



# Environmental Product Declaration

*according to EN 15804:2012+A2:2019 and ISO 14025:2006*

## **EKOPANELY straw construction boards**

*E60/1200*


*E40/800*



Organization:	EKOPANELY CZ s.r.o., Jedousov 72, 535 01 Přelouč, Czech Republic
Programme operator:	CENIA, Czech Environmental Information Agency
Publication date:	01.03.2023
Valid until:	01.03.2028
Revision:	01

## General information

Manufacturing company	EKOPANELY CZ s.r.o. Registration N°: 25918460 VAT N°: CZ25918460
Production site	Jedousov 72, 535 01 Přelouč, Czech Republic
Address	Jedousov 72, 535 01 Přelouč, Czech Republic
Contacts	Phone: +420 466 972 421 E-mail: <a href="mailto:info@ekopanely.cz">info@ekopanely.cz</a> Web: <a href="https://www.ekopanely.cz/">https://www.ekopanely.cz/</a>

EPD Program	National Environmental Labelling Program. For more information see <a href="http://www.cenia.cz">www.cenia.cz</a>  CENIA, Czech Environmental Information Agency, Vršovická 1442/65, Prague 10, 100 10 Czech Republic
Approval date	01.03.2023
Valid until	01.03.2028
PCR identification	EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations (Core rules for the product category of construction products) serves as the Core Product Category Rules (PCR) <i>The PCR is standardized by CEN</i>
LCA prepared by	Lubos Nobilis, ECO trend s.r.o., Na Dolinách 128, 140 00 Prague 4, Czech Republic, <a href="mailto:nobilis@ecotrend.cz">nobilis@ecotrend.cz</a>

<b>CEN standard EN 15804+A1 serves as the core PCR</b>				
<b>Independent verification of the declaration and data, according to EN ISO 14025</b>				
<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 50%;"><b>Internal</b></td> <td style="text-align: center; width: 50%;"><b>External</b></td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	<b>Internal</b>	<b>External</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Internal</b>	<b>External</b>			
<input checked="" type="checkbox"/>	<input type="checkbox"/>			
<b>Internal verifier:</b> Jan Bareš - product and quality manager EKOPANELY CZ s.r.o.				

*The EPD owner has the sole ownership, liability, and responsibility for the EPD.*

*EPDs within the same product category but from different software may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.*

## About company

A Czech family-owned business and the only company in Europe to manufacture Ekopanely boards. We have been perfecting the manufacturing process for over 20 years in order to achieve the best possible quality and properties in our Ekopanely boards. We do our job with integrity and we use only the finest cereal straw either from our own fields or from local and proven farmers. Our manufacturing plant is located in Jedousov and we run two automated production lines. Thanks to its excellent properties, the Ekopanely board brand is used extensively in the Czech Republic and in 48 countries around the world.

We strive to provide our customers with modern, 100% natural, energy-efficient and affordable building materials and related smart solutions. We can install a partition, provide a turnkey house or procure DIY house constructions.

We design, engineer and build efficient, modern, low-energy, passive and zero-energy timber buildings in every EU Member State.

In the Czech Republic, we not only produce and manufacture building materials, we also actively use them in the construction and reconstruction of residential, commercial, warehouse and manufacturing buildings.

## Product

### Product description

Construction boards made of pressed straw without surface treatment.

Recommended use:

#### **EKOPANEL E40/800**

sheathing of perimeter walls from the inside  
without fire requirements resistance  
partitions, floors  
soffits, slopes and attics  
internal lining of the existing wall on a wooden  
grid

#### **EKOPANEL E60/1200**

sheathing of perimeter walls  
cladding of internal load-bearing walls  
partitions, floors  
soffits, slopes and attics  
internal lining of the existing wall on a wooden  
grid



UN CPC code: 314 Boards and panels

## Application

Simple way of handling and assembly.

1. Alignment

Mark out the position of your partition wall on the floor, walls or the ceiling, including opening for the door.

