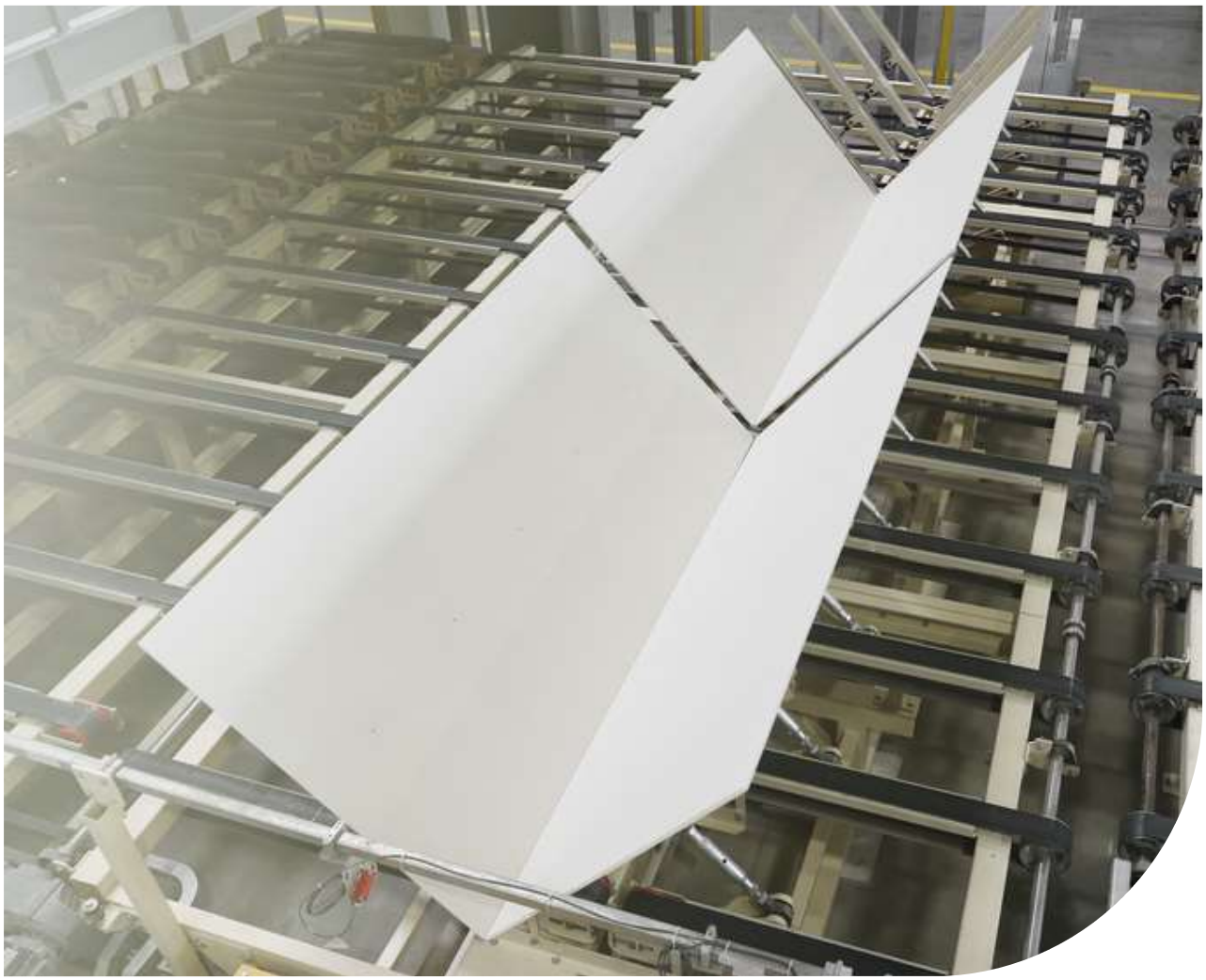


Environmental Product Declaration

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

FIRE DEFENDER Plasterboard cat. No. 911108
SUPER FIRE Plasterboard cat. No. 911105

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-009576
Publication date:	01-08-2023
Valid until:	01-08-2028

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

TAMBOUR

About the Company

For over 85 years, Tambour has taken part in shaping the Israeli landscape, from building structures, tunnels, and bridges, to painting roads, constructing national infrastructure, and improving Israeli residents' quality of life.

