Environmental Product Declaration

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

TAMPLAST 911

from Tambour
Kibutz Gesher

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0012726 (S-P-12726)
Publication date:	2024-07-31
Valid until:	2029-07-30

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 the 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)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): 2019:14, Construction products, version 1.3.4, UN CPC 375
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com The review panel may be contacted via info@environdec.com Chair of the PCR review: Claudia A. Peña
Life Cycle Assessment (LCA)
LCA accountability: Shai Ben Aharon, KVS
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: Rubén Carnerero r.carnerero@ik-ingenieria.com 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

Description of the organisation: Tambour is an Israeli manufacturing company. It produces a variety of solutions for the construction industry including gypsum plaster.

Tambour considers sustainability to be a core value, has published various EPDs for its products and is in the process of conducting several EPDs for additional products.

Gypsum is a natural material that does not contain toxic and harmful substances, and its production generates almost no waste.

Tambour offers the construction industry a wide and rich range of products, including products which are locally produced in varying sites in Israel.

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

Product information

Product name: TAMPLAST 911 .
Product identification: Gypsum plaster.
Product description:

- TAMPLAST 911 – Gypsum-based plaster for leveling and smoothing interior walls. Plastering ceilings and interior walls in protected spaces (MMDs). for internal use.

Declared unit: 1 kg of gypsum plaster

Specifications:

Name of Product	TAMPLAST 911
Water Consumption [L/kg of product]	0.5
Adhesion strength after 28 days [MPa]	>0.12
Bending strength after 28 days [MPa]	>1
Compressive strength after 28 days [MPa]	>2
Thermal conductivity [W/m*dec C]	0.28
Application temperature	5°C-35°C
Package size	25 kg
color	White

Product test standard:
Tambour's plants are ISO 9001 certified.
The products meet Israeli standard 3970 and Israeli Green Label.

UN CPC code: 37530 – Articles of plaster or of compositions based on plaster.

Geographical scope: The study represents the manufacturing of gypsum products in Tambour's manufacturing factory in the Kibutz Gesher, Israel. The end-of-life scenario of the products is demolishment and recycling/landfilling in Israel, according to market research that was conducted.

