



## Designated according to The Construction Products (Amendment etc.) (EU Exit) Regulations 2020

UK Technical Assessment	UKTA-0836-22/6039 of 22/06/2022
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	HYBRIS
Product family to which the construction product belongs:	Area Code 4 Thermal Insulation Products Composite Insulating Kits / Systems  Product composed of reflective faces used as thermal insulation in the building envelope
Manufacturer:	ACTIS SA Avenue de Catalogne 11300 Limoux, France
Manufacturing plant(s):	ACTIS SA Avenue de Catalogne 11300 Limoux, France
This UK Technical Assessment contains:	9 pages
This UK Technical Assessment is issued in accordance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 on the basis of:	UKAD 040007-00-1201 - Thermal insulation products for buildings with radiant heat reflective component

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## 1 Technical description of the product

HYBRIS panels are non-homogeneous insulating products. They comprise an inner core of shaped polyethylene foam layers with outer surfaces of aluminium coated polyethylene foils. The inner foam layers are interspersed with aluminium coated foils creating triangular shaped air cavities. The layers are assembled by thermo-gluing.

### Dimensions

HYBRIS Insulation Panels are manufactured to the dimensions 1200x1145 mm. Additional sizes are available on request, such as: 1200x569 mm, 1200x610 mm, 1200 x410mm, 2650x1200 mm, 2400 x 1145mm and 2400x569 mm.

The deviation from the nominal length is not more than - 2% +5%. The deviation from the nominal width does not exceed  $\pm 2\%$

Length and width were determined in accordance with EN 822.

Thickness of HYBRIS Insulation panels (in mm): 50, 60, 75, 90, 105, 125, 140, 155, 170, 185, 195, 205, 220, 235, 250.

Deviation: The deviation from the nominal thickness is no more than -2/+10 mm

The thickness of the product was determined in accordance with EN 823.

### Mass per square metre

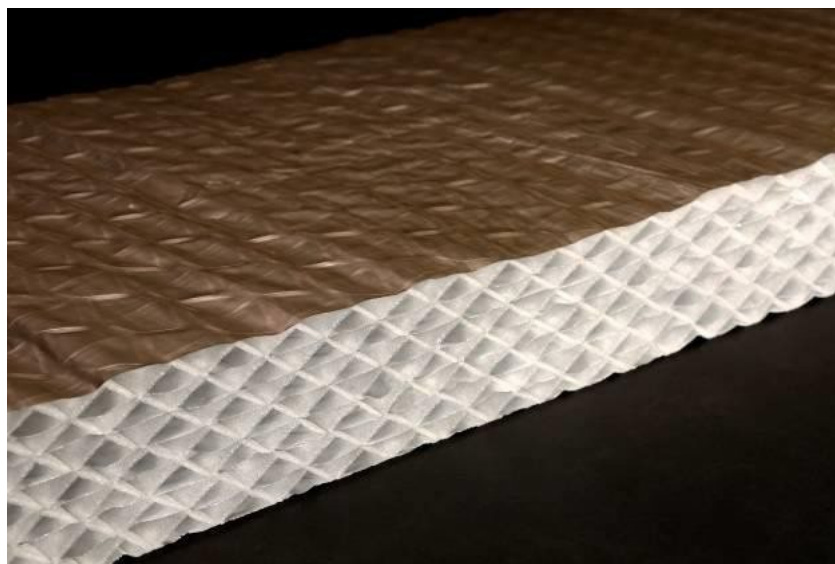
The mass per square metre was determined in accordance with EN 1602.

Table 1 : Mass per unit area of HYBRIS Insulation Panels

Thickness (mm)	Pack Weight (kg)	Area (m <sup>2</sup> / package)	Surface density (kg/m <sup>2</sup> )
50	2.20	5.49	0.40
60	4.18	8.24	0.51
75	3.37	5.49	0.61
90	3.96	5.49	0.72
105	4.55	5.49	0.83
125	2.57	2.74	0.94
140	2.86	2.74	1.04
155	3.15	2.74	1.15
170	3.45	2.74	1.26
185	3.74	2.74	1.37
195	4.04	2.74	1.47
205	4.33	2.74	1.58
220	4.62	2.74	1.69
235	4.92	2.74	1.79
250	5.21	2.74	1.90

A 100 mm wide polyethylene (PE) silicone adhesive tape with an acrylate glue is used to seal joints between HYBRIS panels.

