Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Moisture resistant medium density fibreboard (MR MDF) based coated moulding

from

COMBIWOOD GROUP

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of a single product from a manufacturer
EPD registration number:	EPD-IES-0032484
Version date:	2026-06-10
Validity date:	2031-06-09
	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

GENERAL INFORMATION

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *Construction Products, PCR 2019:14 Version 2.0.1*
PCR review was conducted by: *The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair - Rob Rouwette, co-chair - Noa Meron*
c-PCR, if applicable: *Wood and wood-based products for use in construction (EN 16485), c-PCR-006, version 1.0.0.*

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: *Elisabet Amat Guasch, GREENIZE* Approved by: International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD:
Combiwood Grupp OÜ

Address:
Koogimäe tee 7, Keava, Kehtna, 79005 Rapla maakond, Estonia

Contact:
Marten Jõgi, Sales Manager
+372 53648060, marten@vindor.ee

Address and contact information of the LCA practitioner commissioned by the EPD owner:
Aleksandrs Šiškins, Bureau Veritas Latvia SIA, riga@bureauveritas.com

Description of the organisation:
Vindor OÜ is a part of Combiwood Group. It produces door and window frames, windowsills, stair components and interior wall and ceiling panels.

Combiwood Group is a network of 17 woodworking companies with production units in Estonia and sales units in several European countries. The group operates sawmills, component factories, and further processing production units, and manufactures interior wood products such as door frames, thresholds, mouldings, panels, edge-glued boards, and MDF products. All raw materials are sourced from FSC®/PEFC™ certified forests, with main export markets in Scandinavia, Central Europe, and the USA.

Product-related or management system-related certifications:
PEFC ST 2001:2020
PEFC ST 2002:2020

Certificate registration code: PBN-PEFC-COC-009099

PRODUCT INFORMATION

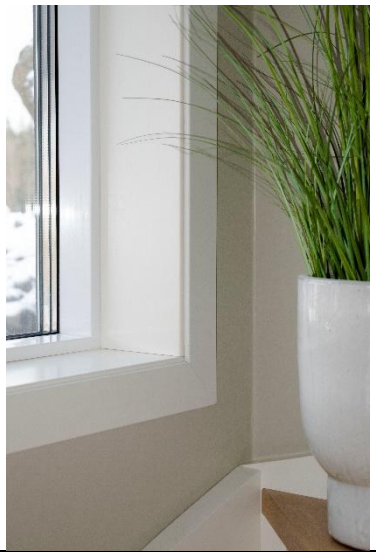
Product name:
Moisture resistant medium density fibreboard (MR MDF) based coated profile

Product identification:
Product identified by profile type, dimensions and internal product reference

UN CPC code:
312 - Wood continuously shaped along any of its edges or faces; wood wool; wood flour; wood in chips or particles.

Product description:
MR MDF-based coated moulding is a versatile and stylish architectural element designed to enhance the aesthetic appeal of various interior spaces. With durable construction and refined finish, moulding is suitable for a wide range of applications, providing both functional and decorative benefits.
There are various options for application of the product:

- **interior trim and crown moulding** to enhance the visual impact of the room;
- **door and window casings** to elevate the appearance of doors and windows;
- **baseboards and wainscoting** to transform the lower portion of your walls;
- **furniture accents** to create decorative accents on furniture pieces, such as cabinets, bookshelves, or built-in units;
- **architectural highlights** for such architectural features as arches, columns, or niches.



The technical parameters of the **MR MDF-based coated moulding** considered as a declared unit are:

Parameter	Value	Unit
Length	1000	mm
Width	170	mm
Thickness	18	mm
Moisture content	6	%
Density	720	kg/m^3

Name and location of production site(s):
Vindor OÜ - Koogimäe tee 7, Keava, Kehtna, 79005 Rapla maakond, Estonia

References to any relevant websites for more information or explanatory materials:
https://combiwoodgroup.ee/

CONTENT DECLARATION

Product content and packaging materials in the Tables below are displayed per Declared unit – **1 m of 170 mm wide and 18 mm thick coated MR MDF-based moulding**.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material	
			mass-% of product	kg C/DU
MR-MDF	2,17	0%	39,8%	0,86
Primer	0,02	0%	0%	0
Paint	0,01	0%	0%	0
TOTAL	**2,20**	**0%**	**39,2%**	**0,86**

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/DU
LDPE packaging film	<0,01	0,01%	0,00
POF shrink foil	<0,01	0,27%	0,00
Wooden bearers	<0,01	0,26%	<0,01
Cardboard	<0,01	0,04%	<0,01
Corner protection	<0,01	0,01%	<0,01
PET straps	<0,01	0,01%	0,00
TOTAL	**0,0134**	**0,61%**	**0,0032**

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has not been used in a percentage higher than 0,1% of the weight of the product.