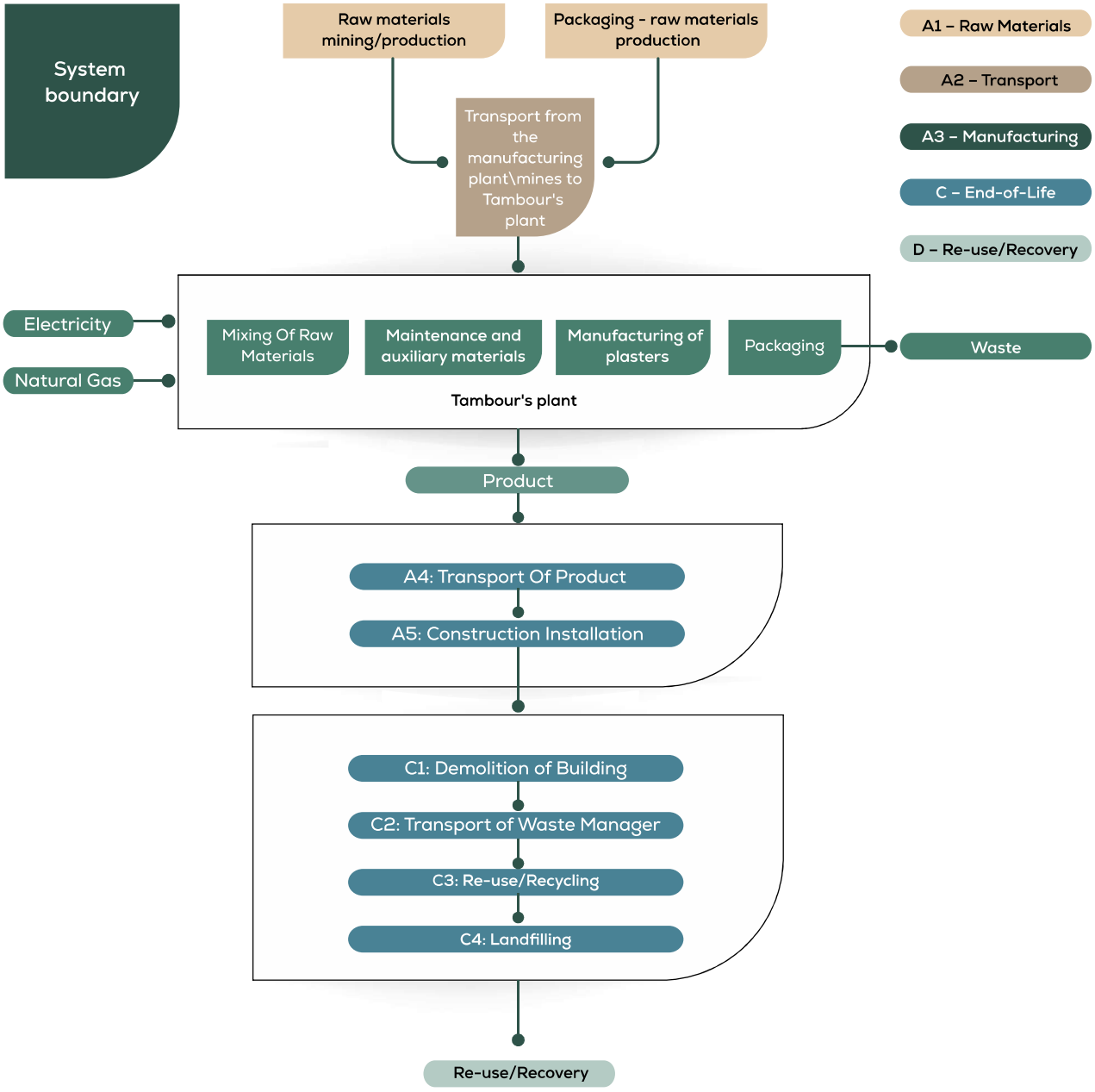
LCA information

Time Representativeness: The time coverage of the LCA's data is from January 2022 to December 2022.

Database(s) and LCA software used: The software used is SimaPro, Analyst 9.4.0.3. The database used is the Ecoinvent database v3.8 (2021) using the cut-off by classification approach (SCLCI, 2017).

Description of system boundaries:
Cradle to gate with modules A4-A5, C1-C4, and module D (A1–A5 + C + D).

System diagram:



Manufacturer's contact information:

Address: 6 Meir Ariel st., Netanya, Israel

Phone Number: *6477

Email: tamSupport@tambour.co.il

Website: https://tambour.co.il/

Name and contact information of the LCA practitioner:
Shai Ben Aharon shai.kvs.co.il of KVS.

Assumptions:

a) It was assumed a similar energy per kg product consumed for all products in the same production line.
b) Assumptions were made regarding the transportation for all materials required for manufacturing and packaging the product. The calculation was distance based.
c) In cases of multiple suppliers for one raw material a proportional share was taken into account.
d) The packaging per declared unit was calculated as the relative weight of packaging per declared unit of product.
e) The primary energy of raw materials was calculated for all renewable raw materials that had LHV value sources. Therefore, materials without available LHV sources found, were not included in the calculations.
f) Assumptions regarding the end-of-life stage were made as mentioned in p. 8 for modules C1-C4.

Allocations: In this study, as per EN 15804, allocation is conducted in the following order:

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Overall and in general, allocations were avoided whenever possible. Nevertheless, allocations were made in the general energy usage.

Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 standard.

Cut-off rules: The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 V. 1.3.4 and the applied PCR of the EPD International Institution. The study does not exclude any hazardous materials or substances. The study includes all major raw materials and energy consumption. All inputs and outputs of the unit processes with available data are included in the calculation. There is no neglected unit process of more than 1% of total mass or energy flows, and in fact components with a share of even less than 1% are included.

