EPD™

Environmental Product Declaration

in accordance with ISO 14025 and EN 15804

Feltech Manufacturing Co. Ltd.

Acoupanel Decor (Printed); Acoupanel - Full Colour

Company Address:	Amata City Chonburi Induatrial Estate, 700/377, Moo 6, Donhuaroh, Muang Chonburi. Chonburi. 20000
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Feltech acoustic solution

ECO PLATFORM

ECO PLATFORM EPD VERIFIED

EPD Type	Cradle to Gate with modules C1–C4 and module D (A1–A3, C and D)
EPD Number	FEL:FE02:2024:EP
Issue Date	27 May 2024
Valid Until	27 May 2029
GPI Version	Version 2.1
PCR	CEN Standard EN 15804+A2 2019 serves as core Product Category Rules (PCR) [Sub PCR IFC:2022 - Interior Room Covering Wall, Ceiling and Skirtings Version 1 (Global GreenTag International, 2022)]
Internal	2024.02.08 LCA Developed by AnKang, Chengdu IKE Environmental Technology Co., Ltd. LCA Reviewed by Dr.Nana Bortise-Aryee, Global GreenTag International Pty Ltd. EPD Reviewed by Dr.Nana Bortise-Aryee, Global GreenTag International Pty Ltd.
External	Independent Third-Party Reviewed by Angel Avadi, 4A Klima.
Verification	Independent external verification of the declaration and data, mandatory for business-to-consumer communication according to ISO 14025:2010[2].
Communication	This EPD discloses potential environmental outcomes compliant with EN 15804 for business-to-business communication.
Comparability	EPD of construction products may not be comparable if they do not comply with EN 15804. Different program EPDs may not be comparable. Comparability is further dependent on the product category rules and data source used.
Reliability	LCIA results are relative expressions that do not predict impacts on category endpoints, exceeding of thresholds, safety margins or risks.
Owner	This EPD is the property of the declared manufacturer.
Explanations	Further explanatory information is available at info@globalgreentag.com or by contacting epd@globalgreentag.com.

EPD Program Operator	**LCA and EPD Producer**	**LCA and EPD Producer**
Global GreenTag International Pty Ltd	IKE Environmental Technology Co. Ltd.	Feltech Manufacturing Co. Ltd.
Level 38, 71 Eagle Street Brisbane City QLD 4000 Australia	No.139 Kehua Middle Road, Wuhou District	Amata City Chonburi Industrial Estate, 700/377, Moo 6, Donhuaroh, Muang Chonburi. Chonburi. 20000 Thailand
Phone: +61 1300 263 586	Phone: +86 18280064252	Phone: +66 2240 3041-2
http://www.globalgreentag.com	http://www.ike-global.com	https://www.feltech.co.th/en/#

Program Description

EPD Scope	Cradle to gate with options (A1 to A3, C1-C4 and D)
EPD Type	EPD based on specific site and product data
System boundary	The system boundary with nature included processing material and energy system inputs, transport to factory gate, manufacturing plus packing, waste disposal, as well as waste removal and waste disposal after the expiration of product life.
Stages included	A1-A3, C1-C4, D
Stages excluded	A4-A5, B1-B7
Information Modules	Figure 1 depicts all modules being declared including some with zero results. Any module not declared (MND) does not indicate a zero result.

Model	Actual			Scenarios												Potential
Information	Life Cycle Assessment															Supplementary
Stages	Product			Construct		Use						End-of-Life				Benefit & load beyond system
Modules						Fabric					Operation					
Unit Operations	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Cradle to grave phases	Resources	Transport	Manufacture	Transport	Construct	Use	Maintain	Repair	Replace	Refurbish	Energy Use	Water use	Demolish	Transport	Process Waste	Disposal	Reuse
Modules Declared	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓	✓

Figure 1 Phases and stages of Cradle to Gate.
ND = Module not declared
✓= included

General Product Information

Brand Name & Code	Acoupanel – acoustic wall panel
Range Names	Acoupanel –Full Colour, Acoupanel Decor (printed)
Factory warranty	15 Years
Geographical Area	Thailand
Application	Sound absorption panels for wall and ceilings
Function in Building	Interior /Acoustic wall and ceilings.
Reference Service Life	15 Years
Declared Unit	2.4 kg of Acoupanel – Full Colour interior floor covering per square metre covered in any building sectors cradle to gate. 2.4 kg of Acoupanel Decor (printed) interior floor covering per square metre covered in any building sectors cradle to gate.
Manufacturer Warranty	15 Years
Manufacturing Site	Amata City Chonburi Industrial Estate, 700/377, Moo 6, Donhuaroh, Muang Chonburi. Chonburi. 20000
Site Representation & Geography	Bangkok, Thailand
Substances Of Very High Concern	Contains no substances that exceed 0.1% (1000 ppm) in the "Candidate List of Substances of Very High Concern for authorisation" of the European Chemicals Agency

