



**Environmental  
Product  
Declaration**

According to EN15804+A2 (+indicators A1)



This declaration is for:  
**EcoCocon Average Wall Panel**

Provided by:  
**Eco Cocon s.r.o.**



program operator  
**Stichting MRPI®**  
publisher  
**Stichting MRPI®**  
[www.mrpi.nl](http://www.mrpi.nl)

MRPI® registration  
**1.1.00555.2024**  
date of first issue  
**13-6-2024**  
date of this issue  
**13-6-2024**  
expiry date  
**13-6-2029**



**COMPANY INFORMATION**



EcoCocon s.r.o.  
Záhradnícka 60  
821 08  
Bratislava  
+421 905 313 078  
Bjørn Kierulf  
<https://ecococon.eu/>

**PRODUCT**

EcoCocon Average Wall Panel

**DECLARED UNIT/FUNCTIONAL UNIT**

1 m<sup>2</sup>

**DESCRIPTION OF PRODUCT**

The product is a weighted average of the six wall panels made by EcoCocon; Standard, Braced, Sill, Lintel, Column and Inclined. They serve as constructive and insulating elements.

**MRPI® REGISTRATION**

1.1.00555.2024

**DATE OF ISSUE**

13-6-2024

**EXPIRY DATE**

13-6-2029

**SCOPE OF DECLARATION**

This MRPI®-EPD certificate is verified by Tim Mol, EcoReview. The LCA study has been done by Zoë Tan, Hedgehog Company BV. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

**VISUAL PRODUCT**



**MORE INFORMATION**

<https://ecococon.eu/>

**PROGRAM OPERATOR**

Stichting MRPI®  
Kingsfordweg 151  
1043 GR  
Amsterdam

Ing. L. L. Oosterveen MSc. MBA  
Managing Director MRPI

**DEMONSTRATION OF VERIFICATION**

CEN standard EN15804 serves as the core PCR(a)

Independent verification of the declaration an data according to

EN15804+A2 (+indicators A1)

internal:

external: x

Third party verifier: Tim Mol, EcoReview

[a] PCR = Product Category Rules

## DETAILED PRODUCT DESCRIPTION

This study concerns an average wall panel from an EcoCocon construction. The constructions typically consist of six types of EcoCocon panel, which are always 40 cm deep. The exact dimensions of the EcoCocon panels vary. The LCA studies the panel types Standard, Braced, Sill, Lintel, Column and Inclined. The products are produced in Kybartai, Lithuania by EcoCocon UAB. It consists of a wooden frame with straw filling. The wall panels serve as constructive and insulating elements. Its reference service life is 75 years. The average panel is calculated based on the production data of 2023.

Table 3 lists the material inputs for 1 m<sup>2</sup> panel. This data is obtained from EcoCocon UAB and based on one year.

Average product dimensions	Width (m)	Height (m)	Production share
Standard panel	0,7	2,6	40%
Braced panel	0,8	2,6	34,60%
Sil panel	1,6	0,85	4,90%
Lintel panel	1,6	0,6	4,90%
Column panel	0,45	2,5	3,10%
Inclined panel	0,7	1,4	12,50%

Material	Standard (kg/m <sup>2</sup> )	Braced (kg/m <sup>2</sup> )	Sill (kg/m <sup>2</sup> )	Lintel (kg/m <sup>2</sup> )	Column (kg/m <sup>2</sup> )	Inclined (kg/m <sup>2</sup> )	Average (kg/m <sup>2</sup> )
Pine wood (420 kg/m <sup>3</sup> )	16,676	19,809	20,184	27,064	25,182	20,46	19,182
Plywood (700 kg/m <sup>3</sup> )	3,377	2,687	12,802	15,574	20,652	6,009	5,07
Straw (110 kg/m <sup>3</sup> )	47,21	47,581	44,133	41,252	41,431	46,347	46,605
Woodfibre board (280 kg/m <sup>3</sup> )	0,348	0,505	-	-	-	0,353	0,358
Screws	0,64	0,914	0,884	1,526	1,023	0,808	0,823
Total weight excl. production loss	65,038	68,142	74,336	81,427	84,14	70,5	72,038
Packaging: Wooden sticks	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Total weight incl. packaging	66,338	69,442	75,636	82,727	85,44	71,8	73,338