Background Database: The EPD is based on the primary production data of Tambour. The background database is Ecoinvent database v3.8 (2021). Since there are several missing datasets for Israel, background data for larger areas in which Israel is included in was used for a small part of the life cycle inventory.

The electricity mix of high voltage electricity grid according to 2022 data is given by a formal report from the Israel Electricity Authority, and is as follows: 22% of hard coal, 68% of natural gas, 0.27% of oil and 9.75% of renewable and other.

The water grid is modeled according to the water sources in Israel, Meron et al (2020).

Electricity mix at the plant (2022)	**kg CO2 eq./kWh (GWP-GHG)**
Israel electricity grid – 100%	0.579

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

	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
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	IL EUR Global	IL EUR Global	IL	IL	IL	ND	ND	ND	ND	ND	ND	ND	IL	IL	IL	IL	IL
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

All the modules described below were modeled and calculated specifically for each manufacturing site:

Product stage (A1-A3):

Module A1 – Supply of raw materials: The declared Tambour gypsum plasters consist of a natural gypsum mix with additives. The raw materials supply includes raw material extraction/preparation or pre-treatment processes before production that are taken into account in this study. The raw materials of packaging i.e., wooden pallets, paper sacks and polyethylene are also included in this module.

Module A2 – Transport of raw materials: Natural gypsum is extracted from mines abroad in a nearby country to the manufacturing sites. Accordingly, transport distances are short and done by ships and trucks. Further raw materials are supplied from manufacturers within Israel or from other European countries.

Module A3 – Manufacturing: The manufacturing includes stucco preparation from raw gypsum, followed by expanded perlite and calcite preparation for production. The mixture is then mixed with the additives. The end products are packaged into sacks. Electric energy, natural gas and diesel are consumed during the manufacturing process.

Construction stage (A4-A5):

Module A4 – Transport: Transport to the building site. This module includes transport from the production gate to the building site. Transport is calculated on the basis of a scenario in Israel of average distance of 80 km between the production gate to the building site. The scenario also accounts the empty return of the truck to the production gate.

Scenario information	**Unit per functional unit**
Vehicle type	Lorry, 16-32 metric tons, euro 6 feul type
Capacity utilization	50% (empty returns)
Distance	80 km

Module A5 – Construction assembly: The installation/assembly of the plaster at the building is done by mixing the plaster with water and applying on the walls manually. The tool used for the application is used for very long times (could be years) and the energy consumed is neglected. However, this stage will model the end-of-life of the packaging which will be incinerated in municipal waste treatment plant.

Scenario information	**Unit per functional unit**
Ancillary materials for installation	Neglected
Water use	0.5 L
Energy consumption	Neglected
Waste treatment of packaging – municipal incineration	Biogenic packaging – 6-34 E-03 Kg Non biogenic packaging – 2.4E-04 Kg

End-of-Life stage (C1-C4):

Processes	**Type**	**Amount per kg declared unit**
Collection process	Kg collected separately	0
	Kg collected with mixed construction waste	1
Recovery specified by type	Kg for re use	0
	Kg for recycling	0
	Kg for energy recovery	0
Disposal	Landfilled	1
Assumption doe transport scenario	Transport to disposal waste treatment plant with Euro 6, 16-32 tonne lorry for 50 km	0.05 tkm

Module C1 – De-construction: Demolition of the gypsum plasters will take place with the whole demolition of the building/construction. Thus it is assumed that energy used for the demolition of gypsum plasters has minor significance and the environmental impact of this module is set to be zero. At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as mixed construction waste.

Module C2 – Transportation: Transportation distance to the closest disposal area is estimated as 50 km by a 16-32 tonne lorry, which is the most common.

Module C3 – Waste processing According to interviews with industry executives that manage the construction waste in Israel (GREENMIX, Negevecology), there is no any significant processing of the construction waste and especially not for the gypsum residues, therefore the environmental impact of this module is set to be zero.

Module C4 – Disposal: it is assumed and modeled that 100% of the gypsum plasters will be landfilled in the Israeli landfills of construction materials.

Resource Recovery stage (D):
Module D – Reuse-Recovery-Recycling potential: Module D is set to be zero since the is no reuse, recovery or recycling of the products.