Figure 1 : Hybris panel



## 2 Specification of the intended uses in accordance with the applicable UK Assessment Document (hereinafter UKAD)

HYBRIS panels are intended for use in construction systems as thermal insulation in roof, wall and floor applications.

### 1 Application for roofs

- Pitched roof at rafter level
- Loft/attics
- Suspended and exposed timber floors
- Cold flat roofs

### 2 Application for walls

- Vertical walls in timber frame constructions
- Vertical masonry walls
- Vertical steel frame construction

The HYBRIS panels should be used in watertight and weatherproof constructions and the surfaces to be covered should be firmly fixed, clean, dry and smooth.

Loads should not be applied to the HYBRIS product.

Air gaps on the external surfaces can be installed to make use of the reflective faces of HYBRIS and thereby improving the thermal efficiency of the construction.

The respective national regulations shall be observed when installing thermal insulation products.

The design value of the thermal conductivity or thermal resistance shall be in accordance with the relevant national provisions.

This UK Technical Approval does not cover the complete or finished system incorporating the insulation. As for the application of all insulation products, the national codes of practice and regulations must be respected for design and implementation of construction systems.

The provisions made in this UK Technical Assessment are based on an assumed working life for thermal insulation products of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

#### 3.2 Safety in case of fire (BWR 2)

The insulation product was tested in accordance with EN 15715 and Annex A of UKAD 040007-00-1201 for mounting and fixing. The fire classification was determined in accordance with EN 13501-1.

Essential characteristic	Performance
Reaction to fire	Class F

#### 3.3 Health, hygiene and the environment (BWR 3)

##### Resistance to water vapour

The water vapour transmission properties were determined in accordance with EN 12572, condition C (23°C, 50%/93% R.H.).

The water vapour diffusion equivalent air layer thickness,  $S_d$  is greater than 90 m.

##### VOC (volatile organic compounds)

The VOC emissions of HYBRIS was determined in accordance with ISO 16000 parts -3, -6, -9, -11. The results are shown in Table 2.

Table 2 : VOC (volatile organic compounds)

Compound	Concentration after 28 days ( $\mu\text{g}/\text{m}^3$ )
TVOC	<2
Formaldehyde	<4
Acetaldehyde	<4
Toluene	<2
Tetrachloroethylene	<2
Ethylbenzene	<2
Xylene	<2
Styrene	<2
2-Butoxyethanol	<2
Trimethylbenzene	<2
1,4-Dichlorobenzene	<2

##### Statement of dangerous substances:

According to the manufacturer's declaration taking account of EOTA TR 034, the products installed do not contain or release any dangerous substances.

In addition to the specific clauses relating to dangerous substances contained in this UKTA, there may be other requirements applicable to the products falling within its scope (e.g. UK-REACH).

#### 3.4 Safety and accessibility in use (BWR 4)

Not relevant

#### 3.5 Protection against noise (BWR 5)

Not relevant

### 3.6 Energy economy and heat retention (BWR 6)

#### Core thermal resistance

The core thermal resistance was determined in accordance with EN 16012 : 2012 + A1 2015 (at a mean temperature of 10°C). The fractile core thermal resistance R (10°C 90/90) representing at least 90% of the production with a confidence level of 90% was calculated in accordance with EN 16012 : 2015. The declared thermal resistance  $R_D$  was calculated by rounding R (10°C 90/90) downwards to the nearest 0.05 m<sup>2</sup>.K/W according to UKAD 040007-00-1201).

Table 3 : Core thermal resistances

Thickness (mm)	Declared core thermal resistance (m <sup>2</sup> .K/W)
50	1.50
60	1.80
75	2.25
90	2.70
105	3.15
125	3.75
140	4.20
155	4.65
170	5.15
185	5.60
195	5.90
205	6.20
220	6.65
235	7.10
250	7.55

#### Thermal resistance of HYBRIS panels with air gaps

The thermal resistance with air gaps was determined in accordance with EN 16012 by adding the thermal resistance of the air gaps adjacent to the panels.