LCA INFORMATION

Declared unit:
1 m of 170 mm wide and 18 mm thick coated MR MDF-based moulding. Conversion factor to mass – 0,454 m/kg; and 2,2 kg/m

Reference service life:
It has been assumed that the reference service life of the moulding is generally the same as the technical life for the buildings this product is intended for. Therefore, reference service life has been declared as equal to the building service life.

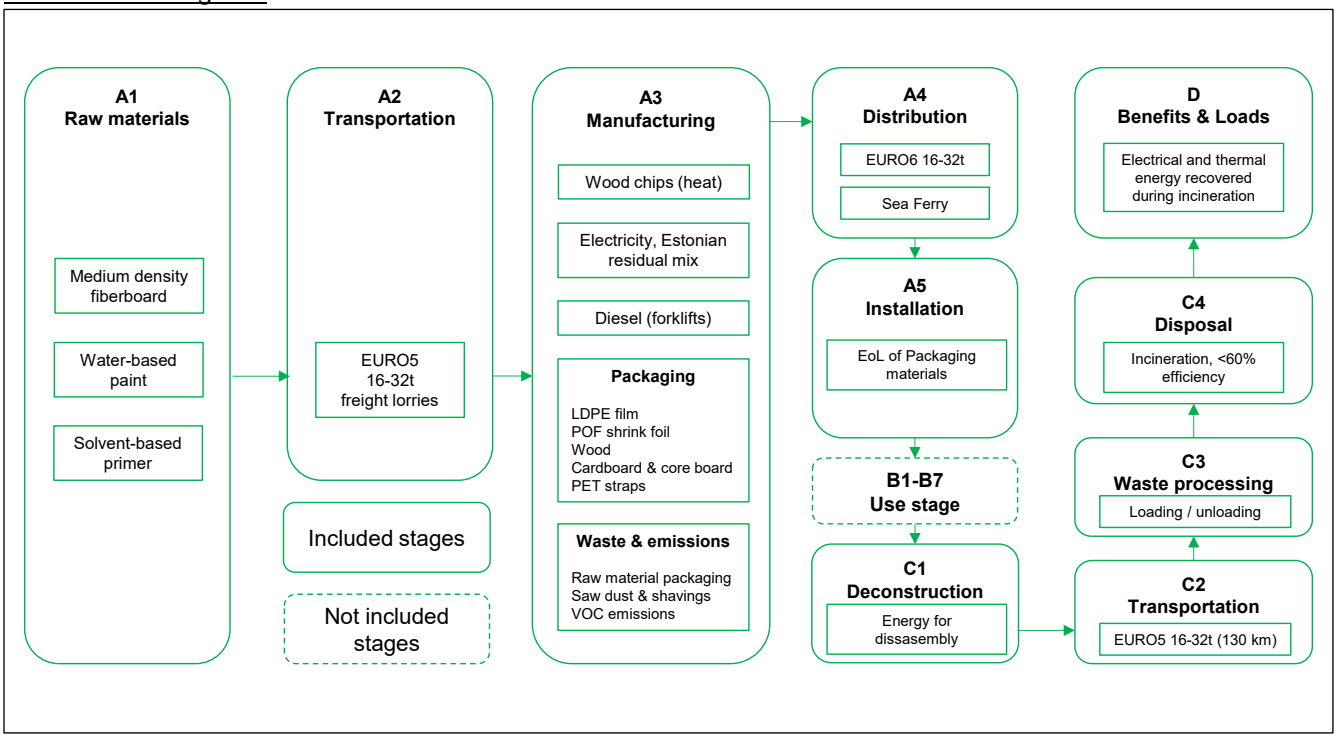
Time representativeness:
Data represents the manufacturing of the products in year 2025. The database used for proxy data is Ecoinvent v3.12. This database data is compiled in March 2026.

Geographical scope:
This EPD has European scope.

Database(s) and LCA software used:
Ecoinvent v3.12 has been used to conduct quantitative evaluation in this study. This database provided the background system's life cycle inventory data for raw and processed materials. The LCA software used - SimaPro Analyst 10.4.

Description of system boundaries:
This LCA study has been performed as “Cradle to gate with options, modules C1–C4, module D and with optional modules”, also considering Transportation module A4 and Installation module A5.

Process flow diagram:



Process flow diagram displays the **main** End-of-Life scenario of the product considered in this EPD.

Data quality:
The foreground data has been collected internally, considering the latest available average production amounts and measurements during the time period of 2025. Data regarding waste processing has been taken from waste scenarios for closest locations in Ecoinvent v3.12. The quality level in this study is qualified as Good. Data quality rating procedure has been performed using a rating system where "1" means Excellent quality, and "5" means Poor quality. Data quality information used in this EPD is compliant with EN 15941.

