JACKON Insulation GmbH
Product sustainability fact sheet

Product information for the building certification scheme LEED v4® (Leadership in Energy and Environmental Design)

The intention of this document is to support project teams pursuing LEED v4 certification by providing an overview of how your products contribute to LEED v4 credits. Basis of this information is LEED v4 credit library (2014 -07)[1]

JACKODUR Plus XPS insulation board

General Information

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Date:	16.02.2016

Product information

Product description

JACKODUR Plus is an extruded polystyrene foam (XPS) produced according to /EN 13164/ and available in board shape with a density range from 30 to 50 kg/m³. It has specifically low values of thermal conductivity by using HFO1234 ze as blowing agent.
The boards can be delivered in various compressive strength values from 300 to 700 kPa. To meet the need of various applications the boards are produced with different surfaces: with the extrusion skin, planed, grooved or with thermal embossing. JACKODUR Plus boards are supplied with different edge treatments such as butt edge, ship lap and tongue and groove. The EPD is related to an unlaminated product only; lamination and additional product treatment are not considered.

Application

JACKODUR Plus is labeled with the CE-mark according to /EN 13164/. It is additionally approved for use in specific applications under mandatory or voluntary agreement or certification schemes at the national level. This product is controlled and certified by Notified Bodies, e.g. MPA Dortmund.

Technical data

Following table shows the constructional data of JACKODUR Plus.

Name	Value	Unit
Gross density	30 - 50	kg/m³
Calculation value for thermal conductivity acc. to /EN 12667/ and /EN 13164/ Annex C	0.025 - 0.027	W/(mK)
Water vapour diffusion resistance factor acc. to /EN 12086/	50 - 250	-
Water absorption after diffusion acc. to /EN 12088/	3 - 5	Vol.-%
Deformation under compressive load and temperature acc. to /EN 1605/	≤ 5	%

[1] http://www.usgbc.org/credits (7/2014)

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Compressive stress or strength at 10% deflection acc. to /EN 826/	300 - 700	kPa
Compressive modulus of elasticity acc. to /EN 826/	10000 - 40000	kPa
Tensile strength perpendicular to faces acc. to /EN 1607/	100 - 400	kPa
Compressive creep/long-term compressive strength acc. to /EN 1606/	< 250	kPa
Freeze-thaw resistance acc. to /EN 12091/	≤ 1	Vol.-%
Dimensional stability acc. to /EN 1604/	≤ 5	%

Acoustic properties are not relevant for JACKODUR Plus.

Product declarations

Environmental product declaration

Number	EPD-JAI-20150249-IBC1-EN
Program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany
Author of the LCA	PE INTERNATIONAL AG, Leinfelden-Echterdingen, Germany

Materials and Resources (MR)

Summary
Materials and Resources credits encourage using sustainable building materials and reducing waste. Indoor environmental quality credits promote better indoor air quality and access to daylight and views.

Building product disclosure and optimization - environmental product declarations

Intent of this credit
To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Product information for the declared product within this credit:

Item	Value
Critically reviewed LCA acc. to ISO 14044?	yes
Reviewer	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany
Download link of the document/study	http://construction-environment.com/hp11212/EPD-Overview.htm →*search for product JACKODUR plus*
Industry-wide (generic) EPD (Type III, including external verification)?	no
Product specific EPD (Type III, including external verification)?	yes
EPD program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany; www.construction-environment.com
EPD program operator country	Germany
EPD number	EPD-JAI-20150249-IBC1-EN
Declared unit	1 m² JACKODUR Plus ; 100 mm (3.84 kg/m²)

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Results of the LCA – ENVIRONMENTAL IMPACTS:

Life cycle stages	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE	END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	C2	C4/1	C4/2	D1	D2
GWP [kg CO_2-eq.]	13.00	0.65	0.09	0.28	12.70	0.00	-6.07
ODP [kg CFC11-eq.]	6.34E-7	2.65E-12	3.32E-13	1.19E-11	3.32E-11	0.00	-2.07E-9
AP [kg SO_2-eq.]	8.63E-2	1.80E-3	2.64E-4	8.13E-4	7.80E-4	0.00	-1.61E-2
EP [kg PO_4^{3-} eq.]	4.48E-3	4.46E-4	6.57E-5	7.57E-4	1.55E-4	0.00	-1.09E-3
POCP [kg C_2H_4 eq.]	1.01E-2	-5.20E-4	-7.65E-5	1.01E-4	9.22E-5	0.00	-1.32E-3
ADPE [kg Sb eq.]	2.33E-5	2.53E-8	3.72E-9	5.37E-8	1.71E-7	0.00	-6.10E-7
ADPF [MJ]	339.00	8.87	1.31	4.00	1.40	0.00	-85.20
Caption	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						