Content information

Product components	Weight-%	Post-consumer material, weight-%	Biogenic material, weight-%
Stucco	65-86	0	0
Silica sand	17-29	0	0
Limestone	5-8	0	0
Additives	0.2-3	0	0
TOTAL	100	0	0
Packaging materials	**Weight-%**	**Post-consumer material, weight-%**	**Weight biogenic carbon-%**
Paper bag	<0.1	<0.1	<0.1
PE cover	<0.1	0	0
Wooden pallet	<0.1	<0.1	<0.1
TOTAL	<0.1	0	0

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Not present in the product	ND	ND	0

Environmental Information

The EPD is for a specific product - Environmental impacts of 1 kg of TAMPLAST 911.

Potential environmental impact – mandatory indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	2.19E-01	2.61E-02	1.59E-03	0	8.50E-03	0	9.12E-03	0
GWP-biogenic	kg CO_2 eq.	-6.25E-03	2.25E-05	9.73E-03	0	4.60E-06	0	6.56E-06	0
GWP - luluc	kg CO_2 eq.	3.15E-04	1.04E-05	1.63E-06	0	3.56E-06	0	5.34E-06	0
GWP - total	kg CO_2 eq.	2.13E-01	2.61E-02	1.13E-02	0	8.51E-03	0	9.13E-03	0
ODP	kg CFC 11 eq.	2.58E-08	6.04E-09	4.82E-11	0	1.83E-09	0	2.99E-09	0
AP	mol H^+ eq.	8.66E-04	7.40E-05	5.12E-06	0	2.50E-05	0	9.03E-05	0
EP - freshwater	kg PO_4 eq.	7.57E-06	5.69E-07	1.20E-07	0	2.21E-07	0	1.88E-07	0
EP - freshwater	kg P eq.	2.47E-06	1.86E-07	3.92E-08	0	7.21E-08	0	6.13E-08	0
EP - marine	kg N eq.	1.77E-04	1.47E-05	1.27E-06	0	4.98E-06	0	3.55E-05	0
EP - terrestrial	mol N eq.	1.99E-03	1.64E-04	1.37E-05	0	5.56E-05	0	3.90E-04	0
POCP	kg NMVOC eq.	1.10E-03	6.30E-05	3.56E-06	0	2.08E-05	0	1.10E-04	0
ADP- fossil *	MJ	2.64E+00	3.95E-01	1.03E-02	0	1.26E-01	0	2.01E-01	0
ADP-minerals&metals *	kg Sb eq.	5.31E-07	9.24E-08	5.10E-09	0	2.95E-08	0	1.40E-08	0
WDP*	m^3	4.08E-02	1.20E-03	9.77E-03	0	4.40E-04	0	6.71E-03	0
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								

* Disclaimers:
I: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.
II: when considering the results, one should account all declared modules and not only modules A1-A3.
III: 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
IV: It is discouraged to use the results of modules A1-A3 (A1-A5 for services) without considering the results of module C

Potential environmental impact – additional mandatory and voluntary indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2.19E-01	2.61E-02	1.60E-03	0	8.50E-03	0	9.12E-03	0

Use of resources[2]

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.60E-01	5.65E-03	1.24E-03	0	1.26E-01	0	2.01E-01	0
PERM	MJ	8.88E-02	0.00E+00	0.00E+00	0	0	0	0	0
PERT	MJ	2.49E-01	5.65E-03	1.24E-03	0	1.26E-01	0	2.01E-01	0
PENRE	MJ	2.63E+00	3.95E-01	1.03E-02	0	1.47E-03	0	1.47E-03	0
PENRM	MJ	1.09E-02	0.00E+00	0.00E+00	0	0	0	0	0
PENRT	MJ	2.64E+00	3.95E-01	1.03E-02	0	1.47E-03	0	1.47E-03	0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	1.09E-03	4.47E-05	2.32E-04	0	1.45E-05	0	1.61E-04	0
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.

[2] The primary energy use indicators were calculated according to the PCR 2019:14 v1.3.4 Annex C option B.