Technological Representativeness, TeR	Geographic representativeness, GeR	Time Representativeness, TiR	Precision, P	**Average DQR**
2,0	2,1	2,0	2,7	**2,2**

Process	**Source type**	**Source**	**Reference year**	**Data category**	**Share of primary data, of GWP-GHG results for A1-A3**
Transport of raw materials and packaging to the production site	Collected data	EPD owner, Ecoinvent v3.12	2025	Secondary data	0%
MDF board	EPD	Confidential	2023	Primary data	17,0%
Manufacturing of product	Collected data	EPD owner	2025	Primary and Secondary data	12,0%
Generation of electricity used in manufacturing of product	Database	Ecoinvent v3.12	2025		
Production of packaging	Database	Ecoinvent v3.12	2025		
Other processes	Database	Ecoinvent v3.12	2025		
Total share of primary data, of GWP-GHG results for A1-A3					**29,0%**

Cut-off criteria:
To LCA practitioner knowledge there is no missing data for processes within the system boundaries. All the materials and processes which have been accounted for by the manufacturing company for the relevant manufacturing process are included in the LCI. The cut-off in LCA is according to PCR:" General cut-off criteria are given in standard EN 15804:2012+A2, clause 6.3.6.
The processes related to infrastructure, construction, and production of equipment, as well as tools that are not directly consumed in the production process, have been excluded. Personnel-related activities, such as transportation to and from work, have also been excluded.

Allocation:
General allocation principles have been applied according to ISO 14044:2006 4.3.4 and in line with the provisions of EN 15804:2012+A2. Inputs and outputs are allocated equally among all products using production volumes. The methodological choices for allocation for reuse, recycling and recovery have been set according to the polluter pays principle (PPP).

Stages and Production description

Product Stage

Module A1 includes Raw material supply, i.e., production of raw materials. In module A1, extraction and processing of raw materials and generation of electricity and heat from primary energy resources to produce these raw materials are included. Raw materials considered in this study are moisture resistant medium density fiberboard (MR MDF), solvent-based primer and water-based paint for coating purposes.

For **module A2**, the transportation of raw materials and packaging materials to the production plant has been considered. According to provided data, 16-32t EURO5 have been applied as a standard value for all Freight lorries used for supply of raw materials, leaving the results of assessment on a conservative side.

The manufacturing process (**module A3**) of MR MDF-based coated mouldings includes several stages of wood-based material processing such as cutting to desired dimensions, profiling, getting layers of primer, drying, sanding, coating with paint and packing. Packaging required for the product is wood (spacers), LDPE packaging film and POF (polyolefin) shrinkage film, cardboard, core board for corner protection and PET straps.

Electricity consumed during manufacturing is modelled as National residual grid mix of Estonia (market-based approach). GWP-GHG of this dataset is 0,590 kg CO_2eq/kWh. Wood chips, consumed for the production of Heat for drying process, are sourced from the manufacturing plant as a waste of other wood-based products.

Waste flows considered for waste treatment are packaging from supplied raw materials (plastic) and some residue of paint & primer. Wood-based waste is represented by saw dust and shavings collected via air extraction system and sold afterwards.

Since manufacturing process involves the use of paint and primer, Volatile organic compounds (VOC) have been considered as emissions to air in accordance with the data provided in Safety Data Sheets of both raw materials, i.e., 50 g per 1 litre of paint and 500 g per 1 litre of primer.

Construction process Stage

Table below describes scenarios considered in **module A4** for European market.

Vehicle	Mass, kg	Distance, km	Fuel consumption, l/tkm	Value, l/t
Lorry 16-32t, EURO6	4,63E-02	740	0,0431	31,90
Sea Ferry		290	0,0298	8,64
Lorry 16-32t, EURO6		175	0,0431	7,54
Lorry 16-32t, EURO6	1,48E+02	68	0,0431	2,93

Installation and waste treatment of product's packaging are addressed in **Module A5**. It has been assumed that installation of the product is done manually and does not require any energy and, therefore, only activities related to the End-of-Life scenarios for packaging materials have been considered. Activities are similar to the scenarios described in EoL of the product, i.e., incineration and disposal via landfill.

Use Stage:

Modules B1-B7, that define use stage of the product, are not declared for this study – these are not mandatory for LCA "Cradle-to-gate with options" form.

End of Life Stage:

Modules C1-C4 and Module D are mandatory for considered EPD type, therefore, have also been considered for the purpose of this study. Default data for modelling modules C1-C4 has been considered in accordance with PCR 2019:14 v.2.0.1. Environmental performance results have been considered both for main and alternative scenarios of End-of-Life stage:

- **Main scenario – Incineration**. It is assumed that product is dismantled and transported to the incineration facility (130 km) where it is directly incinerated without requiring any pre-treatment. Since the efficiency of the incineration process is below 60%, the associated impacts are allocated to Module C4 as per PCR 2019:14 guidelines. Module D considers benefits from the net electrical and heating energy generated during incineration, substituting electricity of each respective export country for electricity and natural gas for heat.
- **Alternative scenario – Disposal via Landfill.** It is assumed that product is dismantled and transported to the waste treatment facility (80 km) where it is directly disposed of in a sanitary landfill. Module D considers no benefits in this case.