2. Wooden beam placement

All partition walls should be placed on a wooden beam anchored to the foundation.

3. Installation

The first method for building partition walls uses UNI wall clips, which are screwed onto the wooden beam, the wall and the ceiling. The Ekopanely board is then inserted and anchored to the clips. Next Ekopanely boards are anchored in the same way.

The second method for building partition walls uses EP 5x100mm wood screws. The Ekopanely board is placed onto the marked-out area and is then anchored onto the wooden beam, the wall and the ceiling always using pairs of screws in a cross formation. Next Ekopanely boards are anchored in the same way.

There are all technical sheets, certificates, awards, attestations prepared and available on web site [www.ekopanely.com](http://www.ekopanely.com)

## Technical data

Description	E40/800	E60/1200	unit	standards
thickness	38 (+2 mm)	58 (+2 mm)	mm	
width	800	1200	mm	
length	1200 - 3200	1200-3200	mm	
average weight	17	22	kg/m <sup>2</sup>	
average density	379	379	kg/m <sup>3</sup>	
thermal conductivity coefficient: $\lambda$	0,099	0,099	W/(m.K)	ČSN EN 13986, EN 12664, EN 10456
diffusion resistance coefficient: $\mu$	9,7	9,7		ČSN EN 13986, EN ISO 12572 B (23 °C, 0/85 % relative humidity)
fire reaction class	E	E		ČSN EN 13986, EN 13501-1
<b>emissions class</b>	<b>A+</b>	<b>A+</b>		<b>ČSN EN 13986, EN ISO 16000-10</b>

## Base materials / Ancillary materials

Product does not contain Substance of Very High Concern.

*Average products content declaration*

Materials / components	Substances	%
Grain straw	-	94 %
Cardboard recycled	-	4 %
Amino adhesive	-	2 %
Polyethylene foil	-	0,1 %

## Product Life-Cycle

### Manufacturing and packaging A1-A3

The main material input is grain straw. The producer buys it from farmers in the field and then ensures its transport to production. In production, straw is pressed under high temperature and pressure, and building panels E40/800 and E60/1200 with a length of 1200 mm - 3200 mm are produced on 2 production lines. The straw is supplemented with an amino adhesive and the panels are covered with recycled cardboard and PE foil. Panels can be formatted into standard product sizes or directly for the needs of typical and individual construction projects.

The finished panels are packed on returnable wooden pallets in PE films and pulled with PE tapes.

### Transport and installation A4-A5

*The modules are not declared*, as the transport of the products is variable every year due to the distribution directly to individual buildings. Installation can be done in different ways and on different structures.

Transport of products is provided by road freight transport.

Examples of product installation in a building are available on the company's website <https://www.ekopanely.cz/systemova-reseni>.

### Product use and maintenance B1-B7

*The modules are not declared.*

The product is a passive building element and only input in the use phase is the possible restoration of the surface coating, which can be done by different means and at different intervals.

