

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Kingspan Insulation B.V.
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-KSI-20250272-CBA1-EN
Issue date	15.05.2025
Valid to	14.05.2030

HemKor® Pure
Kingspan Insulation B.V.

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General Information

Kingspan Insulation B.V.

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-KSI-20250272-CBA1-EN

This declaration is based on the product category rules:

Factory-made thermal and/or acoustic insulation products made of vegetable fibres, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

15.05.2025

Valid to

14.05.2030



Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

HemKor® Pure

Owner of the declaration

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

Declared product / declared unit

HemKor® Pure
1m², 43 mm thickness, R_D = 1,00 m²·K/W

Scope:

The insulation material HemKor® Pure is produced by Kingspan Insulation at the manufacturing facility in Nördlingen, Germany.

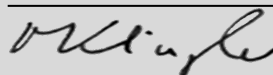
HemKor® Pure is a thermal insulation product that comprises of hemp fibres. It also contains polymer supporting fibre based on PLA and soda as improvement of the reaction to fire of the insulation.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
☐	internally
☒	externally



Matthias Klingler,
(Independent verifier)

Product

Product description/Product definition

HemKor® Pure is a thermal insulation product that comprises of hemp fibres. It also contains polymer supporting fibre based on PLA and soda as improvement of the reaction to fire of the insulation.

The Kingspan HemKor® Pure can be produced in all thicknesses between 30 and 220 mm and is available in the standard width 1200 mm and standard lengths 580 / 615 / 840 mm (other lengths on request).

The Kingspan HemKor® Pure has a λ_D value of 0,043W/m·K and a density of 35-48 kg/m³.

For the placing of the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the Regulation (EU) No. 305/2011(CPR) applies. The product needs a declaration of performance taking into consideration ETA no. ETA -23/0832 of 13 November 2023 ("HemKor Jute Blend" and "HemKor Pure") and the CE-marking. For the application and use the respective national provisions apply.

Application

The product is suitable for timber frame, pitched roof, and partition wall applications and can be used in both renovation and new-build projects.

Technical Data

Constructional data

Name	Value	Unit
Thermal conductivity	0.043	W/(mK)
Growth of mould fungus acc. to EN ISO 846	Level 0	-
Water vapour diffusion resistance factor acc. to EN 12086	1 - 2	-
Tensile strength parallel acc. to EN 13171	30	kPa

LCA: Calculation rules

Declared Unit

The declared unit is 1 m² of HemKor® Pure. The mass reference is provided below.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m ²
Grammage	1.85	kg/m ²
Layer thickness	0.043	m
Conversion factor to 1 kg	0.54	

System boundary

Type of EPD according to EN 15804: "cradle to gate with options, modules A4, A5, C1-C4 and module D".

The following life cycle stages are considered:

Production - Modules A1-A3

The product stage includes:

- A1 - Raw material supply: raw material extraction and processing including recycled content.
- A2 - Transport to manufacturer
- A3 - Manufacturing: manufacturing expenses of the products

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to ETA no. ETA- 23/0832 of 13 November 2023 ("HemKor Jute Blend" and "HemKor Pure"). The declaration of performance of the product can be found at dop.kingspan.com.

Base materials/Ancillary materials

The main materials of the product are hemp fibres (between 85-95 %). The product also contains polymer supporting fibre based on PLA, and soda as improvement of the reaction to fire of the insulation.

- This product contains substances listed in the candidate list (date: 20.01.2025) exceeding 0.1 percentage by mass: no.

- This article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: no.

- Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Biocidal Products Regulation No. 528/2012 (BPR): no.

Reference service life

The reference service life is not to be declared in this EPD as it does not cover the use stage.

including packaging materials and electricity consumption (0.85 kg CO₂eq./kWh).