Disassembly in **module C1** is assumed to be carried out considering default values provided in PCR 2019:14 v2.0.1 – 1,1 kWh/t.

Moulding is assumed to be sent (**module C2**) to the closest waste treatment facilities, assuming 80km distance for products not to be incinerated, i.e., disposal scenario, and 130km distance for products to be incinerated. Distance is assumed to be covered by 16-32t EURO5 Freight lorry.

Since incineration efficiency is below 60%, waste treatment activities related to incineration have been allocated to the module C4 instead of module C3. Waste processing (**module C3**) considers waste loading and unloading activities for both scenarios. For disposal scenario in **module C4** product is assumed to be disposed via sanitary landfill, no pre-treatment activities are required. Energy, that is necessary for the compacting of the waste in the landfill, has been considered in accordance with PCR 2019:14 v2.0.1, i.e., 1,6 kWh/t.

Benefits and loads beyond the system boundaries:

Module D considers the benefits of packaging recycling and product & packaging incineration scenarios considered in both Installation and EoL stages. Energy generated from incineration activities has been considered as follows:

- Electric energy – 3,93 MJ/kg for plastic, 1,99 MJ/kg for cardboard, 1,27 MJ/kg for paint and 1,74 MJ/kg for wood
- Natural gas as thermal energy – 7,67 MJ/kg for plastic, 3,99 MJ/kg for cardboard, 17,11 MJ/kg for paint and 3,50 MJ/kg for wood.

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	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
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	EE	EE NO	EE NO	ND	ND	ND	ND	ND	ND	ND	EE NO	EE NO	EE NO	EE NO	EE NO
Share of primary data	29,0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ENVIRONMENTAL PERFORMANCE

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Mandatory impact category indicators according to EN 15804 (EF 3.1 reference package)

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO2 eq.	-1,55E+00	3,03E-02	2,74E-02	8,26E-04	4,40E-02	1,35E-03	3,29E+00	-9,63E-01
GWP-fossil	kg CO2 eq.	1,62E+00	3,03E-02	1,56E-02	8,26E-04	4,40E-02	1,35E-03	1,24E-01	-9,62E-01
GWP-biogenic	kg CO2 eq.	-3,18E+00	1,05E-06	1,17E-02	4,14E-08	1,51E-06	6,77E-08	3,17E+00	-4,27E-04
GWP-luluc	kg CO_2 eq.	1,41E-02	4,99E-07	4,78E-08	3,23E-08	6,83E-07	5,28E-08	2,77E-06	-1,44E-03
ODP	kg CFC 11 eq.	2,65E-07	6,77E-10	1,13E-11	1,29E-11	1,00E-09	2,12E-11	1,08E-09	-2,90E-08
AP	mol H^+ eq.	7,80E-03	6,65E-05	4,88E-06	7,63E-06	1,11E-04	1,25E-05	3,72E-04	-4,47E-03
EP-freshwater	kg P eq.	5,51E-05	2,00E-08	3,18E-09	7,99E-10	2,86E-08	1,31E-09	2,51E-07	-5,60E-06
EP-marine	kg N eq.	2,53E-03	2,20E-05	2,38E-06	3,62E-06	4,38E-05	5,92E-06	1,69E-04	-8,02E-04
EP-terrestrial	mol N eq.	2,45E-02	2,42E-04	2,47E-05	3,96E-05	4,78E-04	6,48E-05	1,80E-03	-8,86E-03
POCP	kg NMVOC eq.	1,24E-02	1,12E-04	6,48E-06	1,19E-05	1,93E-04	1,94E-05	4,92E-04	-3,25E-03
ADP-minerals&metals*	kg Sb eq.	7,13E-06	7,83E-10	7,25E-11	2,97E-11	1,18E-09	4,86E-11	3,32E-09	-1,59E-08
ADP-fossil*	MJ	3,45E+01	3,98E-01	5,95E-03	1,08E-02	5,81E-01	1,76E-02	6,02E-01	-1,61E+01
WDP*	m^3	8,80E-01	1,05E-04	7,32E-05	7,30E-06	1,53E-04	1,19E-05	4,05E-03	-6,74E-02
Acronyms	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 Exceedance; 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 Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: 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.*

Additional mandatory and voluntary impact category indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1,63E+00	3,03E-02	1,56E-02	8,26E-04	4,40E-02	1,35E-03	1,24E-01	-9,63E-01
PM	Disease inc.	9,78E-08	1,49E-09	3,59E-11	2,18E-10	2,54E-09	3,56E-10	3,55E-09	-4,10E-08
IRP	kBq U-235 eq.	1,14E-01	3,93E-05	3,25E-06	9,95E-07	5,78E-05	1,63E-06	1,65E-04	-1,07E-01
ETP-fw	CTUe	2,23E+00	1,90E-02	3,52E-02	8,44E-04	2,66E-02	1,38E-03	3,35E-01	-7,59E-01
HTP-c	CTUh	3,64E-09	2,04E-12	1,03E-12	4,55E-14	3,08E-12	7,45E-14	2,44E-10	-2,47E-10
HTP-nc	CTUh	7,18E-09	1,81E-10	4,77E-11	9,08E-13	2,73E-10	1,49E-12	3,68E-09	-2,20E-09
SQP	dimensionless	2,06E+02	5,23E-04	2,68E-04	1,94E-05	7,62E-04	3,18E-05	1,15E-02	-4,91E+00
Acronyms	PM = Particulate matter emissions; IRP = Ionising radiation, human health; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer effects; HTP-nc = Human toxicity, non-cancer effects; SQP = Potential Soil quality index								