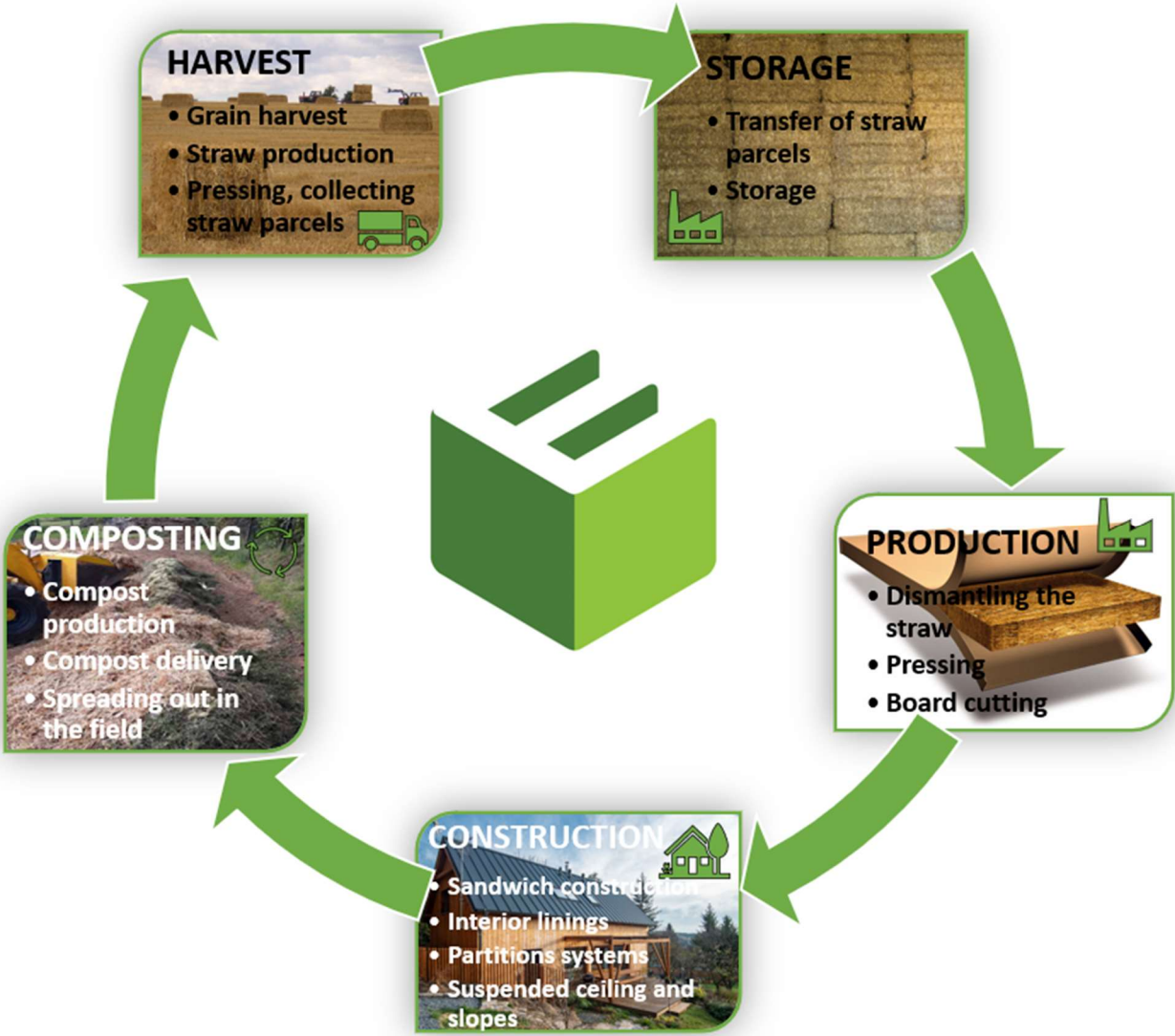
### Product end of life C1-C4

In the end-of-life phase, the dismantling of the building using manual mechanization and the transport of the end-of-life product over a distance of 50 km to composting is considered.

### Benefits and loads beyond the system boundary D

Beyond the limit of the system, the creation of compost in a mass volume of 90% of the input material is considered, this corresponds with a reserve to the moisture content of the input material (approx. 8.5%).

