤ 3 mm	UEAtc guideline § 4.32 (CSTB book 2662-v2)
Dimensional variation in the free state of deformation at 23°C after stabilization at 60°C	≤ 0.3 %	UEAtc guideline § 4.31 (CSTB book 2662-v2)
Critical strength in service Deformation in service	1 layer: Rcs mini = 100 kPa ds mini = 1,0%; ds max = 1,8 % 2 layers: Rcs mini = 90 kPa ds mini = 1,0%; ds max = 1,9 %	CSTB guideline 3230-v2
ACERMI certificate	12/006/761	

## Installation

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** boards are laid as non load-bearing thermal insulation panels, support for loose-laid waterproofing system under heavy protection.

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** are laid:

- In 1 or 2 layers up to 320 mm for a bituminous or synthetic waterproofing system in compliance with the specifications of the Technical Approval "EFIGREEN DUO+ n°5.2/16-2508\_V1 published on April 17<sup>th</sup>, 2020,".
- In 1 layer up to 140 mm associated to an upper layer of **EFIGREEN A** with maximal thickness of 70 mm when used with asphaltic-base waterproofing system in compliance with the requirements of the Technical Approval "EFIGREEN A" n°5/15-2448 published on July 23<sup>rd</sup>, 2015.

Reference should be made not only to the "EFIGREEN DUO+" Technical Approval, but also to the waterproofing system Technical Guidelines of the waterproofing system covering.

## Special indications

### Hygiene, health and environment:

**EFIGREEN DUO+ & EFIGREEN DUO+ XL** products is an "item" within the meaning of the European REACH regulation, it is not classified as dangerous.

Regarding product losses or batch remains: non-hazardous non-inert waste - reuse, incineration in Authorized Installation or stockpiled in in a Non-Hazardous Waste Storage Installation (ISDND - Class II landfill).

### Traceability:

Product traceability is ensured through a manufacturing code: CCC/YY/HH/MM/N/ACERMI.  
Calendar day / Year / Hour / Minute / Production site marker / ACERMI certificate number.

### QSE integrated system:

The product is manufactured and applied under an integrated management of the **Quality (ISO 9001), Environment (ISO 14001) and Health-Security (OHSAS 18001) certified.**