Resource use indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,62E+01	8,70E-04	1,12E-04	2,02E-05	1,29E-03	3,30E-05	4,76E-03	-1,34E+00
PERM	MJ	3,34E+01	8,03E-05	2,28E-05	2,09E-06	1,19E-04	3,43E-06	6,36E-04	-9,93E-01
PERT	MJ	4,97E+01	9,50E-04	1,35E-04	2,23E-05	1,41E-03	3,64E-05	5,40E-03	-2,33E+00
PENRE	MJ	2,85E+01	3,98E-01	5,95E-03	1,08E-02	5,81E-01	1,76E-02	6,02E-01	-1,61E+01
PENRM	MJ	6,00E+00	7,62E-08	1,92E-08	2,56E-08	6,85E-08	4,19E-08	8,43E-07	-6,01E-05
PENRT	MJ	3,45E+01	3,98E-01	5,95E-03	1,08E-02	5,81E-01	1,76E-02	6,02E-01	-1,61E+01
SM	kg	1,35E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,50E+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
FW	m^3	2,54E-02	6,73E-06	1,93E-05	2,93E-07	9,87E-06	4,80E-07	3,80E-04	-3,47E-03
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								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,39E-02	2,62E-06	1,02E-07	7,40E-08	3,88E-06	1,21E-07	1,08E-05	-6,32E-05
Non-hazardous waste disposed	kg	3,66E-01	1,31E-05	7,68E-05	3,78E-07	1,96E-05	6,19E-07	3,96E-03	-1,40E-03
Radioactive waste disposed	kg	1,41E-04	2,18E-08	2,24E-09	4,64E-10	3,24E-08	7,59E-10	1,12E-07	-4,87E-05

Output flow indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**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
Material for recycling	kg	8,53E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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
Exported energy, electricity	MJ	1,50E-02	0,00E+00	3,78E-02	0,00E+00	0,00E+00	0,00E+00	3,82E+00	0,00E+00
Exported energy, thermal	MJ	1,61E-01	0,00E+00	7,44E-02	0,00E+00	0,00E+00	0,00E+00	8,11E+00	0,00E+00