Today, we look to the future, understand the magnitude of our impact on future generations, and work towards building more innovative, healthy, and ecological living environments.

We have already begun this process, from developing greener products, building factories that meet international standards and use green energy, to switching to use of hybrid/electric vehicles and reusable utensils.

We have chosen our path - to do as much as we can, and more, to build a better future.

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:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CENstandard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction Products 2019: 14 Version 1.2.5, UN CPC code 375 - Articles of concrete, cement and plaster
PCR review was conducted by :The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact
Life Cycle Assessment (LCA)
LCA accountability: Eyal Bitkover & Eli Shmushko, Green Target Contact at: office@yaadyarok.co.il More info: www.yaadyarok.co.il
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Ruben Carnerero Acosta, IK Ingenieria* Approved by: The 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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Tambour Ltd

Description of the organisation: Tambour is an Israeli market leader for paint and construction products - paint for home and industry construction products such as plasterboard, powders and adhesives and special paint and coatings for aviation, railway, shipbuilding and other sectors. plasterboards that are produced in Acre which is located in the north region of Israel.

Product-related or management system-related certifications: Tambour's plant in Acre is certified for ISO 9001, ISO14001 & ISO 45001. All of Tambour plasterboards are CE certified and received the Standard Institution of Israel's' Green label (certificate no. 62088).

Name and location of production site(s): Tambour's manufacturing site is located in Acre, Israel.

Product information

All boards declared in this EPD are fire resistant as per SI 755, CE certified and received the Standard Institution of Israel's' Green label (certificate no. 62088).

- **Product name: FIRE DEFENDER (FD)**

  Product identification: Plasterboard for maximum fire resistance, 24mm

  Product description: Fiberglass mat coated board for interior use - fire retardant with improved fire resistance.

- **Product name: SUPER FIRE (SF)**

  Product identification: Plasterboard featuring weather & fire resistance, 24mm

  Product description: Fiberglass mat coated board for exterior use – fire retardant & moisture resistance. Suitable for cladding vertical walls using the "dry cladding" method. The board is resistant to water, humidity, salinity and mildew. The board possesses a particularly dense gypsum core and an extremely low coefficient of expansion and contraction.
  UN CPC code: 3753 – Articles of plaster or of compositions based on plaster

UN CPC code: 3753 – Articles of plaster or of compositions based on plaster
Geographical scope: The study represents the manufacturing of plaster boards in Tambour's manufacturing factory in Acre, Israel.

Technical specifications

Parameter	Units	FD	SF
Thickness*	mm	24*(+0.5-0.4)	24(+0.5-0.4)
Width	mm	1200 (+0.3 ,-0.3)	1200 (+0.3 ,-0.3)
Flexure parallel to the board edges	N	1133	1133
Flexure perpendicular to the board edges	N	997	997
Nail head thrust strength	N	735	735
General absorptivity	%	/	5 ›
Surface absorptivity	%	/	1.6 ›
Weight	Kg	17.6	17.6

*LCA was performed on 24mm thickness boards but FD is also available in 18mm thickness

LCA information

Declared unit: 1 square meter of plasterboard with the technical properties mentioned in the table above (the study was performed on the most commonly used thickness for each type of plasterboard).

Reference Service Life: According to BBSR in a publication from 2017, the RSL of gypsum plasterboards is 50 years.

Data & Time representativeness: The specific data for the LCA study is based on 2021 production data from Tambour's manufacturing site in Acre. Since LCI data do not include Israel specific data, the electricity was modeled according to the national electricity production mix using data published by the Israeli parliament and the water grid was modelled according to the local water mix available.