Component (> 1% )	(%)
Pine wood (420 kg/m <sup>3</sup> )	19,182
Plywood (700 kg/m <sup>3</sup> )	5,07
Straw (110 kg/m <sup>3</sup> )	46,605
Woodfibre board (280 kg/m <sup>3</sup> )	0,358
Screws	0,823
Packaging: Wooden sticks	1,3

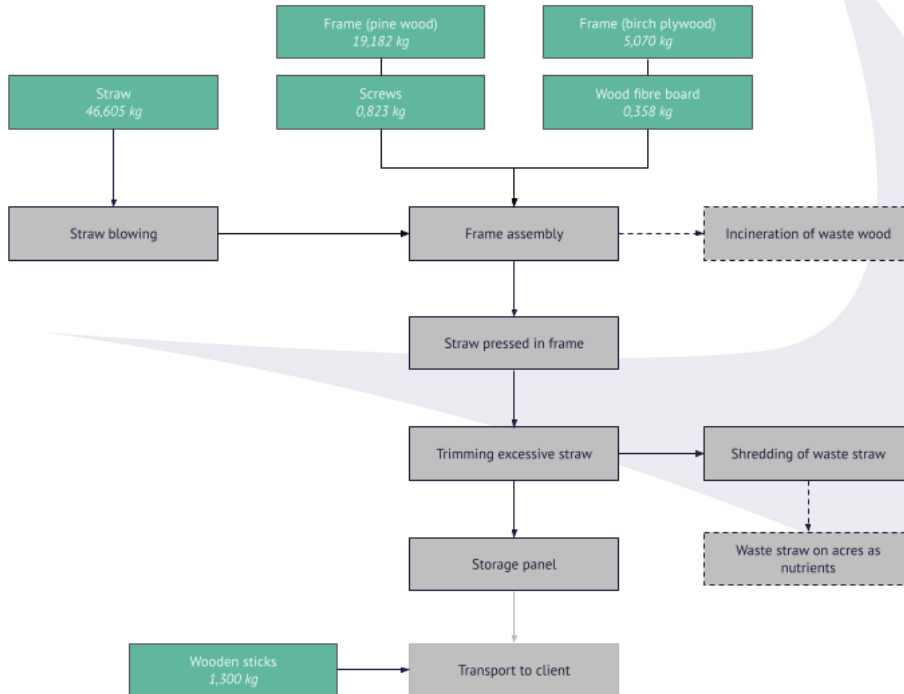
## SCOPE AND TYPE

The panels are produced in Lithuania and distributed throughout Europe. The transportation to the construction site (A4) is given per 100 km. The end-of-life scenario is based on the Dutch default scenario's. Ecoinvent 3.6 is used as background database in the LCA software Mobius 1.0.224. The EPD describes a representative panel, based on six panel types produced at one production site.

Product Stage			Construction Process Stage	User Stage									End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport gate to 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	X	X	X	X	X	ND	ND	X	X	X	X	X	
X= Modules Assessed ND= Not Declared																	

**REPRESENTATIVENESS**

The average panel is representative for >98% of projects sold during 2023 (based on m2).



**ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A1)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	3,95 E-03	4,78 E-05	1,32 E-05	4,01 E-03	2,39 E-05	6,24 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,14 E-07	2,95 E-06	4,62 E-06	3,85 E-07	-1,08 E-03
ADPF	MJ	1,79 E+02	2,86 E+01	2,82 E+01	2,36 E+02	1,43 E+01	2,33 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	4,53 E+00	1,31 E+01	6,99 E+00	8,60 E-01	-5,87 E+01
GWP	kg CO2 eq.	1,33 E+01	1,87 E+00	1,93 E+00	1,71 E+01	9,35 E-01	1,63 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,30 E-01	8,62 E-01	5,83 E-01	2,56 E-01	-4,69 E+00
ODP	Kg CFC11 eq.	1,24 E-06	3,32 E-07	2,83 E-07	1,86 E-06	1,66 E-07	1,98 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,70 E-08	1,45 E-07	6,68 E-08	8,91 E-09	-1,13 E-06
POCP	Kg ethene eq.	1,38 E-02	1,13 E-03	8,40 E-04	1,58 E-02	5,64 E-04	1,17 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,35 E-04	5,19 E-04	2,51 E-03	8,01 E-05	-1,38 E-02
AP	kg SO2 eq.	8,93 E-02	8,23 E-03	9,54 E-03	1,07 E-01	4,11 E-03	8,79 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,48 E-03	3,59 E-03	1,33 E-02	2,37 E-04	-8,12 E-02
EP	kg (PO4) 3- eq.	3,74 E-02	1,62 E-03	1,09 E-03	4,01 E-02	8,07 E-04	2,06 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,64 E-04	7,18 E-04	3,41 E-03	9,77 E-05	-2,62 E-02