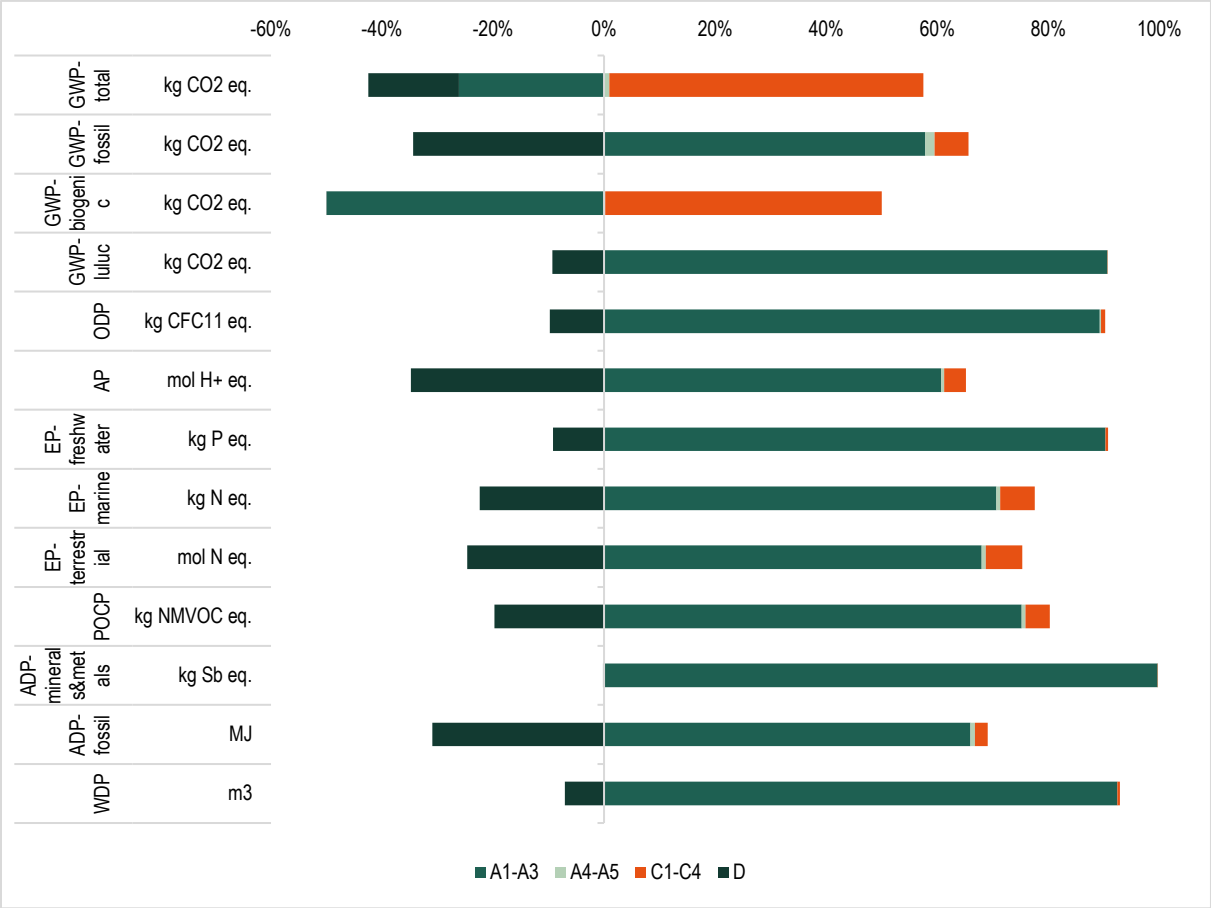
Biogenic carbon content

Results per declared unit – 1 m of coated MR MDF-based moulding	
Biogenic carbon content	**Quantity**
Carbon content in product, kg C	8,64E-01
Carbon content in accompanying packaging, kg C	3,20E-03

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO_2

LCA Interpretation

The estimated impact assessment results are only relative statements that do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins, or risks. Contribution to environmental impact per module for the declared unit of **1 m of coated MR MDF-based moulding** is displayed in following Figure:



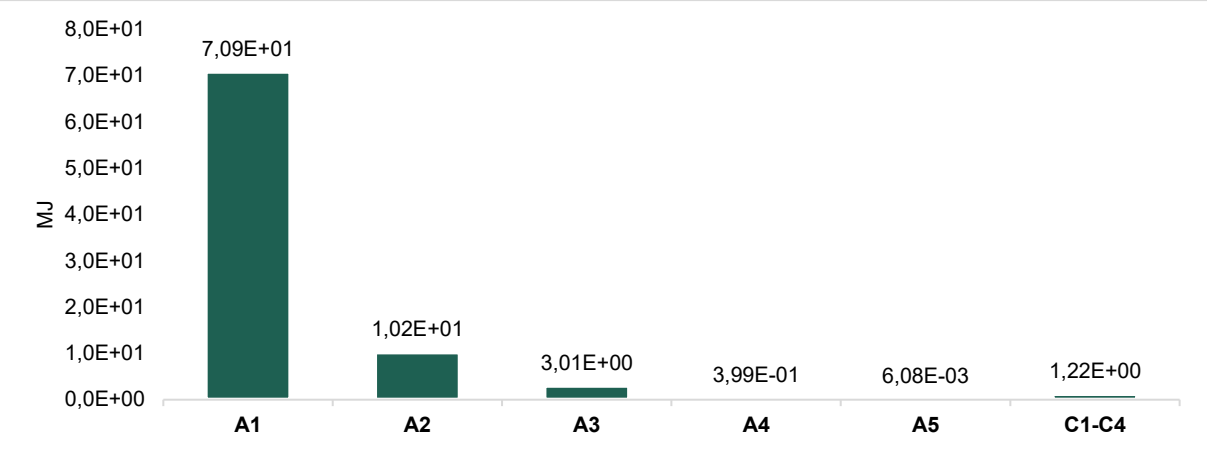
Contribution to the environmental impact, per Stage, for 1 m of coated MR MDF-based moulding

Regarding Climate change (GWP-fossil), the highest impact is generated in Raw material module A1 and Transport module A2, resulting in respective 35% and 42% shares of the total impact, while the whole **Product stage A1-A3 is generating 88%**. In total Installation stage A4-A5 is generating less significant impact than Product stage A1-A3 – 3% of GWP-fossil. End-of-Life stage C1-C4 in terms of GWP is more significant, generating impact both in Transport module C2 and Waste disposal module C4. Without any exclusions, **Product stage A1-A3 is the main (>60%) driver** for all considered impact categories.