Waste production and output flows

Waste production

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4.44E-06	1.03E-06	8.43E-09	0	3.32E-07	0	3.73E-07	0
Non-hazardous waste disposed	kg	7.41E-02	2.07E-02	2.32E-04	0	6.50E-03	0	1.00E+00	0
Radioactive waste disposed	kg	9.66E-06	2.67E-06	3.28E-08	0	8.20E-07	0	1.34E-06	0

Output flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	6.34 E-03	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0

References

General Programme Instructions of the International EPD® System. Version 4.0.

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A national-level LCA of a water supply system in a Mediterranean semi-arid climate—Israel as a case study / auth. Thoma Noa Meron & Vered Blass & Greg. - Germany: The International Journal of Life Cycle Assessment, 2020.

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Tambour, Catalog of Products, 2022.

Report of Israel's electricity market, by the Israeli authority of electricity, 2023

Contact information

Programme operator

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EPD Owner

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Environmental Product Declaration

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TAMPLAST 911

from Tambour
Ashkelon

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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 the 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.

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Programme information

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Life Cycle Assessment (LCA)
LCA accountability: Shai Ben Aharon, KVS
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Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Rubén Carnerero r.carnerero@ik-ingenieria.com Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

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Company information

Owner of the EPD: Tambour

Description of the organisation: Tambour is an Israeli manufacturing company. It produces a variety of solutions for the construction industry including gypsum plaster.

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Tambour offers the construction industry a wide and rich range of products, including products which are locally produced in varying sites in Israel.

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

Product information

Product name: TAMPLAST 911.
Product identification: Gypsum plaster.
Product description:

- TAMPLAST 911 – Gypsum-based plaster for leveling and smoothing interior walls. Plastering ceilings and interior walls in protected spaces (MMDs). for internal use.

Declared unit: 1 kg of gypsum plaster

Specifications:

Name of Product	TAMPLAST 911
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The products meet Israeli standard 3970 and Israeli Green Label.

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LCA information

Time Representativeness: The time coverage of the LCA's data is from January 2022 to December 2022.

