

# Environmental Product Declaration

## Sandwich Panels with QuadCore™ Technology

In agreement with ISO 14025:2006,  
Product Category Rules and  
PCR Basic Module 2012:01 Ver. 2.01

Construction Products and CPC Division  
54 Construction Services



QuadCore™ Technology is Kingspan's next generation of self-blended hybrid insulation core.

Across the world of insulated panels, this innovation with its distinctive grey microcells powers the industry's highest combined performance:

- Unrivalled thermal efficiency
- Superior fire protection
- Enhanced environmental credentials
- Longest performance guarantee

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POWERED BY  
**QuadCore**  
TECHNOLOGY

 Kingspan®

## PRODUCT: SANDWICH PANELS WITH QUADCORE™ TECHNOLOGY

Use	Construction industry
Product lifetime/years	Expected lifetime of the products exceeds 40 years. The Quad Core panels have a thermal performance warranty of 40 years.
Hazardous substance contents	Yes/No
UN CPC	Construction products and CPC 54 construction services

<b>Organization:</b>	<b>Kingspan, a.s.</b>	<b>Registration No. / VAT</b> <b>27465021 / CZ27465021</b>
Address	Vážní 465, 500 03 Hradec Králové, Czech Republic	
Statutory body	Jan Bican	
EPD representative	Artur Krzywulski	
Contact	tel.: +48 602 363 217 E-mail: artur.krzywulski@kingspan.com	www.kingspan.com



## 1 PROGRAMME RELATED INFORMATION

Programme operator for this EPD is The International EPD®system.

W: [www.environdec.com](http://www.environdec.com)

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### The International EPD®system

The International EPD® Consortium (IEC)  
Postal address: Vasagatan 15-17, SE-111 20  
Stockholm, Sweden

E-mail: [info@environdec.com](mailto:info@environdec.com)

### The reference PCR document

The reference documents for this EPD are General Programme Instructions and Product Category Rules 2012:01 Version 2.01: Construction Products and CPC Division 54: Construction Services. Product Category Rules (PCR) are specified for certain information modules "cradle-to-gate", so called core modules. The structure and aggregation level of the core modules is defined by the United Nation Statistics Division - Classification Registry CPC codes (<http://unstats.un.org>).

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### Registration number

The registration number of this EPD is:  
S-P-001047

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### Date of publication and validity

The publication date of this EPD is:  
13.05.2017

This EPD is valid until: 12.05.2022

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### Geographical scope of application of EPD

The geographical scope of this EPD is fully international.

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### Information about the year or reference period of the underlying data to the EPD

The reference period to this EPD is year 2015. Data shown below refers to 2015 and have been collected directly from the Kingspan, a.s. Other general data used were taken from the ILCD and Ecoinvent database.

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### Reference to the website

More information related to The International EPD® System programme is available at [www.environdec.com](http://www.environdec.com).

## 2 PRODUCT RELATED INFORMATION

### Trade name of product:

KS1000 RW Roof and wall panels of thickness 80, 100, 120 and 160 mm

KS1000 AWP Architectural wall panels of thickness 80, 100, 120, 150 and 170 mm

KS1000 NF / KS1000 NC Wall, ceiling and cold-store panels of thickness 80, 100, 120, 150, 170 and 200 mm

KS1150 NF / KS1150 NC Wall, ceiling and cold-store panels of thickness 80, 100, 120, 150, 170 and 200 mm

KS1000 TL Wall and ceiling panels of thickness 100 and 120 mm

KS1150 TL Wall and ceiling panels of thickness 100 and 120 mm

### 2.1 SPECIFICATION OF THE COMPANY

The sandwich panels Kingspan Inc. with QuadCore™ are produced in Kingspan Inc., Vážní 465, 500 03 Hradec Králové, Czech Republic

Registration No. / VAT No.: 64829201 / CZ64829201

The company is recorded in the Company Register kept by the Regional Court in Hradec Králové, Section B, File 1309.

Main activity of the Company is production of insulation panels and building material.

Kingspan Inc. is a company having ISO 9001: quality certificate, ISO 14001: Environmental certificate, ISO 18001: Occupational Health and Safety. Kingspan Inc. is having Certificate for green power.

### 2.2 TECHNICAL DESCRIPTION OF THE PRODUCT

#### KS1000 RW

The KS1000 RW is a trapezoidal formed roof system with a standard fastening method (through fixed), which is suitable for all building applications, with a roof slope:

- More than 4° (7%) for roofs with one panel in the slope direction;
- More than 8° (14%) for roofs with end lapping (two or more panels in slope direction).

The KS1000 RW panel can also be used for wall cladding.

Panels with module width 1000 mm.