Nevertheless, it is necessary to note that there is some positive impact of module D, especially in such impact categories as Global warming potential, Abiotic depletion potential (fossil), Eutrophication potential and Acidification potential. In the main EoL scenario module D accounts for avoided impact of

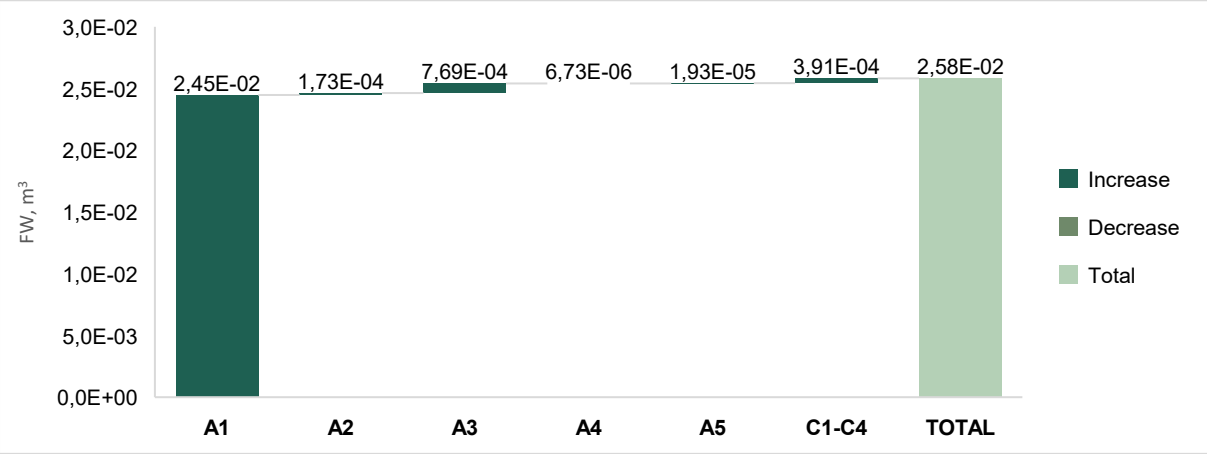
generated energy, both Electric and Thermal, from incineration of product packaging materials and incineration of the product itself.
Considering total demand of primary energy per declared unit, that has been calculated using Cumulative Energy Demand (LHV) V1.01 impact assessment method, demand of primary energy is displayed in following Figure. With 82,7% resulting in Product stage (A1-A3), demand for primary energy for **1 m of coated MR MDF-based moulding** is distributed as follows:

- 98,1% for Product stage (A1-A3)
- 0,5% for Installation stage (A4-A5)
- 1,4% for End-of-Life stage (C1-C4)



Primary energy demand per 1 m of coated MR MDF-based moulding

Other key effect factor is Freshwater consumption, that is displayed in following Figure as a Waterfall chart. A waterfall chart shows a running total as values are added or subtracted. It's useful for understanding how an initial value of net Freshwater use is affected by a series of positive and negative values. Similarly to Primary energy demand, in terms of freshwater use level **Product stage (A1-A3)** is also responsible for most of its demand.



Net freshwater use for 1 m of coated MR MDF-based moulding

ADDITIONAL ENVIRONMENTAL INFORMATION
Alternative EoL scenario - Disposal (100%)

Since *Loading and unloading at sorting facility* (1.8 kWh/t) has been applied to all End-of-Life scenarios, Module C3 is not zero in 100% disposal scenario.

Mandatory impact category indicators according to EN 15804 (EF 3.1 reference package)

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	-1,55E+00	3,03E-02	1,45E-02	8,26E-04	2,71E-02	1,35E-03	3,32E+00	0,00E+00
GWP-fossil	kg CO_2 eq.	1,62E+00	3,03E-02	8,13E-04	8,26E-04	2,71E-02	1,35E-03	2,26E-02	0,00E+00
GWP-biogenic	kg CO_2 eq.	-3,18E+00	1,05E-06	1,37E-02	4,14E-08	9,26E-07	6,77E-08	3,30E+00	0,00E+00
GWP-luluc	kg CO_2 eq.	1,41E-02	4,99E-07	1,22E-08	3,23E-08	4,20E-07	5,28E-08	1,68E-06	0,00E+00
ODP	kg CFC 11 eq.	2,65E-07	6,77E-10	7,97E-12	1,29E-11	6,18E-10	2,12E-11	7,04E-10	0,00E+00
AP	mol H^+ eq.	7,80E-03	6,65E-05	1,35E-06	7,63E-06	6,81E-05	1,25E-05	1,38E-04	0,00E+00
EP-freshwater	kg P eq.	5,51E-05	2,00E-08	6,49E-10	7,99E-10	1,76E-08	1,31E-09	1,02E-07	0,00E+00
EP-marine	kg N eq.	2,53E-03	2,20E-05	2,27E-06	3,62E-06	2,69E-05	5,92E-06	1,02E-04	0,00E+00
EP-terrestrial	mol N eq.	2,45E-02	2,42E-04	5,80E-06	3,96E-05	2,94E-04	6,48E-05	6,85E-04	0,00E+00
POCP	kg NMVOC eq.	1,24E-02	1,12E-04	2,98E-06	1,19E-05	1,19E-04	1,94E-05	2,93E-04	0,00E+00
ADP-minerals&metals*	kg Sb eq.	7,13E-06	7,83E-10	6,10E-11	2,97E-11	7,27E-10	4,86E-11	9,20E-09	0,00E+00
ADP-fossil*	MJ	3,45E+01	3,98E-01	5,12E-03	1,08E-02	3,58E-01	1,76E-02	4,88E-01	0,00E+00
WDP*	m^3	8,80E-01	1,05E-04	-7,41E-05	7,30E-06	9,45E-05	1,19E-05	-1,51E-02	0,00E+00
Acronyms	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 Exceedance; 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 Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: 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.*