Toxicity indicators for Dutch market

HTP	kg DCB-Eq	1,13 E+01	7,88 E-01	5,57 E-01	1,26 E+01	3,93 E-01	1,45 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,22 E-01	3,47 E-01	1,58 E+00	2,22 E-02	-7,27 E+00
FAETP	kg DCB-Eq	6,55 E-01	2,30 E-02	1,44 E-02	6,92 E-01	1,15 E-02	3,50 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,70 E-03	1,10 E-02	1,26 E-02	3,61 E-04	-1,40 E-01
MAETP	kg DCB-Eq	4,84 E+02	8,27 E+01	4,84 E+01	6,15 E+02	4,13 E+01	5,77 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,91 E+00	3,82 E+01	3,33 E+01	1,48 E+00	-1,96 E+02
TETP	kg DCB-Eq	2,61 E-01	2,78 E-03	1,69 E-02	2,81 E-01	1,39 E-03	1,64 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,06 E-04	1,14 E-03	1,69 E-03	7,20 E-05	-7,49 E-03
ECI	euro	€ 2,51	€ 0,23	€ 0,20	€ 2,94	€ 0,11	€ 0,28	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	ND	ND	€ 0,04	€ 0,10	€ 0,26	€ 0,02	€ -1,51
ADPF	kg Sb eq.	8,62 E-02	1,38 E-02	1,35 E-02	1,14 E-01	6,87 E-03	1,12 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,18 E-03	6,29 E-03	3,36 E-03	4,14 E-04	-2,83 E-02

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

**ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	-1,05 E+02	1,89 E+00	1,87 E+00	-1,01 E+02	9,43 E-01	3,87 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,33 E-01	8,70 E-01	1,12 E+02	6,16 E+00	-4,85 E+00
GWP-fossil	kg CO2 eq.	1,37 E+01	1,89 E+00	1,85 E+00	1,74 E+01	9,42 E-01	1,64 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,33 E-01	8,64 E-01	5,93 E-01	3,67 E-02	-4,80 E+00
GWP-biogenic	kg CO2 eq.	-1,19 E+02	0,00 E+00	0,00 E+00	-1,19 E+02	0,00 E+00	2,22 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	1,11 E+02	6,12 E+00	0,00 E+00
GWP-luluc	kg CO2 eq.	6,50 E-02	6,92 E-04	2,08 E-02	8,65 E-02	3,45 E-04	3,04 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,65 E-05	6,11 E-03	2,28 E-04	1,77 E-05	-4,42 E-02
ODP	kg CFC11 eq.	1,38 E-06	4,17 E-07	2,87 E-07	2,08 E-06	2,40 E-07	2,40 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	7,18 E-08	1,83 E-07	7,35 E-08	1,11 E-08	-1,14 E-06
AP	mol H+ eq.	1,31 E-01	1,09 E-02	1,16 E-02	1,54 E-01	5,47 E-03	1,22 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,48 E-03	4,76 E-03	1,95 E-02	3,12 E-04	-1,26 E-01
EP-freshwater	kg PO4 eq.	3,19 E-03	1,90 E-05	5,91 E-05	3,27 E-03	9,51 E-06	1,24 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,27 E-06	1,00 E-05	1,45 E-05	7,52 E-07	-4,34 E-04
EP-marine	kg N eq.	4,67 E-02	3,86 E-03	2,00 E-03	5,26 E-02	1,93 E-03	3,77 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,53 E-03	1,69 E-03	8,98 E-03	2,02 E-04	-3,66 E-02
EP-terrestrial	mol N eq.	4,66 E-01	4,25 E-02	2,38 E-02	5,32 E-01	2,12 E-02	4,38 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,68 E-02	1,83 E-02	1,03 E-01	1,16 E-03	-5,96 E-01
POCP	kg NMVOC eq.	7,49 E-02	1,21 E-02	6,44 E-03	9,34 E-02	6,06 E-03	9,70 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	4,63 E-03	5,29 E-03	2,69 E-02	4,12 E-04	-1,09 E-01
ADP-minerals & metals	kg Sb eq.	3,94 E-03	4,78 E-05	1,32 E-05	4,00 E-03	2,39 E-05	6,24 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,14 E-07	2,95 E-06	4,62 E-06	3,85 E-07	-1,08 E-03
ADP-fossil	MJ, net calorific value	1,71 E+02	2,85 E+01	3,46 E+01	2,34 E+02	1,42 E+01	2,29 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	4,59 E+00	1,30 E+01	6,31 E+00	8,52 E-01	-5,49 E+01
WDP	m3 world eq. Deprived	5,19 E+01	1,02 E-01	3,33 E-01	5,23 E+01	5,08 E-02	1,78 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	6,23 E-03	5,11 E-02	2,05 E-01	3,65 E-02	-6,32 E-01