### KS1000 AWP

KS1000 AWP is a concealed fixed architectural wall system which can be laid vertically or horizontally and is suitable for wall cladding on all buildings except where there are low internal temperature conditions (below 0°C)

Panels module width is 1000 mm.



### KS1000 NF / KS1000 NC

KS1000 NC/NF is a through fixed wall system which can be laid vertically or horizontally. The panels are suitable for external and internal applications - as wall or ceiling elements on all types of buildings

Panels module width is 1000 mm.



### KS1150 NF / KS1150 NC

KS1150 NC/NF is a through fixed wall system which can be laid vertically or horizontally. The panels are suitable for external and internal applications - as wall or ceiling elements on various types of buildings.

Panels module width is 1150 mm.





### KS1000 TL

KS1000 TL is a through fixed wall system which can be laid vertically or horizontally. The panels are suitable for external and internal applications, especially for controlled internal environments - as wall or ceiling elements on various types of buildings.

Panels module width is 1000 mm.



### KS1150 TL

KS1150 TL is a through fixed wall system which can be laid vertically or horizontally. The panels are suitable for external and internal applications, especially for controlled internal environments - as wall or ceiling elements on various types of buildings.

Panels with module width 1150 mm.



## 2.3 DECLARED UNIT

The declared unit is according to the EN 15804 + A1 and applied PCR 1 m<sup>2</sup> of sandwich panels.

## 2.4 DESCRIPTION OF UNDERLYING LCA-BASED INFORMATION

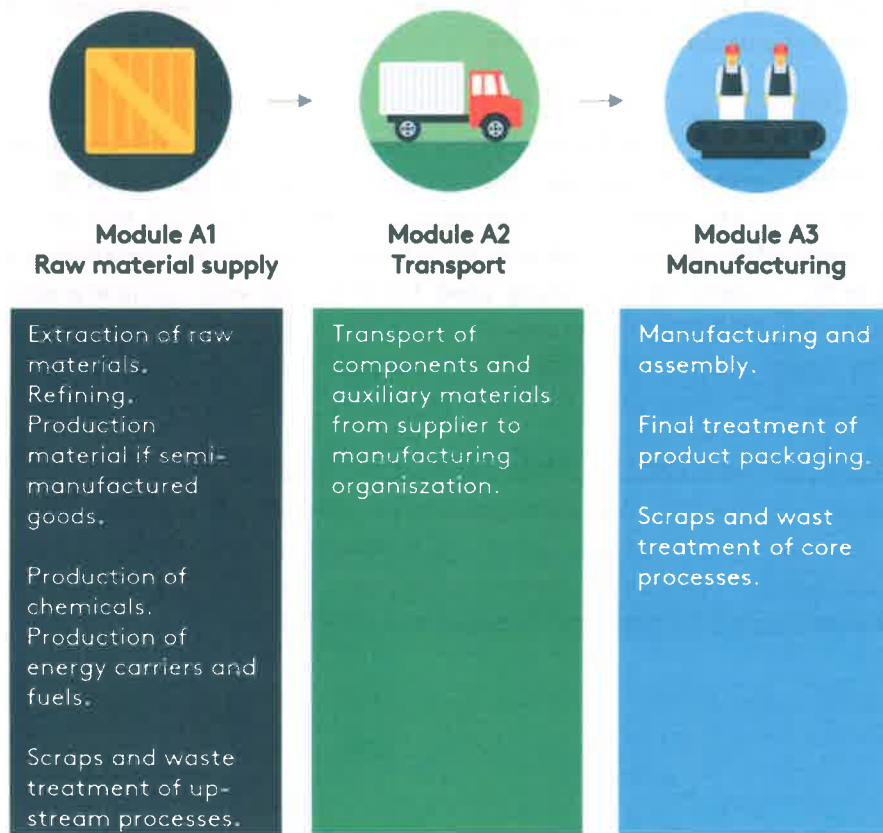
### 2.4.1 SYSTEM BOUNDARIES

System boundaries of this EPD are cradle to gate. Based on EN 15804+A1 The International EPD® System has adopted an LCA calculations procedure which is separated into different life cycle stages, so called modules A1, A2 and A3:

- Module A1: Upstream processes including energy production
- Module A2: Transport of inputs to producer
- Module A3: Core processes including infrastructure and waste processing