Additional mandatory and voluntary impact category indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO_2 eq.	1,63E+00	3,03E-02	2,59E-03	8,26E-04	2,71E-02	1,35E-03	1,43E-01	0,00E+00
PM	Disease inc.	9,78E-08	1,49E-09	2,94E-11	2,18E-10	1,56E-09	3,56E-10	3,53E-09	0,00E+00
IRP	kBq U-235 eq.	1,14E-01	3,93E-05	3,32E-06	9,95E-07	3,56E-05	1,63E-06	3,17E-04	0,00E+00
ETP-fw	CTUe	2,23E+00	1,90E-02	5,50E-03	8,44E-04	1,64E-02	1,38E-03	5,09E-02	0,00E+00
HTP-c	CTUh	3,64E-09	2,04E-12	4,54E-14	4,55E-14	1,89E-12	7,45E-14	2,59E-12	0,00E+00
HTP-nc	CTUh	7,18E-09	1,81E-10	9,02E-12	9,08E-13	1,68E-10	1,49E-12	4,26E-10	0,00E+00
SQP	dimensionless	2,06E+02	5,23E-04	7,29E-03	1,94E-05	4,69E-04	3,18E-05	1,20E+00	0,00E+00
Acronyms	PM = Particulate matter emissions; IRP = Ionising radiation, human health; ETP-fw = Ecotoxicity, freshwater; HTP-c = Human toxicity, cancer effects; HTP-nc = Human toxicity, non-cancer effects; SQP = Potential Soil quality index								

Resource use indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,62E+01	8,70E-04	1,04E-04	2,02E-05	7,92E-04	3,30E-05	9,98E-03	0,00E+00
PERM	MJ	3,34E+01	8,03E-05	6,07E-06	2,09E-06	7,33E-05	3,43E-06	8,89E-04	0,00E+00
PERT	MJ	4,97E+01	9,50E-04	1,10E-04	2,23E-05	8,65E-04	3,64E-05	1,09E-02	0,00E+00
PENRE	MJ	2,85E+01	3,98E-01	5,12E-03	1,08E-02	3,58E-01	1,76E-02	4,88E-01	0,00E+00
PENRM	MJ	6,00E+00	7,62E-08	5,12E-09	2,56E-08	4,22E-08	4,19E-08	1,24E-06	0,00E+00
PENRT	MJ	3,45E+01	3,98E-01	5,12E-03	1,08E-02	3,58E-01	1,76E-02	4,88E-01	0,00E+00
SM	kg	1,35E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,50E+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
FW	m^3	2,54E-02	6,73E-06	-6,03E-05	2,93E-07	6,07E-06	4,80E-07	-9,88E-03	0,00E+00
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								

[2] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,39E-02	2,62E-06	3,41E-08	7,40E-08	2,39E-06	1,21E-07	3,27E-06	0,00E+00
Non-hazardous waste disposed	kg	3,66E-01	1,31E-05	1,34E-02	3,78E-07	1,20E-05	6,19E-07	2,20E+00	0,00E+00
Radioactive waste disposed	kg	1,41E-04	2,18E-08	1,79E-09	4,64E-10	2,00E-08	7,59E-10	1,73E-07	0,00E+00

Output flow indicators

Results per declared unit – 1 m of coated MR MDF-based moulding									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**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
Material for recycling	kg	8,53E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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
Exported energy, electricity	MJ	1,50E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	1,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ABBREVIATIONS

Abbreviation	Definition
C	Carbon
CO_2	Carbon dioxide
CPA	Statistical classification of products by activity
CPC	Central product classification
c-PCR	Complementary Product Category Rules
DQR	Data quality ratio
DU	Declared unit
EF	Environmental footprint
EN	European Norm
EPD	Environmental Product Declaration
EU	European Union
GHG	Greenhouse gas
GLO	Global
GPI	General Programme Instructions
GWP	Global warming potential
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LCI	Life cycle inventory
LHV	Lower heating value
ND	Module not declared
PCR	Product Category Rules
PET	Polyethylene terephthalate
PPP	Polluter pays principle
REACH	Regulation on the registration, evaluation, authorization and restriction of chemicals
SVHC	Substances of Very High Concern
UN	United Nations
UNSPSC	United Nations Standard Products and Services Code
VOC	Volatile organic compounds
MDF	Medium density fibreboard
MR	Moisture resistant

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VERSION HISTORY

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INTERNATIONAL EPD SYSTEM

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