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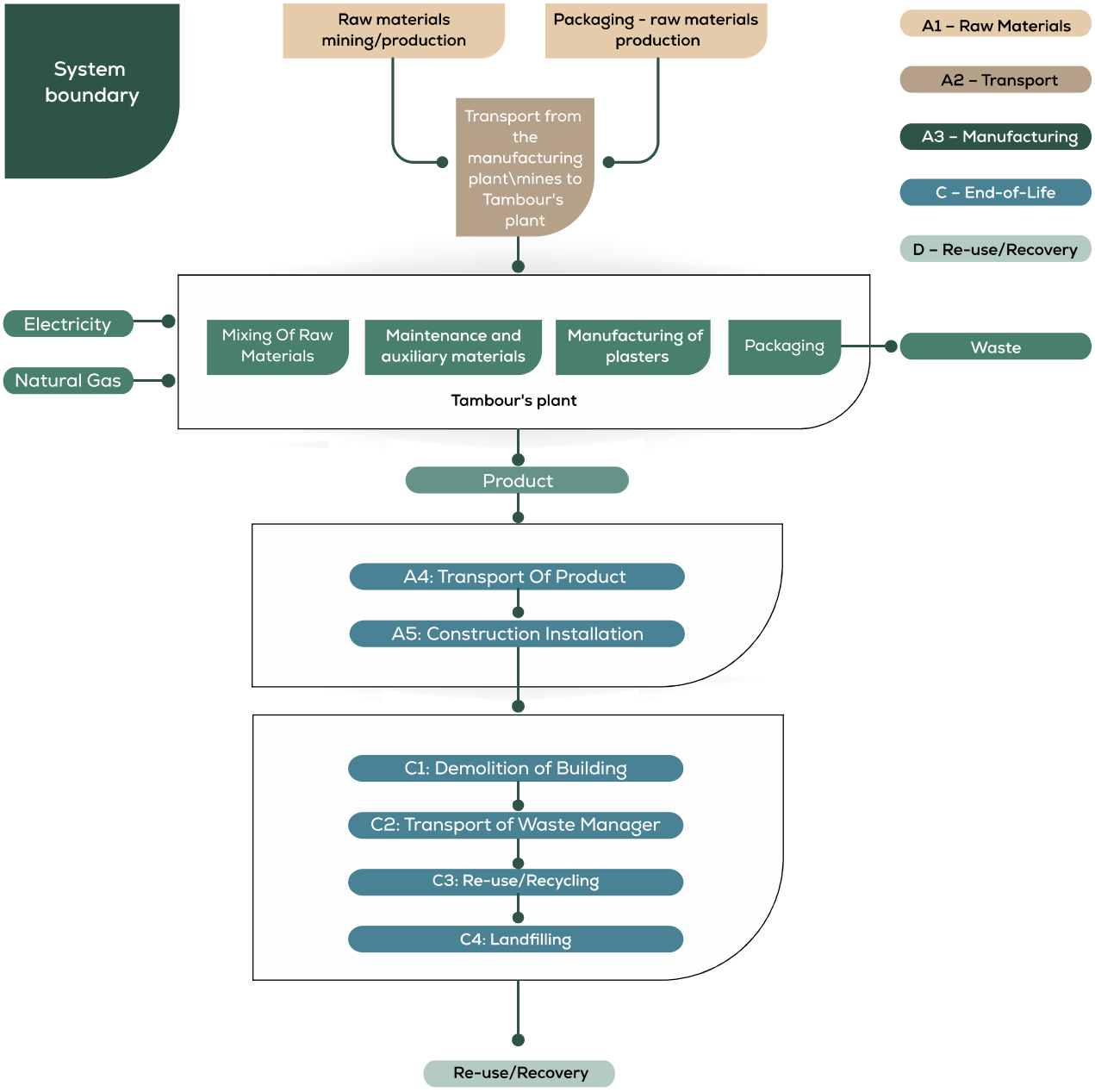

TAMBOUR

Manufacturer's contact information:

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Assumptions:

a) It was assumed a similar energy per kg product consumed for all products in the same production line.
b) Assumptions were made regarding the transportation for all materials required for manufacturing and packaging the product. The calculation was distance based.
c) In cases of multiple suppliers for one raw material a proportional share was taken into account.
d) The packaging per declared unit was calculated as the relative weight of packaging per declared unit of product.
e) The primary energy of raw materials was calculated for all renewable raw materials that had LHV value sources. Therefore, materials without available LHV sources found, were not included in the calculations.
f) Assumptions regarding the end-of-life stage were made as mentioned in p. 8 for modules C1-C4.

Allocations: In this study, as per EN 15804, allocation is conducted in the following order:

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Overall and in general, allocations were avoided whenever possible. Nevertheless, allocations were made in the general energy usage.

Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 standard.

Cut-off rules: The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 V. 1.3.4 and the applied PCR of the EPD International Institution. The study does not exclude any hazardous materials or substances. The study includes all major raw materials and energy consumption. All inputs and outputs of the unit processes with available data are included in the calculation. There is no neglected unit process of more than 1% of total mass or energy flows, and in fact components with a share of even less than 1% are included.

Background Database: The EPD is based on the primary production data of Tambour. The background database is Ecoinvent database v3.8 (2021). Since there are several missing datasets for Israel, background data for larger areas in which Israel is included in was used for a small part of the life cycle inventory.

The electricity mix of high voltage electricity grid according to 2022 data is given by a formal report from the Israel Electricity Authority, and is as follows: 22% of hard coal, 68% of natural gas, 0.27% of oil and 9.75% of renewable and other.

The water grid is modeled according to the water sources in Israel, Meron et al (2020).