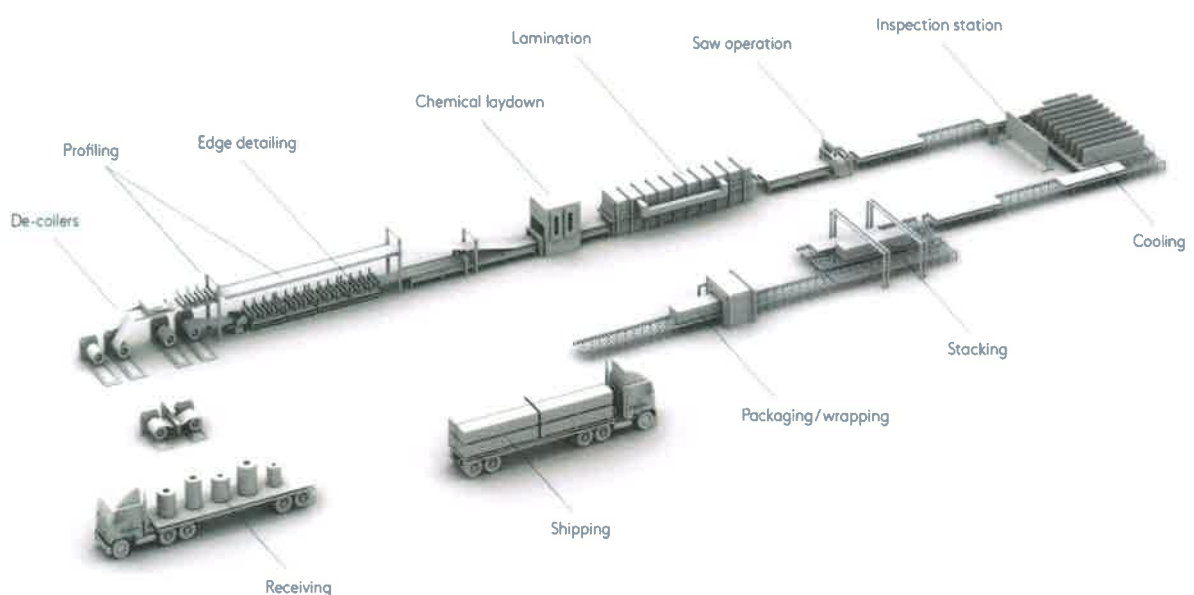
Schematic description of system boundaries consisting of up-steam module processes, core

Figure 1 System boundaries



Based on PCR (IEC 2012) the downstream module was not included into system boundaries. Transport of final product to a customer is also excluded.

Figure 2 Manufacturing process for the sandwich panels Kingspan Inc. with QuadCore™



#### 2.4.2 DATA QUALITY

All relevant data are of specific quality. Data used for calculation were relevant for year 2015. Data set needed for calculation is complete.

#### 2.4.3 LCA STUDY

The LCA calculations rules used for this declaration follow the overall requirements for The International EPD® System. These rules follow the international standards ISO 14040 and ISO 14044 with respect to EN 15804+A1. The product system for this LCA has been described by using specific data when available; generic data have been used in accordance with PCR and GPI requirements. Underlying LCA study used for this EPD was complete and covering all relevant inputs. For LCA study site specific data from producer were used. The LCA was conducted in year 2017. Underlying LCA study was elaborated by LCA studio, [www.lcastudio.cz](http://www.lcastudio.cz).

#### 2.5 CONTENT OF MATERIALS AND CHEMICAL SUBSTANCES

The sandwich panels Kingspan Inc. with QuadCore™ consist of steel sheet on both sides and foam core. Composition of core is based on organic chemical compounds, catalysts and adhesives. Detailed composition of product is Kingspan Inc. is business secret and cannot be published. The packaging for transport is paper box with PE foil.



### 3 ENVIRONMENTAL PERFORMANCE-RELATED INFORMATION

All environmental performance is reported per declared unit: 1 m<sup>2</sup> of sandwich panels with QuadCore™.

#### 3.1 USE OF NATURAL RESOURCES

Following tables report the main consumption of resources for KS1000 RW panel's life cycle. Use of resources in MJ/D.U. is expressed. All energy data are expressed as net caloric value.

**Table 1 Resource (MJ), electricity and water consumption associated with KS1000 RW panel's production. Data are aggregated (A1-A3) and referred to D.U.**

Parameters	80 mm	100 mm	120 mm	160 mm
Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]	25,9	28,3	33,5	41,5
Use of renewable primary energy resources used as raw materials [MJ]	0,012	0,014	0,014	0,017
Total use of renewable primary energy resources [MJ]	25,9	28,3	33,5	41,6
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]	423,2	472,4	521,4	617,4
Use of non-renewable primary energy resources used as raw materials [MJ]	0,004	0,004	0,005	0,007
Total use of non-renewable primary energy resources [MJ]	423,3	472,4	521,4	617,5
Use of secondary material [kg]	0	0	0	0
Use of renewable secondary fuels [MJ]	0	0	0	0
Use of non-renewable secondary fuels [MJ]	0	0	0	0
Use of net fresh water [m <sup>3</sup> ]	9,9	10,8	13,0	16,7