Construction Stage - Modules A4-A5

The construction process stage includes:

- A4 - Transport to the construction site
- A5 - Treatment of packaging material

End-of-Life (EoL) Stage - Modules C1-C4

- C1 - Deconstruction: diesel driven excavator
- C2 - Transport of EoL: 25 km distance travelled via truck transport.
- C3 - EoL scenario: 100% thermal treatment with energy recovery.
- C4 is declared with "0" since the product is sent to energy recovery completely

Benefits and Loads beyond product system boundary - Module D

Benefits for potential avoided burdens during treatment of packaging materials (from module A5) due to energy substitution of electricity and thermal energy generation under European conditions are declared in module D and affects only the rate of primary material (no secondary materials).

Loads and benefits beyond the product system boundary from EoL treatment of the declared product under European conditions is declared in module D.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product’s lifespan: Germany

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.
Sphera LCA software (GaBi ts) content update package (CUP) version 2024.1

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.76	kg C
Biogenic carbon content in accompanying packaging	0.06	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.00571	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	55	%
Gross density of products transported	43	kg/m ³

Installation into the building (A5)

Name	Value	Unit
Wood pallets pakaging (to incineration)	0.140	kg
Plastic based packaging (to incineration)	0.0075	kg

End of life (C1-C4)

Name	Value	Unit
Collected as mixed construction waste	1.85	kg
Energy recovery	1.85	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Benefits for potential avoided burdens during treatment of packaging materials (from module A5) due to energy substitution of electricity and thermal energy generation under European conditions are declared in module D and affects only the rate of primary material (no secondary materials).

Loads and benefits beyond the product system boundary from EoL treatment of the declared product under European conditions is declared in module D.

LCA: Results

Results provided in this section are presented in relation to 1 m² of HemKor Pure (EF version 3.1).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² 43 mm thickness

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	-1.01E+00	1.9E-02	2.74E-01	1E-03	1E-02	2.91E+00	0	-8.58E-01
GWP-fossil	kg CO ₂ eq	1.94E+00	1.9E-02	6.4E-02	1E-03	9E-03	4.6E-02	0	-8.55E-01
GWP-biogenic	kg CO ₂ eq	-2.96E+00	4.52E-05	2.11E-01	4.42E-06	2.26E-05	2.87E+00	0	-4E-03
GWP-luluc	kg CO ₂ eq	5.42E-03	3.18E-04	4.91E-06	1.94E-05	1.59E-04	1.81E-05	0	-7.8E-05
ODP	kg CFC11 eq	7.02E-12	2.79E-15	3.65E-14	1.7E-16	1.4E-15	3.29E-13	0	-7.71E-12
AP	mol H ⁺ eq	6.17E-03	3.06E-05	4.31E-05	5.84E-06	1.53E-05	3.49E-04	0	-9.03E-04
EP-freshwater	kg P eq	2.07E-04	8.09E-08	9.2E-09	4.93E-09	4.04E-08	7.94E-08	0	-1.44E-06
EP-marine	kg N eq	2.43E-03	1.18E-05	1.25E-05	2.81E-06	5.91E-06	1.18E-04	0	-2.75E-04
EP-terrestrial	mol N eq	2.2E-02	1.39E-04	1.84E-04	3.12E-05	6.93E-05	2E-03	0	-3E-03
POCP	kg NMVOC eq	4.22E-03	3.03E-05	3.47E-05	7.94E-06	1.52E-05	3.24E-04	0	-7.78E-04
ADPE	kg Sb eq	3.1E-06	1.65E-09	3.85E-10	1.01E-10	8.25E-10	3.45E-09	0	-7.48E-08
ADPF	MJ	2.64E+01	2.49E-01	7.9E-02	1.5E-02	1.25E-01	7.12E-01	0	-1.53E+01
WDP	m ³ world eq deprived	3.08E-01	2.93E-04	2.9E-02	1.79E-05	1.47E-04	3.15E-01	0	-9.4E-02