Material Flow Diagram / Manufacturing of EKOPANELY boards



## LCA calculation information

<b>FUNCTIONAL UNIT / DECLARED UNIT</b>	<b>Covering 1 m<sup>2</sup> of each of products</b>
<b>SYSTEM BOUNDARIES</b>	Cradle To Gate with modules C1-C4 and module D
<b>REFERENCE SERVICE LIFE (RSL)</b>	According to the service life of the building / part of building → 75 years 1% of primary energy and total mass input of the unit process
<b>CUT-OFF RULES</b>	< 5% of energy usage and mass for neglected input flows per stage
<b>ALLOCATIONS</b>	Mass allocation of production has been applied for the input materials and energies
<b>GEOGRAPHICAL COVERAGE AND TIME PERIOD</b>	Scope includes manufacture in Czech Republic in 2021
<b>ELECTRICITY PROCESS USED</b>	The gross electricity generation mix of the Czech Republic in 2021 was used Specific data for transport of raw materials and internal transport were used for calculation of A2 phase. Transport of waste in A3 and C2 considers 50 km distance to a hypothetical disposal site. The 16-32 t load EURO5 trucks are considered as vehicles for transport of materials and wastes respectively
<b>TRANSPORT SCENARIOS</b>	
<b>DATABASE(S) AND LCA SOFTWARE USED</b>	Ecoinvent 3.8 database installed in SimaPro 9.3
<b>ADDITIONAL INFORMATION</b>	Further details regarding the certified product are available at the company website <a href="https://www.ekopanely.cz/">https://www.ekopanely.cz/</a>
<b>BIOGENIC CARBON CONTENT</b>	E40/800: 10,7 kg C E60/1200: 14,3 kg C <i>Biogenic carbon content is calculated according to EN 16449:2014.</i>

Description of the system boundary (X = included in the LCA, MND = Module Not Declared)

Product stage			Construction stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
<i>X – module declared</i> <i>MND – module not declared</i>																



## LCA results

### EKOPANELY E40/800

#### Core environmental impacts E40/800

Impact category	Unit	A1-A3	C1	C2	C3	D
Climate change	kg CO2 eq	-3.39E+01	-3.60E+01	1.84E-01	9.18E+00	-7.47E+00
Climate change - Fossil	kg CO2 eq	5.02E+00	1.17E-01	1.84E-01	1.02E+00	-5.94E-01
Climate change - Biogenic	kg CO2 eq	-3.97E+01	-4.10E+01	8.57E-05	8.16E+00	-6.84E+00
Climate change - Land use and LU change	kg CO2 eq	1.10E-02	1.27E-04	8.72E-05	1.46E-04	-3.78E-02
Ozone depletion	kg CFC11 eq	4.26E-07	3.96E-09	4.05E-08	5.65E-08	-2.76E-08
Acidification	mol H+ eq	3.45E-02	5.23E-04	7.34E-04	3.13E-02	-5.76E-03
Eutrophication, freshwater	kg P eq	5.05E-03	1.83E-04	1.53E-05	4.53E-05	-9.69E-05
Eutrophication, marine	kg N eq	1.16E-02	1.16E-04	2.13E-04	2.93E-03	-2.37E-03
Eutrophication, terrestrial	mol N eq	9.58E-02	8.74E-04	2.33E-03	1.42E-01	-2.33E-02
Photochemical ozone formation	kg NMVOC eq	1.69E-02	2.33E-04	7.11E-04	6.38E-03	-4.67E-02
Resource use, fossils	MJ	1.20E+02	1.54E+00	2.72E+00	4.45E+00	-4.24E+00
Resource use, minerals and metals	kg Sb eq	6.34E-03	1.06E-06	5.92E-06	4.79E-07	-1.65E-04
Water use	m3 depriv.	1.75E+01	2.13E-02	9.19E-03	5.54E-02	-1.54E+00

**Additional environmental impacts E40/800**

<b>Impact category</b>	<b>Unit</b>	<b>A1-A3</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>D</b>
Particulate matter	disease inc.	2.68E-07	9.97E-10	1.13E-08	1.51E-07	-4.51E-08
Human toxicity, non-cancer	CTUh	1.26E-07	9.89E-10	2.38E-09	1.00E-08	-2.48E-08
Human toxicity, cancer	CTUh	1.40E-08	2.88E-11	6.23E-11	1.95E-10	-7.18E-10
Ecotoxicity, freshwater	CTUe	1.50E+02	1.00E+00	2.30E+00	8.07E+01	-1.69E+01
Land use	Pt	3.34E+03	8.35E-01	2.64E+00	4.57E+00	-3.53E+05
Ionising radiation	kBq U-235 eq	5.47E+00	2.93E-02	1.46E-02	7.06E-02	-1.29E-01

