



## Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application

<b>Program operator, publisher:</b>	Building Information Foundation RTS Malminkatu 16 A 00100 Helsinki cer.rts.fi/en/
<b>Owner of the declaration:</b>	Ongropack Ltd.
<b>Name of the product:</b>	Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application
<b>Declaration number:</b>	RTS_248_23
<b>Registration number:</b>	
<b>ECO Platform reference number:</b>	
<b>Issue date:</b>	11.08.2023
<b>Valid to:</b>	11.08.2028
<b>Scope of the declaration</b>	This environmental product declaration covers the environmental impacts of the Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product. The declaration has been prepared in accordance with EN 15804:2012+A2:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). This declaration covers the life cycle stages from cradle-to-gate with options (modules A1-A3, C1-C4, and D).
	 Jukka Seppänen RTS EPD Committee Secretary
	 Laura Apilo Managing Director
<b>Verified according to the requirements of EN 15804:2012+A2:2019</b>	
<b>Independent verification of the declaration and data, according to ISO 14025:2010</b>	
<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	
<b>Third party verifier</b>	Mari Kirss 

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**1. Owner of the declaration, manufacturer**

Ongropack Ltd.

Postal address and location: 3711 Szirmabesenyő, Miskolci st. 19.

<https://www.ongropack.com/>

Email: [ongropack@ongropack.hu](mailto:ongropack@ongropack.hu)

**2. Product name and number**

Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application

**3. Manufacturing plant**

Szirmabesenyő, Hungary

**4. Description of the Product**

The product is used for making sandwich structures and wall cladding elements for the construction industry. The PVC base plate is white, and its colour shade is UV and weather resistant, also recommended for outdoor use. In other colours, they do not meet the UV and weather resistance, but their mechanical properties are the same as white products. Its use is recommended for indoor use.

Due to its excellent sound and heat insulation properties and its location, the completed sandwich panel is an ideal solution as a door insert, partition or selection element. The product is non-flammable, self-extinguishing and meets various international fire resistance standards for plastics. Ongropack Ltd. provides the surface protection of the plates with a protective film.

The wall covering panels have an aesthetic appearance and are easy to install and clean.

**5. Product Category Rules and the scope of the declaration**

The declaration has been prepared in accordance with EN 15804:2012+A2:2019 and ISO 14025 and 14040/44 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020) (SFS-EN 15804:2012+A2:2019).

EPD of construction products may not be comparable if they do not comply with EN15804 and seen in a building context.

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**6. Author of the life-cycle assessment and declaration**

Csongor Bajnóczki, denkstatt Hungary Kft.

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**7. Verification**

This EPD has been verified according to the requirements of EN 15804:2012+A2:2019 and RTS PCR by a third party. The verification has been carried out by:

Mari Kirss, Product LCA/EPD Specialist

Rangi Maja OÜ - LCA Support, [www.lcasupport.com](http://www.lcasupport.com)

[mari.kirss@lcasupport.com](mailto:mari.kirss@lcasupport.com)

**8. Declaration issue date and validity**

Declaration issue date is 11.08.2023. The declaration is valid 5 years.

**9. Product description**

The declaration has been conducted for Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product manufactured in Hungary.

**10. Technical specifications, physical properties, and environmental/hazardous properties**

Technical specifications	Value	Unit
Thickness (MSZ ISO 4593)	0,7-3	mm
Density (MSZ ISO 1183)	1,41-1,47	kg/m <sup>3</sup>
Tensile E-Modulus (MSZ EN ISO 527-1,2)	3000	Mpa
Tensile Strength (MSZ EN ISO 527-1,2)	45-50	Mpa
Shore Hardness (MSZ EN ISO 868)	77-78	D
Coefficient of Expansion (DIN 53752, ISO 11359-2)	0,07	mm/mK

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Thermal Conductivity (DIN 52612, MSZ EN ISO 22007)	0,18	W/mK
Vicat B-Softening Point (MSZ EN ISO 306)	72-74	degC
Water Absorption (MSZ EN ISO 62)	0,2	%
Impact Resistance (Charpy) (MSZ EN ISO 179-2)	No break	kJ/m <sup>2</sup>

**Fire protection**

Standard	Value
DIN 4102-1	B1
NFP 92-501	M1
BS 476 part 7, BS 476 Part 6	Class1, Class 0
MSZ 10383 (UL 94)	V0

**Environmental/hazardous properties**

The Ongrodur B PVC sheet is not dangerous, the product has the dissolution test results required for use in the food industry. The basic and auxiliary materials used in the production of the product do not contain chemicals that are on the REACH list, the list of very hazardous substances (SVHC).