Database(s) and LCA software used: Open LCA v.1.11.0 & Ecoinvent v.3.8.0

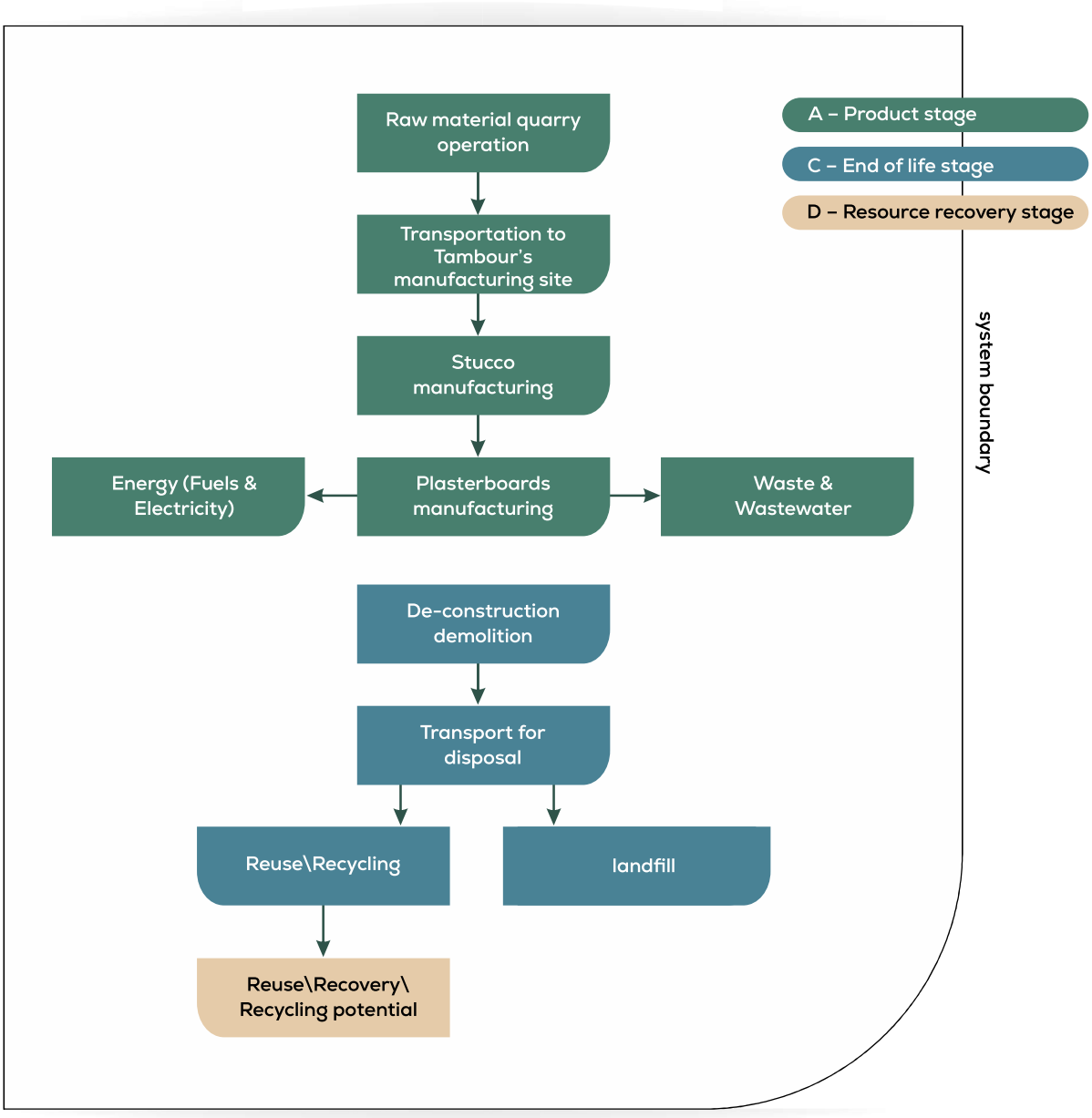
Description of system boundaries:
Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).
Stages A4-A5 and Module B were excluded from the LCA study.