Results of the LCA – RESOURCE USE:

Life cycle stages	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE	END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	C2	C4/1	C4/2	D1	D2
PE total [MJ]	369.20	9.40	1.38	4.42	1.79	0.00	-114.40
PERE [MJ]	12.20	-	-	-	-	-	-
PERM [MJ]	0.00	-	-	-	-	-	-
PERT [MJ]	12.20	0.50	0.07	0.24	0.16	0.00	-10.40
PENRE [MJ]	203.00	-	-	-	-	-	-
PENRM [MJ]	154.00	-	-	-	-	-	-
PENRT [MJ]	357.00	8.90	1.31	4.18	1.63	0.00	-104.00
SM [kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF [MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF [MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW [m^3]	5.44E-2	8.72E-4	1.28E-4	1.15E-5	2.46E-2	0.00E+0	-2.10E-2
Caption	PE total = Total use of primary energy resources (=PERT+PENRT); 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						

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Results of the LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

Life cycle stages	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE	END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	C2	C4/1	C4/2	D1	D2
HWD [kg]	3.56E-5	4.22E-6	6.22E-7	7.81E-7	5.00E-6	0.00E+0	-2.98E-5
NHWD [kg]	5.49E-2	1.27E-3	1.86E-4	3.83E+0	8.79E-2	0.00E+0	-3.09E-2
RWD [kg]	5.76E-3	1.22E-5	1.79E-6	6.87E-5	9.48E-5	0.00E+0	-7.41E-3
CRU [kg]	0.00	0.00	0.00	0.00	0.00	-	-
MFR [kg]	0.00	0.00	0.00	0.00	0.00	-	-
MER [kg]	0.00	0.00	0.00	0.00	0.00	-	-
EEE [MJ]	0.00	0.00	0.00	0.00	0.00	0.00	20.50
EET [MJ]	0.00	0.00	0.00	0.00	0.00	0.00	49.00
Caption	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; EE = Exported energy per energy carrier						

Building product disclosure and optimization – sourcing of raw materials

Intent of this credit
To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Product information for the declared product within this credit:

Option 1. raw material source and extraction reporting	
Third-party verified corporate sustainability report (CSR)?	no
Link to download the report	
Option 2. leadership extraction practices (1 point)	Description / Unit
Participation in an extended producer responsibility program?	no
Bio-based products meet the Sustainable Agriculture Network's Sustainable Agriculture Standard?	not applicable
Wood products certified by the Forest Stewardship Council or USGBC-approved equivalent?	not applicable
Materials reuse	Recovered XPS boards from mechanically fixed applications can be reused for insulation of basement walls and foundations
Postconsumer recycled content	0%
Preconsumer recycled content	20 % (grinded XPS-foam offcuts)

Building product disclosure and optimization – material ingredients

Intent of this credit
To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

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Product information for the declared product within this credit:

Type of reporting	Certification program (e.g. Green screen, cradle to cradle version/level, REACH)	Value/Comment
Option 1: material ingredient reporting	Health Product Declaration	no
	Manufacturer Inventory	yes
Option 2: Material ingredient optimization	GreenScreen v1.2 Benchmark	no
	Cradle to Cradle Certified	no
	International Alternative Compliance Path – REACH Optimization	The foam does not contain Hexabromocyclododecane (HBCD; CAS 25637-99-4) nor any other /REACH/ SVHC.
	USGBC approved program	no
Option 3: Product Manufacturer Supply Chain Optimization		

Indoor Environmental Quality (IEQ)

Summary
Indoor environmental quality credits promote better indoor air quality and access to daylight and views.

Low-emitting materials

Intent of this credit
To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Product information for the declared product within this credit:

Interior paints and coatings, interior adhesives and sealants, flooring products:

Item	Value	Unit
Test institute / organization (Name)	TÜV Rheinland, Germany in March 2015	-
Test report No.	21230643001	-
VOC content	0	g/l
Test method applied	DIN EN ISO 16000-	-
Applicable regulation	French VOC labeling regulation	-
Regulation requirements met	y	The emission testing meets the requirements of the AgBB/DIBt method. JACKODUR Plus complies with the requirements of DIBt (October 2008) and AgBB (May 2010) for the use in the indoor environment.
TVOC (14 days)	0	µg/m³ TVOC (C6 – C16)
Criteria	AgBB, DIBt	-

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Product name: JACKODUR Plus