### Resource use E40/800

Parameter	Units	A1-A3	C1	C2	C3	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value	1.54E+01	1.04E-01	4.95E-02	6.85E-01	-2.07E+00
Use of renewable primary energy resources used as raw materials	MJ, net calorific value	1.54E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	3.08E+01	1.04E-01	4.95E-02	6.85E-01	-2.07E+00
Use of non- renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value	1.25E+02	1.64E+00	2.89E+00	4.68E+00	-4.56E+00
Use of non- renewable primary energy resources used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	1.25E+02	1.64E+00	2.89E+00	4.68E+00	-4.56E+00
Use of secondary material	kg	8.50E-01	0.00E+00	0.00E+00	0.00E+00	1.53E+01
Use of renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m <sup>3</sup>	1.75E+01	2.13E-02	9.19E-03	5.54E-02	-1.54E+00

**Waste categories E40/800**

Parameter	Units	A1-A3	C1	C2	C3	D
Hazardous waste	kg	3.70E-04	7.45E-07	7.14E-06	4.70E-06	-1.24E-05
Non-hazardous waste disposed	kg	9.33E-01	1.09E-02	1.08E-01	1.52E+00	-8.29E-02
Radioactive waste disposed/stored	kg	1.76E-03	7.19E-06	1.84E-05	3.57E-05	-4.77E-05

**Output flows E40/800**

Parameter	Units	A1-A3	C1	C2	C3	D
Components for re-use	kg	0	0	0	0	0
Materials for recycling	kg	2.4E-03	0	0	17	0
Materials for energy recovery	kg	3.4E-03	0	0	0	0
Exported energy	MJ per energy carrier	0	0	0	0	0

**Biogenic carbon content at the factory gate E40/800**

Biogenic carbon content	Unit per DU
Biogenic carbon content in product	10.7 kg C
Biogenic carbon content in accompanying packaging	0 kg C
<i>Biogenic carbon content is calculated according to EN 16449:2014.</i>	

## EKOPANELY E60/1200

### Core environmental impacts E60/1200

Impact category	Unit	Total	A1-A3	C1	C2	C3	D
Climate change	kg CO2 eq	-4.60E+01	-4.76E+01	1.17E-01	3.09E-01	1.19E+01	-1.07E+01
Climate change - Fossil	kg CO2 eq	8.00E+00	7.12E+00	1.17E-01	3.08E-01	1.32E+00	-8.54E-01
Climate change - Biogenic	kg CO2 eq	-5.40E+01	-5.47E+01	8.36E-04	1.44E-04	1.06E+01	-9.83E+00
Climate change - Land use and LU change	kg CO2 eq	-3.85E-02	1.55E-02	1.27E-04	1.46E-04	1.89E-04	-5.44E-02
Ozone depletion	kg CFC11 eq	7.43E-07	6.38E-07	3.96E-09	6.78E-08	7.31E-08	-3.97E-08
Acidification	mol H+ eq	8.37E-02	4.97E-02	5.23E-04	1.23E-03	4.06E-02	-8.28E-03
Eutrophication, freshwater	kg P eq	7.06E-03	6.93E-03	1.83E-04	2.57E-05	5.86E-05	-1.39E-04
Eutrophication, marine	kg N eq	1.75E-02	1.67E-02	1.16E-04	3.57E-04	3.79E-03	-3.41E-03
Eutrophication, terrestrial	mol N eq	2.95E-01	1.39E-01	8.74E-04	3.90E-03	1.84E-01	-3.35E-02
Photochemical ozone formation	kg NMVOC eq	-3.37E-02	2.39E-02	2.33E-04	1.19E-03	8.25E-03	-6.72E-02
Resource use, fossils	MJ	1.73E+02	1.67E+02	1.54E+00	4.56E+00	5.76E+00	-6.10E+00
Resource use, minerals and metals	kg Sb eq	8.44E-03	8.66E-03	1.06E-06	9.92E-06	6.20E-07	-2.37E-04
Water use	m3 depriv.	2.32E+01	2.53E+01	2.13E-02	1.54E-02	7.17E-02	-2.21E+00