Electricity mix at the plant (2022)	**kg CO2 eq./kWh (GWP-GHG)**
Israel electricity grid – 76.8% Renewable solar – 23.2%	0.464

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

	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
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	IL EUR Global	IL EUR Global	IL	IL	IL	ND	ND	ND	ND	ND	ND	ND	IL	IL	IL	IL	IL
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

All the modules described below were modeled and calculated specifically for each manufacturing site:

Product stage (A1-A3):

Module A1 – Supply of raw materials: The declared Tambour gypsum plasters consist of a natural gypsum mix with additives. The raw materials supply includes raw material extraction/preparation or pre-treatment processes before production that are taken into account in this study. The raw materials of packaging i.e., wooden pallets, paper sacks and polyethylene are also included in this module.

Module A2 – Transport of raw materials: Natural gypsum is extracted from mines abroad in a nearby country to the manufacturing sites. Accordingly, transport distances are short and done by ships and trucks. Further raw materials are supplied from manufacturers within Israel or from other European countries.

Module A3 – Manufacturing: The manufacturing includes stucco preparation from raw gypsum, followed by expanded perlite and calcite preparation for production. The mixture is then mixed with the additives. The end products are packaged into sacks. Electric energy, natural gas and diesel are consumed during the manufacturing process.

Construction stage (A4-A5):

Module A4 – Transport: Transport to the building site. This module includes transport from the production gate to the building site. Transport is calculated on the basis of a scenario in Israel of average distance of 80 km between the production gate to the building site. The scenario also accounts the empty return of the truck to the production gate.

Scenario information	**Unit per functional unit**
Vehicle type	Lorry, 16-32 metric tons, euro 6 feul type
Capacity utilization	50% (empty returns)
Distance	80 km

Module A5 – Construction assembly: The installation/assembly of the plaster at the building is done by mixing the plaster with water and applying on the walls manually. The tool used for the application is used for very long times (could be years) and the energy consumed is neglected. However, this stage will model the end-of-life of the packaging which will be incinerated in municipal waste treatment plant.

Scenario information	**Unit per functional unit**
Ancillary materials for installation	Neglected
Water use	0.5 L
Energy consumption	Neglected
Waste treatment of packaging – municipal incineration	Biogenic packaging – 6-34 E-03 Kg Non biogenic packaging – 2.4E-04 Kg

End-of-Life stage (C1-C4):

Processes	**Type**	**Amount per kg declared unit**
Collection process	Kg collected separately	0
	Kg collected with mixed construction waste	1
Recovery specified by type	Kg for re use	0
	Kg for recycling	0
	Kg for energy recovery	0
Disposal	Landfilled	1
Assumption doe transport scenario	Transport to disposal waste treatment plant with Euro 6, 16-32 tonne lorry for 50 km	0.05 tkm

Module C1 – De-construction: Demolition of the gypsum plasters will take place with the whole demolition of the building/construction. Thus it is assumed that energy used for the demolition of gypsum plasters has minor significance and the environmental impact of this module is set to be zero. At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as mixed construction waste.

Module C2 – Transportation: Transportation distance to the closest disposal area is estimated as 50 km by a 16-32 tonne lorry, which is the most common.

Module C3 – Waste processing According to interviews with industry executives that manage the construction waste in Israel (GREENMIX, Negevecology), there is no any significant processing of the construction waste and especially not for the gypsum residues, therefore the environmental impact of this module is set to be zero.

Module C4 – Disposal: it is assumed and modeled that 100% of the gypsum plasters will be landfilled in the Israeli landfills of construction materials.

Resource Recovery stage (D):
Module D – Reuse-Recovery-Recycling potential: Module D is set to be zero since the is no reuse, recovery or recycling of the products.

Content information

Product components	Weight-%	Post-consumer material, weight-%	Biogenic material, weight-%
Stucco	65-86	0	0
Silica sand	17-29	0	0
Limestone	5-8	0	0
Additives	0.2-3	0	0
TOTAL	100	0	0
Packaging materials	**Weight-%**	**Post-consumer material, weight-%**	**Weight biogenic carbon-%**
Paper bag	<0.1	<0.1	<0.1
PE cover	<0.1	0	0
Wooden pallet	<0.1	<0.1	<0.1
TOTAL	<0.1	0	0

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Not present in the product	ND	ND	0

Environmental Information

The EPD is for a specific product - Environmental impacts of 1 kg of TAMPLAST 911 .