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenic
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
- EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
- EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals&metals = Abiotic Depletion Potential for non-fossil resources [2]
- ADP-fossil = Abiotic Depletion for fossil resources potential [2]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

**Disclaimer [2]**

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

**ENVIRONMENT IMPACT per functional unit or declared unit (additional indicators A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	3,50 E-06	1,69 E-07	9,72 E-08	3,77 E-06	8,46 E-08	2,44 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	9,20 E-08	7,64 E-08	1,58 E-07	5,91 E-09	-1,78 E-06
IRP	kBq U235 eq.	7,11 E-01	1,19 E-01	4,02 E-01	1,23 E+00	5,96 E-02	1,04 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,96 E-02	5,44 E-02	1,79 E-02	3,33 E-03	-2,01 E-01
ETP-fw	CTUe	6,13 E+02	2,54 E+01	2,79 E+01	6,66 E+02	1,27 E+01	1,31 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,77 E+00	1,16 E+01	1,57 E+01	8,54 E-01	-1,21 E+03
HTP-c	CTUh	5,50 E-08	8,23 E-10	1,80 E-09	5,76 E-08	4,11 E-10	4,70 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	9,66 E-11	4,16 E-10	1,81 E-08	2,35 E-11	-1,40 E-08
HTP-nc	CTUh	6,22 E-07	2,78 E-08	2,29 E-08	6,73 E-07	1,39 E-08	5,37 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,37 E-09	1,22 E-08	5,90 E-08	9,14 E-10	-3,58 E-07
SQP	----	6,57 E+03	2,47 E+01	3,20 E+01	6,63 E+03	1,23 E+01	5,96 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	6,26 E-01	1,15 E+01	3,37 E+00	2,15 E+00	-4,96 E+03

PM = Potential incidence of disease due to PM emissions

IRP = Potential Human exposure efficiency relative to U235 [1]

ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]

HTP-c = Potential Comparative Toxic Unit for humans [2]

HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]

SQP = Potential soil quality index [2]

**Disclaimer [1]**

- 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 nor due to radioactive waste.

**Disclaimer [2]**

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

**OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	8,94 E-04	7,21 E-05	3,10 E-05	9,97 E-04	3,60 E-05	1,33 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	1,25 E-05	3,40 E-05	1,68 E-05	1,31 E-06	-3,95 E-04
NHWD	kg	3,13 E+00	1,81 E+00	1,30 E+00	6,24 E+00	9,02 E-01	8,29 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	5,46 E-03	9,01 E-01	4,12 E-01	3,41 E+00	-1,89 E+00
RWD	kg	7,27 E-04	1,87 E-04	2,26 E-04	1,14 E-03	9,33 E-05	1,25 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	3,18 E-05	8,56 E-05	2,04 E-05	5,06 E-06	-3,08 E-04
CRU	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,68 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	9,50 E-01	0,00 E+00	0,00 E+00
MFR	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,90 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	3,40 E+00	0,00 E+00	0,00 E+00
MER	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
EEE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,87 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	1,60 E+02	0,00 E+00	0,00 E+00
ETE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,39 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	2,76 E+02	0,00 E+00	0,00 E+00

HWD = Hazardous Waste Disposed  
RWD = Radioactive Waste Disposed  
MFR = Materials for recycling  
EEE = Exported Electrical Energy  
NHWD = Non Hazardous Waste Disposed  
CRU = Components for reuse  
MER = Materials for energy recovery  
ETE = Exported Thermal Energy