**Additional environmental impacts E60/1200**

<b>Impact category</b>	<b>Unit</b>	<b>Total</b>	<b>A1-A3</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>D</b>
Particulate matter	disease inc.	5.48E-07	3.98E-07	9.97E-10	1.89E-08	1.96E-07	-6.48E-08
Human toxicity, non-cancer	CTUh	1.62E-07	1.79E-07	9.89E-10	3.99E-09	1.30E-08	-3.57E-08
Human toxicity, cancer	CTUh	2.15E-08	2.21E-08	2.88E-11	1.04E-10	2.52E-10	-1.03E-09
Ecotoxicity, freshwater	CTUe	2.98E+02	2.13E+02	1.00E+00	3.85E+00	1.04E+02	-2.43E+01
Land use	Pt	-5.02E+05	4.84E+03	8.35E-01	4.42E+00	5.91E+00	-5.07E+05
Ionising radiation	kBq U-235 eq	7.42E+00	7.46E+00	2.93E-02	2.45E-02	9.14E-02	-1.86E-01

## Resource use E60/1200

Parameter	Units	A1-A3	C1	C2	C3	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value	1.65E+01	1.84E+01	1.04E-01	8.29E-02	8.87E-01
Use of renewable primary energy resources used as raw materials	MJ, net calorific value	2.24E+01	2.24E+01	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	3.89E+01	4.08E+01	1.04E-01	8.29E-02	8.87E-01
Use of non- renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value	1.80E+02	1.74E+02	1.64E+00	4.84E+00	6.06E+00
Use of non- renewable primary energy resources used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ, net calorific value	1.80E+02	1.74E+02	1.64E+00	4.84E+00	6.06E+00
Use of secondary material	kg	2.10E+01	1.16E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m <sup>3</sup>	2.32E+01	2.53E+01	2.13E-02	1.54E-02	7.17E-02

**Waste categories E60/1200**

Parameter	Units	A1-A3	C1	C2	C3	D
Hazardous waste	kg	5.13E-04	5.12E-04	7.45E-07	1.20E-05	6.08E-06
Non-hazardous waste disposed	kg	3.36E+00	1.32E+00	1.09E-02	1.80E-01	1.96E+00
Radioactive waste disposed/stored	kg	2.43E-03	2.41E-03	7.19E-06	3.08E-05	4.62E-05

**Output flows E60/1200**

Parameter	Units	A1-A3	C1	C2	C3	D
Components for re-use	kg	0	0	0	0	0
Materials for recycling	kg	3.6E-03	0	0	22	0
Materials for energy recovery	kg	5.0E-03	0	0	0	0
Exported energy	MJ per energy carrier	0	0	0	0	0