The thermal resistance of air gaps was calculated for air gaps of 20 mm, **horizontal heat flow** in accordance with Annex D.2 and Table D.1 of EN ISO 6946 : 2017.

Table 4 : Thermal resistances of the HYBRIS Panels – with 1 or 2 air gaps

Thickness (mm)	Thermal resistance with 1 and 2 air gaps in horizontal heat flow (m <sup>2</sup> .K/W)		
	Core	Core + 1 air gap*	Core + 2 air gaps*
50	1.50	2.10	2.70
60	1.80	2.40	3.00
75	2.25	2.85	3.45
90	2.70	3.30	3.90
105	3.15	3.75	4.35
125	3.75	4.35	4.95
140	4.20	4.80	5.40
155	4.65	5.25	5.85
170	5.15	5.75	6.35
185	5.60	6.20	6.80
195	5.90	6.50	7.10
205	6.20	6.80	7.40
220	6.65	7.25	7.85
235	7.10	7.70	8.30
250	7.55	8.15	8.75

(\*) Air gaps of 20 mm, **horizontal heat flow** The air gap is adjacent to the external surface having a declared emissivity of 0.06 and 0.10.

Note: Other calculations for other configurations such as upwards and downwards heat flow should be made in accordance with Annex D.2 and Table D.1 of EN 6946.

### 3.7 Sustainable use of natural resources (BWR 7)

No performance assessed

### 3.8 Emissivity

The emissivity was determined on the 2 metalised external films of the HYBRIS in accordance with EN 16012 : 2015.

For metallised external film of product, which is typically installed facing the warm side of the building:

- The emissivity of the inner metalized face after the ageing test is 0.035
- The fractile value of emissivity is 0.043, representing at least 90% of the production with a confidence level of 90%
- The declared value of emissivity is **0.06**.

For the other metalised external film, which is typically installed facing the cold side of the building:

- The emissivity of the outer face after the ageing test is 0.0927
- The fractile value of emissivity is 0.0997, representing at least 90% of the production with a confidence level of 90%
- The declared value of emissivity is **0.10**.

### 3.9 Durability aspects

Corrosion resistance: This was tested in accordance with ISO 9227, T3: *Corrosion tests in artificial atmospheres – Salt spray tests*. The test results in relation to the loss of mass and a visual check of the surface of the product indicate no major loss of material.

### 3.10 Peel strength

The peel strength of the adhesive tape on the external outer film of the product was tested in accordance with EN ISO 11339, before and after ageing 28 days at + 70°C/90% RH (see Table 5).

Table 5 : Peel strength

Product	Before ageing (N/100 mm)	After ageing (N/100 mm)
Adhesive tape	22*	98**

\*Mean value

\*\*HYBRIS panel surface was torn around the tape before the adhesive started to peel.

### 3.11 Tensile strength

The tensile strength parallel to faces was determined in accordance with EN 1608, before and after ageing 28 days at + 70 °C/ 90 % RH (see Table 6).

Table 6 : Tensile strength

Product	Before ageing		After ageing	
	Longitudinal direction	Transverse direction	Longitudinal direction	Transverse direction
HYBRIS (product alone) (kPa)	65.0	47.9	74.0	52.3
HYBRIS (assembled using the adhesive tape) (N/100 mm)	116		132	

### 3.12 Resistance to tearing

The resistance to tearing was determined in accordance with EN 12310-1 part 1, before and after ageing 28 days at + 70°C/90% RH.

The tearing resistance to longitudinal direction was 190 N before ageing and 199 N after ageing. The tearing resistance to transverse direction was 180 N before ageing and 188 N after ageing.

#### **4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied with reference to its legal base**

##### **4.1 System of assessment and verification of constancy of performance**

According to UKAD No. 040007-00-1201 and Annex V of the Construction Products Regulation (Regulation (EU) 305/2011 as brought into UK law and amended, the system of assessment and verification of constancy of performance (AVCP) 3 applies.

#### **5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable UKAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with the British Board of Agrément and made available to the UK Approved Bodies involved in the conformity attestation process.

##### **5.1 UKCA marking for the product/ system must contain the following information:**

- Identification number of the Approved Body
- Name/address of the manufacturer of the product/ system
- Marking with intention of clarification of intended use
- Date of marking
- UKTA number.

On behalf of the British Board of Agrément



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