**RESOURCE USE per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PERM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PERT	MJ	1,11 E+03	3,56 E-01	1,73 E+01	1,13 E+03	1,78 E-01	4,04 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,63 E-02	2,24 E-01	3,51 E-01	1,50 E-02	-1,02 E+03
PENRE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PENRM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PENRT	MJ	1,83 E+02	3,02 E+01	3,68 E+01	2,50 E+02	1,51 E+01	2,43 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	4,87 E+00	1,38 E+01	6,78 E+00	9,05 E-01	-5,82 E+01
SM	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m3	1,34 E+00	3,47 E-03	2,51 E-02	1,37 E+00	1,73 E-03	4,85 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	2,44 E-04	1,73 E-03	3,01 E-02	8,89 E-04	-1,80 E-02

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PERT = Total use of renewable primary energy resources

PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 materials

RSF = Use of renewable secondary fuels

NRSF = Use of non-renewable secondary fuels

FW = Use of net fresh water

**BIOGEN CARBON CONTENT per functional unit or declared unit (A1 / A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	3,15 E+01	0,00 E+00	0,00 E+00	3,15 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
BCCpa	kg C	6,00 E-01	0,00 E+00	0,00 E+00	6,00 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

BBCpr = Biogenic carbon content in product

BCCpa = Biogenic carbon content in packaging

## CALCULATION RULES

Producer specific data is used when possible. These data are recent (2022), complete and based on one year averaged data. The technological coverage and geographical coverage reflect the physical reality of the product. Furthermore, the economic flows approach reality as closely as possible within practically feasible limits for the LCA practitioner.

The time representativeness of the used references for generic data is accurate, since the difference between the reference year (2022) and the time period for which the data is representative (2019) is <3 years.

The geographical coverage of this study is representative of the geographical scope of the production process. Where possible, specific country specific references are selected. Where this is not possible, region-specific references are selected. The quality level ranges from good to very good.

The technological coverage of this study is representative as specific business, product, and process data of the year 2022 are used to model the product system under study. Therefore, the data quality is very good.

The percentage of allocation is obtained by calculating what share of the total revenue is generated by straw. EcoCocons straw supplier delivered the price of straw and wheat. This table shows the prices and the calculations for economical allocation. The wheat price is in line with the average price of the EU in September 2021. The Ecoinvent reference for 'wheat production, straw [RoW]' already contains an allocation factor for straw (5,1%). It was corrected based on this supplier specific allocation, to 10,2%.

Material	Price (€/ton)	Production (ton)	Revenue	Allocation	Allocation (%)
Straw	90	300	27000	0,102	10,167
Wheat	250	954,3	238575	0,898	89,833

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

EcoCocon UAB supplied the data for energy usage during production. The data is based on the average production of all panel types at EcoCocons facility. Of the total energy use of the facility, 90% was allocated to the panels (all types). It was assumed that the required energy does not differ significantly between panel types Standard, Braced, Sill, Lintel, Column and Inclined. Some production waste occurs during the production of the panel. For straw, this is 2,5% of the material used, while for wood and plywood this is 5%.

Transportation to the construction site is given per 100 km.

The installation of the panels required additional inputs, namely screws, diesel and electricity. An additional 3% of construction losses are calculated.

The materials are processed according to the standard values of the NMD Determination Method.

Production loss	Landfill	Incineration	Recycling	Reuse
Pine wood	1%	99%		
Plywood	1%	99%		
Straw	100%			

Additional installation inputs	Unit	Per average panel
Screws	kg	0,12
Diesel crane	hour	0,0038
Electricity for drill	kWh	0,00167

Production loss	Landfill	Incineration	Recycling	Reuse
Pine wood	5%	80%	10%	5%
Plywood	5%	85%	10%	0%
Woodfibre board	5%	85%	10%	0%
Straw	5%	95%	0%	0%
Screws	1%	0%	99%	0%



#### DECLARATION OF SVHC

The EcoCocon panels do not contain any SVHC. The products comply with commission delegated Regulation (EU) No. 2021/2139 (EU Taxonomy), sections 7.1, 7.2 and Appendix C, regarding DNSH criteria for 'pollution prevention and control'.



#### REFERENCES

-



#### REMARKS

-

# Validity of EPD methods +A1 and +A2

The valid method for Environmental Product Declarations (EPDs) in construction is now **EN15804+A2**, which replaced **EN15804+A1**. While both were used historically, **A2** is the official standard, incorporating more detailed and current methodologies for assessing environmental impacts like Global Warming Potential (GWP).

**EN15804+A2** became valid in **July 2019**, with full enforcement starting in **January 2022**. However, we are unfortunately in a lengthy transitional period where both +A1 and +A2 can still be used, and +A1 will remain **acceptable until July 2027**.