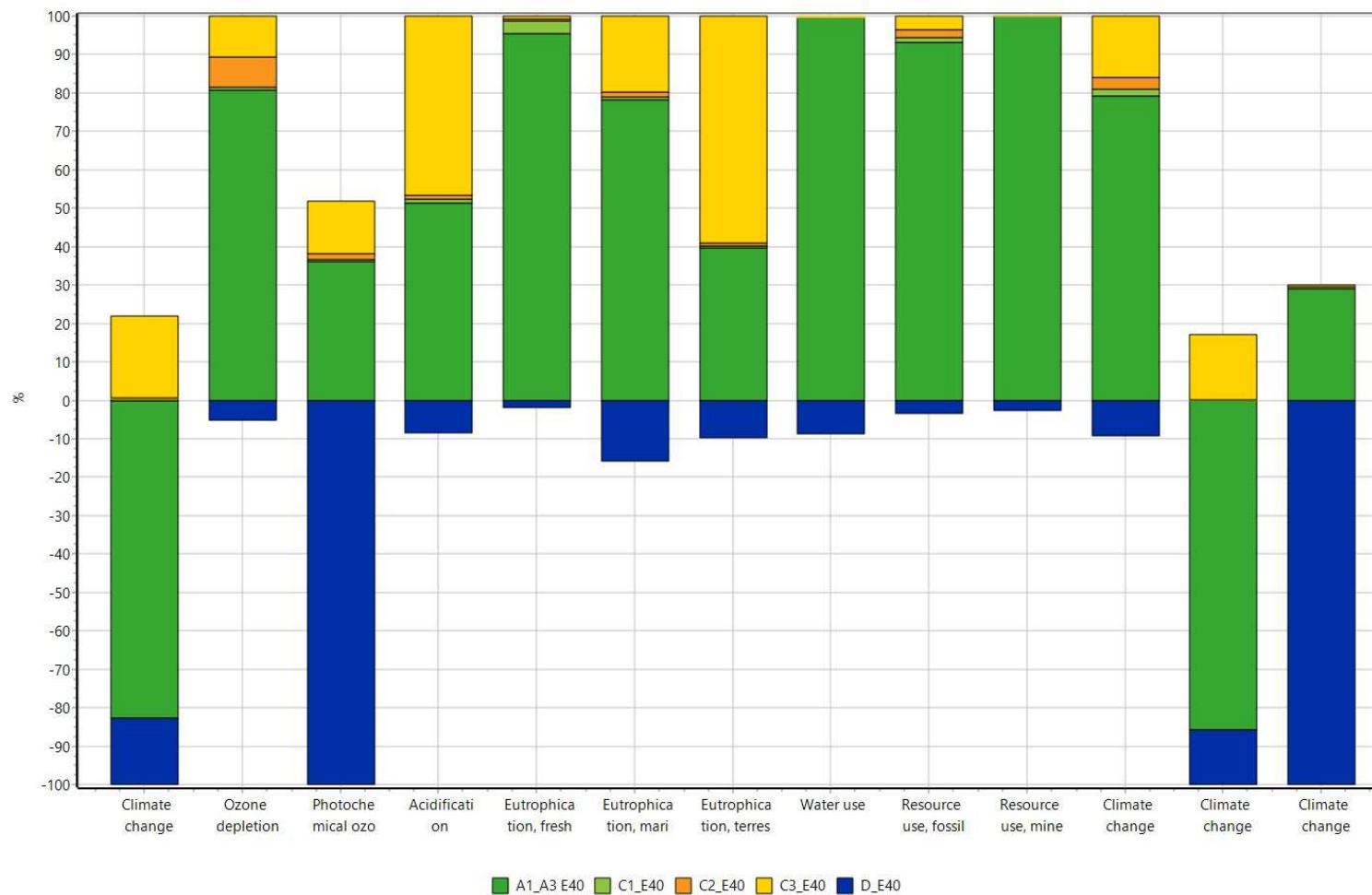
**Biogenic carbon content at the factory gate E60/1200**

Biogenic carbon content	Unit per DU
Biogenic carbon content in product	14.3 kg C
Biogenic carbon content in accompanying packaging	0 kg C
<i>Biogenic carbon content is calculated according to EN 16449:2014.</i>	



## LCA: Interpretation

The following diagram shows the share of each phase in the results in impact categories (of product E40/600):



Method: EN 15804 +A2 Method V1.00 / EF 3.0 normalization and weighting set / Characterization  
Analyzing 1 p E40;

A comparison of the results proves that the most environmental impacts are related to the aggregated production phases A1-A3 and the composting process of the end-of-life product in phase C3. On the contrary, the creation of compost beyond the system boundary in module D compensates some of the previous loads. The difference in the results of the impact categories is then striking between Climate change and Climate change – Fossil.