**Table 2 Resource (MJ), electricity and water consumption associated with KS1000 AWP panel's production. Data are aggregated (A1-A3) and referred to D.U.**

Aggregated results for modules	Unit	80 mm	100 mm	120 mm	150 mm	170 mm
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	25,9	30,3	35,9	45,8	51,5
Use of renewable primary energy resources used as raw materials	MJ	0,0120	0,0130	0,0138	0,0189	0,0205
Total use of renewable primary energy resources	MJ	25,9	30,3	35,9	45,8	51,5
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	430,9	476,7	531,4	634,1	689,1
Use of non-renewable primary energy resources used as raw materials	MJ	0,005	0,005	0,007	0,009	0,010
Total use of non-renewable primary energy resources	MJ	430,9	476,7	531,4	634,1	689,1
Use of secondary material	kg	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0
Net use of fresh water	m <sup>3</sup>	10,3	12,3	14,9	19,2	21,9

**Table 3 Resource (MJ), electricity and water consumption associated with KS1000 NF/ KS1000 NC panel's production. Data are aggregated (A1-A3) and referred to D.U.**

Aggregated results for modules A1+A2+A3	Unit	80 mm	100 mm	120 mm	150 mm	170 mm	200 mm
<b>Use of renewable primary energy excluding renewable primary energy resources used as raw materials</b>	MJ	25,7	30,3	35,7	45,3	51,3	59,0
<b>Use of renewable primary energy resources used as raw materials</b>	MJ	0,0117	0,0126	0,0135	0,0186	0,0202	0,0099
<b>Total use of renewable primary energy resources</b>	MJ	25,7	30,3	35,7	45,4	51,3	59,0
<b>Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials</b>	MJ	422,1	472,0	522,7	621,4	680,0	725,1
<b>Use of non-renewable primary energy resources used as raw materials</b>	MJ	0,0046	0,0055	0,0069	0,0088	0,0102	0,0118
<b>Total use of non-renewable primary energy resources</b>	MJ	422,1	472,0	522,7	621,4	680,0	725,1
<b>Use of renewable secondary material</b>	kg	0	0	0	0	0	0
<b>Use of renewable secondary fuels</b>	MJ	0	0	0	0	0	0
<b>Use of non-renewable secondary fuels</b>	MJ	0	0	0	0	0	0
<b>Net use of fresh water</b>	m <sup>3</sup>	10,3	12,4	14,9	19,1	21,8	25,5

Table 4 Resource (MJ), electricity and water consumption associated with KS1150 NF/ KS1150 NC panel's production. Data are aggregated (A1-A3) and referred to D.U.

Aggregated results for modules	Unit	80 mm	100 mm	120 mm	150 mm	170 mm	200 mm
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	23,3	28,3	32,9	42,5	47,9	55,4
Use of renewable primary energy resources used as raw materials	MJ	0,0114	0,0122	0,0121	0,0176	0,0189	0,0209
Total use of renewable primary energy resources	MJ	23,3	28,3	32,9	42,6	47,9	55,4
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	400,4	466,5	494,7	618,9	675,4	755,4
Use of non-renewable primary energy resources used as raw materials	MJ	0,0041	0,0047	0,0061	0,0080	0,0090	0,0104
Total use of non-renewable primary energy resources	MJ	400,4	466,5	494,7	618,9	675,4	755,4
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ	0	0	0	0	0	0
Net use of fresh water	m <sup>3</sup>	9,0	11,4	13,6	17,5	20,0	23,4

**Table 5 Resource (MJ), electricity and water consumption associated with KS1000 TL panel's production. Data are aggregated (A1-A3) and referred to D.U.**

Aggregated results for modules A1+A2+A3	Unit	100 mm	120 mm
<b>Use of renewable primary energy excluding renewable primary energy resources used as raw materials</b>	MJ	30,1	35,5
<b>Use of renewable primary energy resources used as raw materials</b>	MJ	0,0126	0,0135
<b>Total use of renewable primary energy resources</b>	MJ	30,1	35,6
<b>Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials</b>	MJ	471,6	522,9
<b>Use of non-renewable primary energy resources used as raw materials</b>	MJ	0,0055	0,0069
<b>Total use of non-renewable primary energy resources</b>	MJ	471,6	522,9
<b>Use of secondary material</b>	kg	0	0
<b>Use of renewable secondary fuels</b>	MJ	0	0
<b>Use of non-renewable secondary fuels</b>	MJ	0	0
<b>Net use of fresh water</b>	m <sup>3</sup>	12,4	14,8