The main differences between A1 and A2 lie in the inclusion of **biogenic carbon**, updated GWP factors, and expanded life cycle considerations, resulting in significant changes in GWP values, especially for biogenic and complex products.

## Main differences impacting GWP

### 1. Introduction of Biogenic Carbon in EN15804+A2

- **Biogenic carbon accounting:** One of the major updates in EN15804+A2 is the inclusion of biogenic carbon in the GWP calculation. EN15804+A2 considers the carbon sequestration (capture) and subsequent release during the product life cycle, which was not as detailed in EN15804+A1.
- For products containing **biogenic materials** (e.g., wood-based products), EN15804+A2 can lead to lower GWP results due to the temporary storage of biogenic carbon during the use phase.

### 2. Different Global Warming Potential Characterization Factors

- EN15804+A2 uses **updated GWP factors** based on the **IPCC's (Intergovernmental Panel on Climate Change)** latest assessments, while EN15804+A1 uses older characterization factors. The newer factors in EN15804+A2 reflect updated scientific understanding of the global warming effects of greenhouse gases, which can lead to higher or lower GWP values depending on the specific gases emitted.

### 3. Time Horizon for GWP Calculation

- In EN15804+A2, the **time horizon for GWP assessment** is updated, now typically considering a **100-year time frame** for biogenic carbon, which accounts for the longer-term effects of greenhouse gases in the atmosphere. This updated time horizon ensures more accurate representation of climate impacts but may lead to changes in GWP values, especially for products with long service lives.

### 4. Inclusion of Additional Impact Categories

- EN15804+A2 adds more comprehensive life cycle stages and **additional impact categories** such as **Resource Use and Impact Categories** (e.g., particulate matter, water consumption, etc.), which were not fully covered in EN15804+A1. This can influence the way overall environmental impacts are calculated, affecting GWP values indirectly.

### 5. End-of-Life (EoL) Considerations

- EN15804+A2 provides more **detailed guidance on End-of-Life (EoL) scenarios**, including waste treatment, recycling, and disposal processes. These can significantly alter the GWP for products, particularly for those with high recycling potential or complex EoL processes that were not as explicitly defined in EN15804+A1.

### 6. Changes in Energy Mix Assumptions

- EN15804+A2 often reflects **updated energy mix data** (such as changes in renewable energy usage) which impacts the GWP values. If more renewable energy is used during production, the calculated GWP would typically be lower compared to older assumptions used in EN15804+A1.

# Can EN15804+A1 and EN15804+A2 be compared?

## 1. Direct Comparisons Are Challenging:

- The **calculation methods** and **characterization factors** are different between A1 and A2, meaning results calculated with the two standards will not be directly comparable. EN15804+A2 introduces changes such as biogenic carbon accounting, updated global warming potential (GWP) factors, and new life cycle stages, which significantly alter the final impact values.
- Products assessed using **EN15804+A2** may show significantly different results for GWP and other environmental impacts compared to results from **EN15804+A1**, even if the underlying product is the same.

## 2. Why Comparisons Are Problematic:

**Biogenic Carbon:** EN15804+A2 takes into account the carbon sequestration and release of biogenic materials (like wood), which was not fully included in A1. This can result in drastically different GWP values for biogenic products.

- **Characterization Factors:** EN15804+A2 uses updated GWP characterization factors from the latest **IPCC** reports, while A1 uses older factors. This makes direct comparisons inaccurate because the same gases could have different impacts in A1 vs. A2.
- **Life Cycle Stages:** EN15804+A2 provides more detailed consideration of **end-of-life** scenarios and recycling processes, which might lower the GWP compared to A1, where those stages were less rigorously accounted for.

## 3. Transition Period:

- Some organizations may still have EPDs based on **EN15804+A1**, but these should be updated to the **EN15804+A2** standard as required by national regulations and industry guidelines. In certain cases, both A1- and A2-based EPDs might be available for the same product, but comparing the results could lead to **misinterpretations** unless the differences in methodology are accounted for.

## 4. Comparing EPDs Requires Consistency:

- If you need to compare the environmental impacts of two products, it is important to ensure that both were assessed

using the **same version of the EN15804 standard**. If one product was assessed with A1 and another with A2, any comparison should highlight the methodological differences between the two assessments.

## **Best Practice Moving Forward:**

- The **EN15804+A2** standard is now the valid method, and it is recommended to use this for all new calculations and EPDs. When making comparisons, only products assessed with the same standard (preferably A2) should be compared to ensure a fair and meaningful comparison.