Reference No. 753501706/2019  
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## INSTITUTE FOR TESTING AND CERTIFICATION, INC.

třída Tomáše Bati 299, Louky, 763 02 Zlín, Czech Republic

### TEST REPORT

Reference No. 753501706/ 2019

**Applicant:** **EKOPANELY SERVIS s.r.o.**  
**Jedousov 64**  
**535 01 Přelouč**  
**Czech Republic**

**NIP:** **CZ 27508561**

**Product:** **EKOPANELY E40, EKOPANELY BOARDS E40**  
**(thickness 38 mm)**  
**EKOPANELY E60, EKOPANELY BOARDS E60**  
**(thickness 58 mm)**

**Manufacturer:** **EKOPANELY CZ s.r.o.**  
**Jedousov 72, 535 01 Přelouč, Czech Republic**

**Elaborated by:** Ing. Petr Ptáček, Ph.D.

**Issued on:** 4<sup>th</sup> March 2019



A handwritten signature in blue ink, appearing to read 'Jiri Hes'.

**Mgr. Jiří Heš**  
*Representative of Notified Body No. 1023*

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**DECLARATION OF PERFORMANCE  
No. 04/2019**

1. Unique identification code of the product-type:

- **EKOPANELY E40, EKOPANELY BOARDS E40**
- **EKOPANELY E60, EKOPANELY BOARDS E60**

2. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

***Particleboard (straw board) without surface treatment for permanent installation in buildings for non-load bearing purposes in the use class 1 according to EN 335 (dry condition).***

***The product is defined in EN 309, Article 2, as particleboard – wood based panels produced by compressing and heating the particles of lignocellulose material in particle form (straw) with adhesive.***

***EKOPANELY BOARD E40 and EKOPANELY BOARD E60 - pressed boards are made from straw, as a single-layer thicknesses 38 and 58 mm, in widths of 800, 1200 mm.***

3. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

***EKOPANELY CZ s.r.o., Jedousov 72, 535 01 Přelouč, Czech Republic, EUROPE***

4. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

***EKOPANELY SERVIS s.r.o., Jedousov 64, 535 01 Přelouč, Czech Republic, EUROPE***

5. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

***System 3***

6a. Harmonised standard:

ČSN EN 13986 + A1 – Wood-based panels for use in construction – characteristics, evaluation of conformity and marking

***Institut pro testování a certifikaci, a.s. NB 1023***

(name and identification number of the notified body, if relevant)

performed ***assessment of product type*** under system  
(description of the third party tasks as set out in Annex V)

**3**

## 1. References

1. EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declaration – Core rules of the product category of construction products
2. ISO 14020: 2000 Environmental labels and declarations - General principles
3. ISO 14025:2006 Environmental labels and declarations – Type III Environmental Declarations – Principles and procedures
4. ISO 14040:2006 Environmental management – Life Cycle Assessment – Principles and framework
5. ISO 14044:2006 Environmental management – Life Cycle Assessment – Requirements and guidelines
6. EN 16449:2014 - Wood and wood-based products - Calculation of sequestration of atmospheric carbon dioxide
7. LCA German straw (2019), EPD - ENVIRONMENTAL PRODUCT DECLARATION UMWELT PRODUKT DEKLARATION nach ISO 14025 und EN 15804 (BAU-EPD-Fasba-2019-1-GaBi-Baustrohballen-20191010)
8. LCA French straw (2015), Rapport d'étude ACV / FDES conforme aux exigences de la norme NF EN 15804 (150601\_ACV\_Paille\_15804\_vdef (002) LCA France.pdf)
9. United Kingdom Government database (2019), UK Wheat, Barley and straw yields and specifications at June 2019 (data revised December 2019)
10. ILCD Handbook (2010), ILCD Handbook: General guide for Life Cycle Assessment - Detailed guidance, p. 330-331.
11. Carbon Content straw (2014), Kumar, Manoj & Singh, R. P. & Panigrahy, S. & Raghubanshi, Akhilesh. (2014). Carbon density and accumulation in agroecosystem of Indo-Gangetic Plains and Vindhyan highlands, India. Environmental monitoring and assessment. 186. 10.1007/s10661-014-3752-3. Table 3.
12. Straw as insulation material – UK, Environmental product declaration In accordance with ISO 14025 and EN 15804:2012+A2:2019, Environdec 2021