Cut-off rules & assumptions: All major inputs & outputs were considered in this study. Raw materials which had no available data were excluded from the model. These materials account for less than 1% of the products' total mass. The study does not include the manufacturing processes and maintenance of capital goods or spare parts as their lifespan is more than 3 years.
The environmental impacts of general organizational operations and employees activities (offices, travels etc.) were not included in this study as well, as they are relevant for Tambour's entire manufacturing site in Acre and not only for the plasterboards production line.

Additional data sources: Since Ecoinvent does not contain much data specific for Israel, Electricity and water flows were modelled according to data published on-line for both these grids.

Allocations: According to EN 15804:2012+A2:2019, allocations in this LCA were avoided where possible. Energy and waste data have been allocated based on physical criteria of mass as this data in the process level was not available.

System diagram:



Stages A4-A5 and Module B were excluded from the LCA study

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

Stage	Product			Construction process		Use							End of life				Resource recovery
	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	IL Glo	IL Glo	IL Glo	ND	ND	ND	ND	ND	ND	ND	ND	ND	IL	IL	IL	IL	IL
Specific data used		>90%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products		<10%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites		0%		-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND = Not Declared

Product stage (A1-A3):

Module A1 – Raw material supply
Tambour's plasterboards consist mainly of natural gypsum with the addition of additives (up to 7% of the board's mass). This module includes the gypsum quarry operations and additives manufacturing, including the cover liners (fiberglass mat).

Module A2 – Transport
Natural gypsum is extracted from quarries at Cyprus and transported overseas to Israel port in Haifa. The module also includes the transport of additives and packaging materials to Tambour's manufacturing site.

Module A3 – Manufacturing
Natural gypsum is milled and calcinated to stucco. The stucco and other additives are mixed together with water and then spread on a continuous liner (face liner) and covered with another liner (back liner).
The boards are then dried in a natural gas derived drier to the permitted residual moisture level. Drying is coming after the cutting of the boards to the desired lengths. The boards are piled-up to stacks, packed using LDPE packaging film and wooden "legs".

End of Life stage (C1-C4):

Module C1 - De-construction demolition

Demolition of plaster boards takes place with the demolition of the whole construction and can also be done using manpower alone. Thus, it is assumed that energy used for the demolition of plasterboards is negligible and the environmental impact of this module as well.

Module C2 - Transport

Estimated average distance from demolition site to inert landfill site in Israel is 50 km.

Module C3 - Waste processing

Since the waste is disposed to an inert waste sanitary landfill, there is no waste processing procedure and environmental impact results were set to zero.

Module C4 - Disposal

Plasterboards waste is usually not separatable from other construction waste and is not eligible for recycling. Thus, product disposal was modelled as 100% inert waste in a sanitary landfill and environmental impact results were set to zero.

End of life information

Processes	Weight, kg
kg collected separately	0
kg collected with mixed construction waste	17.33*
kg for re_use	0
kg for recycling	0
kg for energy recovery	0
kg product or material for final deposition	17.33*

*Not including water content

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Stucco	16.6	0	0
Glass fibre	0.058	0	0
Additives	0.288	0	0
Face liner	0.342	0	0
Back liner	0.314	0	0
TOTAL	17.6*	0	0

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C
LDPE	0.0067	< 1	0
Wood “legs”	0.001 – 0.098	< 1	0.0005 - 0.049
TOTAL	0.008 – 0.105	< 1	/

*Not including water content

Biogenic carbon containing materials in the product are less than 5% of the products' mass, thus the declaration of biogenic carbon content in the product is omitted.

The plasterboards declared in this LCA study does not contain substances from the SVHC list in an amount that that exceeds 0.1% of the declared unit mass.