The final product is not expected to produce significant adverse health effects when the recommended instruction for use is followed.

**11. Raw materials of the product and product information**

Product structure / composition / raw-material	quantity p%*	Usability			Origin of the raw materials
		Renewable	Non-renewable	Recycled	
PVC resin	80%		X		EU
Chalk	7,96%		X		EU
Modifier/processing aid/lubricant	9,53%		X		EU
Titanium dioxide	2,51%		X		EU

\*Order of magnitude, not exact composition

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Product main composition, at least metals, stone materials, fossil materials, bio-based materials

<b>Product structure / composition / raw-material</b>	<b>quantity%*</b>	<b>Origin of the raw materials</b>
Metal derivative	2,51%	EU
Stone-based materials (minerals)	11,03%	EU
Fossil materials	85,26%	EU
Bio-based materials	1,2%	EU

\*Order of magnitude, not exact composition

Mass inputs for the packaging materials for the Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product:

<b>Packaging materials</b>	<b>Weight, kg (per functional unit)</b>
EUR wooden pallet	0,067
Plastic material packaging	0,018

**12. Functional / declared unit**

Indicators are for 1 kg of Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product.

**13. System boundary**

This EPD covers the following modules: Cradle-to-gate with modules C1–C4 and module D (A1–A3 + C + D).

The scenarios included are currently in use and are representative for one of the most likely scenario alternatives.

Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
Raw material supply	Transport	Manufacturing	Transport	Construction installation	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	ND <sup>1</sup>	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x

	Mandatory modules
	Mandatory as per the RTS PCR section 6.2.1 rules and terms
	Optional modules based on scenarios

**14. Cut-off criteria**

A1 raw material supply, A2 transportation, A3 manufacturing. All used materials, energy, packaging, and transportation until the end-of-waste state have been included. The information from transportation A4 is included in the LCA-calculation, but is excluded from the present EPD, because the A4 module’s GWP (global warming potential) is below 20% of the GWP of modules A1–A3. Information from B-module has not been calculated nor included in the LCA-calculations. Modules C1 – C4 have been included. Module D is also included.

<sup>1</sup> The RTS PCR Guideline outlines that the environmental impacts of the A4 module must be declared if their GWP (global warming potential) is over 20% of the GWP of modules A1–A3; as per calculated during the LCA and displayed in the LCA background report, it is below 20% thus A4 does not need to be declared.

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**15. Environmental impacts**

**Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product**

**Results per functional or declared unit**

Indicator	Unit	A1	A2	A3	Tot. A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	2,18E+00	5,16E-05	1,21E-02	2,19E+00	0,00E+00	8,30E-02	2,33E-01	9,64E-01	-9,59E-01
GWP-biogenic	kg CO <sub>2</sub> eq.	-1,25E-01	4,48E-08	7,28E-04	-1,24E-01	0,00E+00	6,88E-05	7,93E-05	1,63E-03	-7,80E-03
GWP-luluc	kg CO <sub>2</sub> eq.	7,74E-02	2,56E-08	2,05E-06	7,74E-02	0,00E+00	4,88E-05	1,94E-04	4,74E-04	3,90E-04
GWP-total	kg CO <sub>2</sub> eq.	2,13E+00	5,17E-05	1,29E-02	2,14E+00	0,00E+00	8,31E-02	2,34E-01	9,66E-01	-9,66E-01
ODP	kg CFC 11 eq.	9,31E-07	1,12E-12	7,07E-11	9,31E-07	0,00E+00	1,81E-09	1,37E-09	1,41E-07	3,74E-09
AP	mol H <sup>+</sup> eq.	9,75E-03	1,13E-07	1,27E-05	9,76E-03	0,00E+00	3,22E-04	5,63E-04	1,58E-03	-3,37E-03
EP-freshwater	kg P eq.	7,39E-04	3,68E-09	2,25E-06	7,42E-04	0,00E+00	7,06E-06	2,93E-05	1,16E-04	1,47E-04
EP-marine	kg N eq.	2,02E-03	2,84E-08	5,38E-05	2,07E-03	0,00E+00	1,17E-04	2,77E-04	4,59E-04	-4,35E-04
EP-terrestrial	mol N eq.	1,78E-02	2,88E-07	4,42E-05	1,79E-02	0,00E+00	1,25E-03	1,97E-03	3,78E-03	-4,90E-03
POCP	kg NMVOC eq.	7,38E-03	1,75E-07	1,71E-05	7,40E-03	0,00E+00	4,59E-04	6,12E-04	1,14E-03	-2,36E-03
ADP-minerals&metals <sup>1</sup>	kg Sb eq.	2,86E-05	1,74E-10	1,45E-08	2,87E-05	0,00E+00	3,73E-07	7,13E-07	4,80E-06	7,24E-07
ADP-fossil <sup>1</sup>	MJ	5,59E+01	7,38E-04	4,51E-02	5,59E+01	0,00E+00	1,18E+00	1,05E+00	3,44E+00	-2,39E+01
WDP	m <sup>3</sup>	1,33E+00	3,68E-06	7,38E-04	1,33E+00	0,00E+00	6,72E-03	2,62E-02	2,78E-01	-6,88E-01
Acronyms	GWP-total = Global Warming Potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water depletion potential									
Disclaimer	<sup>1</sup> 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.									