Table 1 Acoupanel – Full Colour color specifications

Attribute	Comment	Date
Density	**200 kg/m^3 (Rigid)**	
Range and Variability	Acoupanel – Solid Colour Thickness (mm) / kg/m^2 2 mm (rigid) 0.4 3 mm (soft roll) 0.4 7 mm (rigid) 1.4 9 mm (rigid) 1.8 12 mm (rigid) 2.4 22 mm (soft core) 2.8 25 mm (7 mm +soft core) 3.75 35 mm (12 mm+ soft core) 4.75 50 mm (soft core) 5.00 ** Densities differ between rigid, soft roll and soft core varieties.	2024.03

Note: Specifications are current at time of publishing. Please check currency of specifications with manufacturer.

Table 2 Acoupanel Decor (printed) specifications

Attribute	Comment	Date
Density	**200 kg/m^3**	
Range and Variability	Acoupanel Decor Thickness (mm) | kg/m^2 12 mm (rigid) | 2.4 24 mm (rigid) | 4.8	2024.03

Note: Specifications are current at time of publishing. Please check currency of specifications with manufacturer.

Manufacturing Process

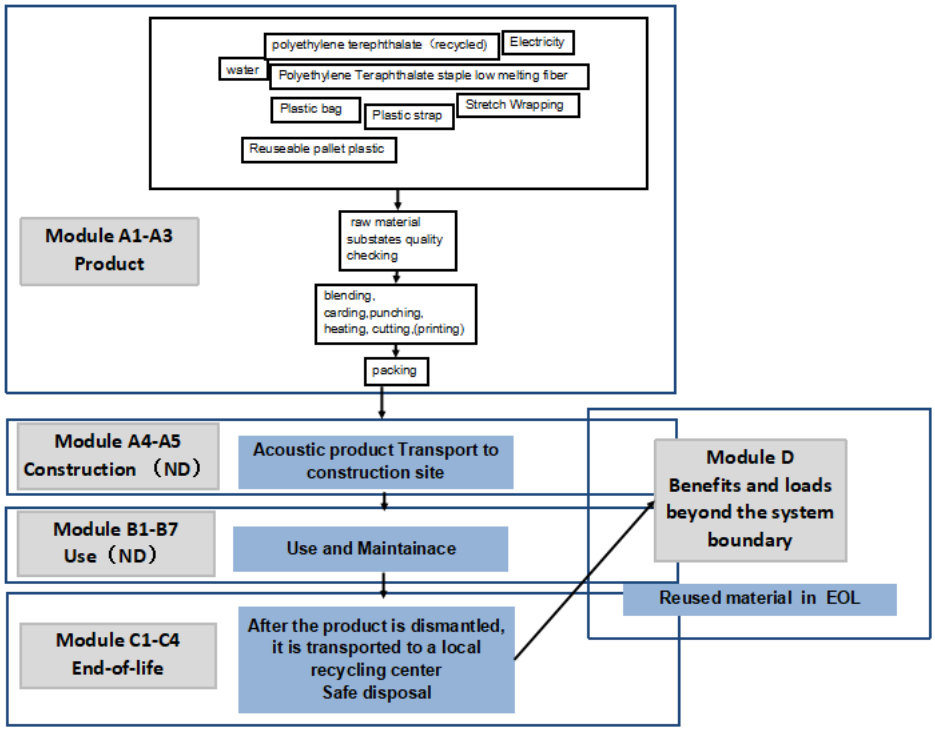

Figure 2 Acoupanel – Full Colour/Acoupanel Decor (printed) Cradle to Gate System Boundary

Product Components

In product content listed below the % mass has a ±5% range and a confidence interval that is 90% certain to contain true population means at any time. Listing such 90±5% certainty considers normal resource acquisition, supply chain, sedimentation, seasonal, manufacturing and product colour variation over this EPD's 5-year validity period. This also allows for intellectual property protection whilst ensuring fullest possible transparency.