Results of the environmental performance indicators

For each indicator, declared here are the "worst-case product" results (which may be the results of one or several of the included products)

Mandatory impact category indicators according to EN 15804 (Including GWP-GHG[1])

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.47E+00	0.00E+00	1.47E-01	0.00E+00	9.12E-02	0.00E+00
GWP-biogenic	kg CO_2 eq.	-6.75E-02	0.00E+00	2.47E-05	0.00E+00	3.82E-05	0.00E+00
GWP-luluc	kg CO_2 eq.	1.23E-03	0.00E+00	6.30E-05	0.00E+00	8.43E-05	0.00E+00
GWP-total	kg CO_2 eq.	3.40E+00	0.00E+00	1.47E-01	0.00E+00	9.14E-02	0.00E+00
ODP	kg CFC 11 eq.	5.57E-07	0.00E+00	3.18E-08	0.00E+00	3.69E-08	0.00E+00
AP	mol H^+ eq.	1.63E-02	0.00E+00	4.33E-04	0.00E+00	8.58E-04	0.00E+00
EP-freshwater	kg P eq.	3.73E-04	0.00E+00	1.12E-05	0.00E+00	8.43E-06	0.00E+00
EP-marine	kg N eq.	3.26E-03	0.00E+00	8.86E-05	0.00E+00	2.99E-04	0.00E+00
EP-terrestrial	mol N eq.	3.71E-02	0.00E+00	9.62E-04	0.00E+00	3.27E-03	0.00E+00
POCP	kg NMVOC eq.	1.08E-02	0.00E+00	3.51E-04	0.00E+00	9.27E-04	0.00E+00
ADP-minerals & metals*	kg Sb eq.	7.00E-04	0.00E+00	4.91E-07	0.00E+00	1.96E-07	0.00E+00
ADP-fossil*	MJ	5.21E+00	0.00E+00	2.52E-01	0.00E+00	1.91E-01	0.00E+00
WDP*	m^3 world eq. Deprived	8.27E-01	0.00E+00	1.08E-02	0.00E+00	1.17E-01	0.00E+00
GWP-GHG[1]	kg CO_2 eq.	3.47E+00	0.00E+00	1.47E-01	0.00E+00	9.13E-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						

[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.

Resource use indicators

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	9.49E-01	0.00E+00	1.80E-02	0.00E+00	1.47E-02	0.00E+00
PERM	MJ	1.56E+00	0.00E+00	7.32E-03	0.00E+00	6.97E-03	0.00E+00
PERT	MJ	2.52E+00	0.00E+00	2.54E-02	0.00E+00	2.17E-02	0.00E+00
PENRE	MJ	7.71E+00	0.00E+00	2.79E-01	0.00E+00	2.79E-01	0.00E+00
PENRM	MJ	1.12E+02	0.00E+00	1.94E+00	0.00E+00	2.35E+00	0.00E+00
PENRT	MJ	1.19E+02	0.00E+00	2.22E+00	0.00E+00	2.56E+00	0.00E+00
SM	kg	2.06E+00	0.00E+00	1.54E-03	0.00E+00	1.37E-03	0.00E+00
RSF	MJ	1.20E+00	0.00E+00	2.20E-04	0.00E+00	2.20E-04	0.00E+00
NRSF	MJ	3.53E-02	0.00E+00	3.98E-04	0.00E+00	3.98E-04	0.00E+00
FW	m^3	1.99E-02	0.00E+00	2.64E-04	0.00E+00	2.75E-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						

Waste indicators

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.95E+00	0.00E+00	5.79E-02	0.00E+00	5.79E-02	0.00E+00
Non-hazardous waste disposed	kg	2.26E-01	0.00E+00	1.11E-01	0.00E+00	1.73E+01	0.00E+00
Radioactive waste disposed	kg	1.53E-03	0.00E+00	3.13E-05	0.00E+00	3.23E-05	0.00E+00

Output flow indicators

Results per declared unit							
Indicator	Unit	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
Material for recycling	kg	1.99E+00	0.00E+00	1.13E-03	0.00E+00	1.13E-03	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
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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

References

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Central Product Classification (CPC), Version 2.1, Department of Economic and Social Affairs Statistics Division, UN. Plasterboards data sheets, Tambour

ISO14020:2000 Environmental labels and declarations – General principles

ISO14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO14040:2006 Environmental management – Life cycle assessment – Principles and framework

ISO14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines

15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

Ecoinvent database V3.8

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