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² 43 mm thickness

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.18E+01	2.1E-02	2.09E+00	1E-03	1.1E-02	1.42E+01	0	-5.16E+00
PERM	MJ	1.61E+01	0	-2.07E+00	0	0	-1.4E+01	0	0
PERT	MJ	3.79E+01	2.1E-02	2.2E-02	1E-03	1.1E-02	2.09E-01	0	-5.16E+00
PENRE	MJ	3.13E+00	2.49E-01	4.38E-01	1.5E-02	1.25E-01	2.37E+01	0	-1.53E+01
PENRM	MJ	2.33E+01	0	-3.59E-01	0	0	-2.3E+01	0	0
PENRT	MJ	2.64E+01	2.49E-01	7.9E-02	1.5E-02	1.25E-01	7.12E-01	0	-1.53E+01
SM	kg	1.6E-02	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	1.32E-02	2.39E-05	6.91E-04	1.46E-06	1.2E-05	7E-03	0	-4E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² 43 mm thickness

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.86E-05	9.55E-12	4.58E-11	5.82E-13	4.78E-12	4.33E-10	0	-1.04E-08
NHWD	kg	1.01E-01	4.07E-05	1E-02	2.48E-06	2.04E-05	3.5E-02	0	-8E-03
RWD	kg	8.25E-04	4.54E-07	3.71E-06	2.77E-08	2.27E-07	4.18E-05	0	-1E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	3.36E-01	0	0	3.57E+00	0	0
EET	MJ	0	0	6.06E-01	0	0	6.45E+00	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m2 43 mm thickness

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	8.69E-08	3.35E-10	3.3E-10	7.04E-11	1.68E-10	1.89E-09	0	-7.4E-09
IR	kBq U235 eq	8.86E-02	6.59E-05	5.69E-04	4.02E-06	3.3E-05	7E-03	0	-1.88E-01
ETP-fw	CTUe	2.32E+01	1.85E-01	4E-02	1.1E-02	9.3E-02	2.74E-01	0	-2.18E+00
HTP-c	CTUh	1.3E-09	3.74E-12	3.13E-12	2.28E-13	1.87E-12	1.93E-11	0	-1.76E-10
HTP-nc	CTUh	4.98E-08	1.68E-10	1.89E-10	1.03E-11	8.39E-11	2.62E-10	0	-4.11E-09
SQP	SQP	2.03E+02	1.23E-01	2.4E-02	7E-03	6.1E-02	2.29E-01	0	-3.02E+00

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

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Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation -weighted-water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

This EPD was created using a software tool.

References

Standards

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

Further References

IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.1, Berlin: Institut Bauen und Umwelt e.V., 2022
www.ibu-epd.com

Kingspan LCA tool

Kingspan Insulation LCA tool, version 2.0 CUP 2024.1.

Developed by Sphera Solutions GmbH (formerly Thinkstep GmbH)

PCR, Part A

Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, v1.4. Institut Bauen und Umwelt e.V., 2024.

PCR, Part B

Requirements on the EPD for Factory-made thermal and/or acoustic insulation products made of vegetable fibres (grass, flax, hemp, jute/sisal), v11. Institut Bauen und Umwelt e.V., 2024.

Sphera LCA FE (GaBi ts)

Sphera LCA for Experts, LCA FE, software-system and databases, Managed LCA content MLC (fka GaBi database), University of Stuttgart and Sphera Solutions GmbH, 2024, CUP Version: 2024.1, MLC dataset documentation under <https://sphera.com/product-sustainability-gabi-data-search/> (2024)

**Publisher**

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

**Programme holder**

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

**Author of the Life Cycle Assessment**

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

+31 (0) 543 543 210
info@kingspaninsulation.nl
www.kingspan.com

**Owner of the Declaration**

Kingspan Insulation B.V.
Lingewei 8
4004LL Tiel
Netherlands

+31 (0) 543 543 210
info@kingspaninsulation.nl
www.kingspan.com