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**16. Use of natural resources**

**Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product**

**Results per functional or declared unit**

Indicator	Unit	A1	A2	A3	Tot. A1-A3	C1	C2	C3	C4	D
PERE	MJ	4,17E+00	1,16E-05	4,06E-04	4,17E+00	0,00E+00	2,55E-02	7,52E-02	4,12E-01	5,90E-02
PERM	MJ	2,77E-01	0,00E+00	1,01E+00	1,29E+00	0,00E+00	0,00E+00	-9,43E-02	-1,83E-01	0,00E+00
PERT	MJ	4,44E+00	1,16E-05	1,01E+00	5,46E+00	0,00E+00	2,55E-02	-1,92E-02	2,29E-01	5,90E-02
PENRE	MJ	3,55E+01	7,38E-04	-3,84E-01	3,51E+01	0,00E+00	1,18E+00	-5,32E+01	-1,08E+01	-3,44E+01
PENRM	MJ	1,97E+01	0,00E+00	7,15E-01	2,05E+01	0,00E+00	0,00E+00	-6,71E+00	-1,30E+01	0,00E+00
PENRT	MJ	5,52E+01	7,38E-04	3,31E-01	5,56E+01	0,00E+00	1,18E+00	-6,00E+01	-2,38E+01	-3,44E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,40E-01
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m <sup>3</sup>	1,33E+00	3,68E-06	7,38E-04	1,33E+00	0,00E+00	6,72E-03	2,62E-02	2,78E-01	-6,88E-01
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

**17. End-of-life – Waste**

**Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product**

**Results per functional or declared unit**

Indicator	Unit	A1	A2	A3	Tot. A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7,99E-02	5,03E-07	7,96E-05	8,00E-02	0,00E+00	8,87E-04	4,54E-03	2,61E-02	-7,36E-03
Non-hazardous waste disposed	kg	3,94E+00	1,53E-05	7,09E-03	3,95E+00	0,00E+00	3,13E-02	1,19E-01	1,20E+00	7,34E-01
Radioactive waste disposed	kg	1,04E-04	2,44E-10	1,48E-08	1,04E-04	0,00E+00	5,76E-07	1,40E-06	8,62E-06	2,26E-06



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**18. End-of-life – Output flow**

**Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product**

**Results per functional or declared unit**

Indicator	Unit	A1	A2	A3	Tot. A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,40E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,28E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,66E+00	0,00E+00

**19. Key information table**

**Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application product: Key information table (RTS) - Key information per 1 kg of product**

Indicator	Unit	A1	A2	A3	Tot. A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	2,13E+00	5,17E-05	1,29E-02	2,14E+00	0,00E+00	8,31E-02	2,34E-01	9,66E-01	-9,66E-01
ADP-minerals & metals	kg Sb eq.	2,86E-05	1,74E-10	1,45E-08	2,87E-05	0,00E+00	3,73E-07	7,13E-07	4,80E-06	7,24E-07
ADP-fossil	MJ	5,59E+01	7,38E-04	4,51E-02	5,59E+01	0,00E+00	1,18E+00	1,05E+00	3,44E+00	-2,39E+01
WDP	m <sup>3</sup>	1,33E+00	3,68E-06	7,38E-04	1,33E+00	0,00E+00	6,72E-03	2,62E-02	2,78E-01	-6,88E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,40E-01
Biogenic carbon content in product	kg C	0,00E+00	0,00E+00	9,15E-03	9,15E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	0,00E+00	0,00E+00	3,16E-02	3,16E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acronyms	GWP-total = Global Warming Potential total; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; SM = Use of secondary material									

**20. Energy in the manufacturing phase**

A3 Electricity information and CO <sub>2</sub> emission kg CO <sub>2</sub> -eq./kWh	electricity, low voltage, residual mix // HU, electricity, low voltage (Ecoinvent 3.9.1)	0,39 kg CO <sub>2</sub> -eq./kWh
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**21. End-of-life process description**

C1: since only manual dismantling is required for the deconstruction of the Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application products at the end of their life cycles, there is no emission assumed at this life cycle stage.