Potential environmental impact – mandatory indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	1.95E-01	2.61E-02	1.88E-03	0	8.50E-03	0	9.12E-03	0
GWP-biogenic	kg CO_2 eq.	-6.01E-03	2.25E-05	9.51E-03	0	4.60E-06	0	6.56E-06	0
GWP - luluc	kg CO_2 eq.	3.08E-04	1.04E-05	1.63E-06	0	3.56E-06	0	5.34E-06	0
GWP - total	kg CO_2 eq.	1.89E-01	2.61E-02	1.14E-02	0	8.51E-03	0	9.13E-03	0
ODP	kg CFC 11 eq.	1.86E-08	6.04E-09	4.83E-11	0	1.83E-09	0	2.99E-09	0
AP	mol H^+ eq.	7.75E-04	7.40E-05	5.13E-06	0	2.50E-05	0	9.03E-05	0
EP - freshwater	kg PO_4 eq.	6.57E-06	5.69E-07	1.20E-07	0	2.21E-07	0	1.88E-07	0
EP - freshwater	kg P eq.	2.15E-06	1.86E-07	3.92E-08	0	7.21E-08	0	6.13E-08	0
EP - marine	kg N eq.	1.62E-04	1.47E-05	1.27E-06	0	4.98E-06	0	3.55E-05	0
EP - terrestrial	mol N eq.	1.83E-03	1.64E-04	1.38E-05	0	5.56E-05	0	3.90E-04	0
POCP	kg NMVOC eq.	1.05E-03	6.30E-05	3.58E-06	0	2.08E-05	0	1.10E-04	0
ADP- fossil *	MJ	2.28E+00	3.95E-01	1.03E-02	0	1.26E-01	0	2.01E-01	0
ADP-minerals&metals *	kg Sb eq.	4.54E-07	9.24E-08	5.10E-09	0	2.95E-08	0	1.40E-08	0
WDP*	m^3	4.22E-02	1.20E-03	9.77E-03	0	4.40E-04	0	6.71E-03	0
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								

* Disclaimers:
I: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.
II: when considering the results, one should account all declared modules and not only modules A1–A3.
III: 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
IV: It is discouraged to use the results of modules A1–A3 (A1–A5 for services) without considering the results of module C

Potential environmental impact – additional mandatory and voluntary indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	1.95E-01	2.61E-02	1.89E-03	0	8.50E-03	0	9.12E-03	0

Use of resources[2]

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.79E-01	5.65E-03	1.24E-03	0	1.26E-01	0	2.01E-01	0
PERM	MJ	8.65E-02	0.00E+00	0.00E+00	0	0	0	0	0
PERT	MJ	2.65E-01	5.65E-03	1.24E-03	0	1.26E-01	0	2.01E-01	0
PENRE	MJ	2.27E+00	3.95E-01	1.03E-02	0	1.47E-03	0	1.47E-03	0
PENRM	MJ	1.54E-02	0.00E+00	0.00E+00	0	0	0	0	0
PENRT	MJ	2.28E+00	3.95E-01	1.03E-02	0	1.47E-03	0	1.47E-03	0
SM	kg	ND	0	0	0	0	0	0	0
RSF	MJ	ND	0	0	0	0	0	0	0
NRSF	MJ	ND	0	0	0	0	0	0	0
FW	m^3	1.09E-03	4.47E-05	2.32E-04	0	1.45E-05	0	1.61E-04	0
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.

[2] The primary energy use indicators were calculated according to the PCR 2019:14 v1.3.4 Annex C option B.

Waste production and output flows

Waste production

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.44E-06	1.03E-06	8.47E-09	0	3.32E-07	0	3.73E-07	0
Non-hazardous waste disposed	kg	8.41E-02	2.07E-02	2.33E-04	0	6.50E-03	0	1.00E+00	0
Radioactive waste disposed	kg	6.39E-06	2.67E-06	3.28E-08	0	8.20E-07	0	1.34E-06	0

Output flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	6.19E-03	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0

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