C2: the following distances are assumed for the respective waste destinations:

- To the sorting facility – 100 km;
- To landfill – 50 km;
- To the recycling facility – 50 km;
- To the incineration plant – 50 km.

C3 and C4: the Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application products are sold over many European markets with varying levels of waste treatment services. One waste treatment scenario is modelled – for broad European context (100% market share). Detailed presentation of this assumption based on the *Overview of Plastic Waste from Building and Construction by Polymer and by Recycling, Energy Recovery and Disposal*<sup>2</sup> is shown below. The table below summarises the total share of the of the polyvinyl chloride (PVC) type of plastic by waste treatment.

- Collection rate: 100%;
- Incineration: 41%;
- Recycling: 34%;
- Sanitary landfill: 25%.

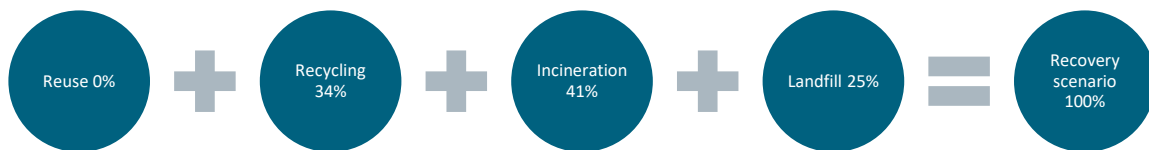
Efficiency of the incineration process for heat is 15,84%, while the efficiency of the incineration process for electricity is 28,51%<sup>3</sup>.

D: for the calculation of module D, the benefits/loads from recycling are accounted.

<sup>2</sup> Source: <https://plasticseurope.org/sustainability/sustainable-use/sustainable-building-construction/>

<sup>3</sup> Source: Ecoinvent v3.9.1 database, 2022

Processes	Unit (expressed per functional unit)
Collection process specified by type	1,00 kg collected separately 0 kg collected with mixed construction waste
Recovery system specified by type	0,34 kg for recycling 0,41 kg for incineration
Disposal specified by type	0,25 kg for sanitary landfill
Assumptions for scenario development, e.g., transportation	The following distances are assumed for the respective waste destinations: <ul style="list-style-type: none"> <li>- To the sorting facility – 100 km;</li> <li>- To the recycling facility – 50 km;</li> <li>- To landfill – 50 km;</li> <li>- To the incineration plant – 50 km.</li> </ul>



Product	Reuse of components	Recycling of material		Energy content	Disposal of product or material, including losses
		Recycling method	System boundaries (module D)		
<b>Ongrodur B</b>	Reused if meeting the requirements of the new application	Used as a raw material for new PVC-based products	Recycled, grinded plastics replace virgin plastic granules  Typical applications of recycled PVC are flooring or wall coverings, shower curtains or curtain rods, stables, walls, drainage, mats	Incineration	To landfill

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**22. Additional information**

- a) emissions to soil  
The information is not available.
- b) emissions to water  
The information is not available.
- c) emissions to indoor air  
The information is not available.

**23. Product declaration**

The information is available at the web pages, please see link.

**24. Information on biogenic carbon content**

*Ongrodur B, PVC rigid sheet for sandwich panel and wall cladding application products*

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	9,15E-03
Biogenic carbon content in packaging	kg C	3,16E-02

**25. References**

Ecoinvent v3.9.1 database, 2022

EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, 2019

ISO 14040:2006 (E) Environmental management — Life cycle assessment — Principles and framework, 2006-07

ISO 14044:2006 + Amd 1:2017 Environmental management — Life cycle assessment — Requirements and guidelines, 2018

Overview of Plastic Waste from Building and Construction by Polymer and by Recycling, Energy Recovery and Disposal: <https://plasticseurope.org/sustainability/sustainable-use/sustainable-building-construction/>, 2017

RTS EPD, general rules, 2020

RTS PCR protocol: EPDs published by the Building Information Foundation RTS sr, The Finnish RTS EPD programme RTS EPD Guideline, 2021