Table 3 List of key components and additives by function, type, key operation, source and amount

Component	Material	Source	Amount
Recycled Polyethylene Terephthalate staple fiber	Polyethylene Terephthalate(recycled)	Thailand	55-60%
Polyethylene Terephthalate staple low melting fiber	Polyethylene Terephthalate	Korea	35-40%
UV Ink	Acrylic ester monomer	China	0-5%
Packing			
Reusable pallet plastic	Plastic pallet	Thailand	70-75%
Stretch Wrapping	Plastic film	Thailand	15-20%
Plastic bag	HDPE	Thailand	15-20%

Program Description

Product Stages Included	A1 Raw material supply • Raw material acquisition, extraction, refining and processing • Electricity generated from all sources with extraction, refining & transport A2 Transport internal and to the factory gate A3 Manufacture of product, co-products and plus packaging • Production of ancillary material • System flows leaving at end-of-waste boundary allocated as co-products C1 Deconstruction demolition C2 Transport to waste processing C3 Waste processing for reuse, recovery and/or recycling C4 Disposal D Reuse, recovery and/or recycling potentials, expressed as net impacts and benefits.
Cut off criteria	In this study, waste transport during the production phase is not considered, as the mass volume of waste is small and the transport distance is less than 100km. In case of insufficient input data or data gaps for a unit process, according to the EN15804 requirement, the cut-off criteria chosen is 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows of the cradle to grave stage, e.g. per module A1-A3, A4-A5, B1-B5, B6-B7, and C1-C4 shall be a maximum of 5% of energy usage and mass. In this study, the neglected flow is "Plastic strap", "OPP Tape", "Plastic bag", "Stretch Wrapping", and the total neglected mass does not exceed 1% of the total mass of the production unit process. Since the system boundary of this study does not include the CONSTRUCTION PROCESS STAGE of A4-A5, the final disposal of the packaging was not considered in the study.
Data collection Year	2023
Background Data	Table 3

Allocations Method	For production stage allocation be distinguished between multi-input and multi-output processes -Multi-input processes: Allocation is based on physical properties and is based on weight. For example, a variety of acoustic products are produced in one factory. The consumption of the Acoupanel Decor (printed)/Acoupanel – Full Colour is obtained by dividing the total annual production weight of each product by the total weight of all the products produced in the factory, obtaining the weight ratio of target product, and then multiplying by the total data. -Multi-output processes: Recycled waste from the production process are made for another product, they are still allocated by weight as by-products. Production process generates wastes that are capable of energy recovery, and in this study only the load of its incineration and disposal is considered, conservatively, as for the heat generated by waste incineration, it is not allocated but disclosed in module D. Other outputs, such as other solid waste, etc. follow mass allocation. For reuse, recycling, and recovery allocation, the Cut-off allocation approach is adopted in the case of any recycled content, which is assumed to enter the system burden-free. Only environmental impacts from the point of recovery and forward (e.g., collection, sorting, processing, etc.) are considered.
Scenario Modelling Assumption	Stage C - end of life: It is assumed that the Acoupanel - Full Colour color/Acoupanel Decor (printed) be dismantled manually and transported from building site to waste processing is 161 km by diesel-powered truck(unspecified). After the Acoupanel – Full Colour/Acoupanel Decor (printed) been transported, assumes which are broken up by machine and the PET materials in them are recycled[1], and the recycling rate is about 5%. It is assumed that the energy consumption of the machine for crushing each square meter of waste products is 0.2 kWh. Stage D – benefits and loads beyond the system boundary: Acoupanel – Full Colour/Acoupanel Decor (printed) in the stage C due to the use of Cut-off allocation method, recycled PET further recycling process and the next life cycle of the original PET substitution credit is not taken into account, and the product production of the "Recycled Polyethylene Terephthalate staple fiber" used in the recycled PET raw materials are also considered to be 0 of the environmental impact. In addition, waste generated in the production stage that is capable of heat recovery is assumed to have a calorific value of combustion of 11.74 MJ/kg (based on the calorific value in the Ecoivent 3.10 dataset "treatment of municipal solid waste, municipal incineration"), and substituting the resulting calorific value with natural gas, which has a calorific value of 36 MJ/m^3 .

Table 4 Data sources for Acoupanel – Full Colour, Acoupanel Decor (printed)

Component	Material Description	Material Dataset	Data Source	Publication Date
Acoupanel – Full Colour, Acoupanel Decor (printed)				
Recycled Polyethylene Terephthalate staple fiber	Polyethylene terephthalate (recycled)	Polyethylene terephthalate, granulate, bottle grade, recycled (Rest of world)	EI 3.9.1	2022
Polyethylene Terephthalate staple low melting fiber	Polyethylene terephthalate	Polyethylene terephthalate, granulate, bottle grade (Rest of world)	EI 3.9.1	2022

[1] What a Waste: A Global Review of Solid Waste Management. The World Bank. 2012.

Component	Material Description	Material Dataset	Data Source	Publication Date
UV Ink	Acrylic ester monomer	Acrylic filler production (Rest of world)	EI 3.9.1	2022
Packing				
Reusable pallet plastic	HDPE	Market for polyethylene, high density, granulate (Global)	EI 3.9.1	2022
Stretch Wrapping	Packaging film	Packaging film production, low density polyethylene (Rest of world)	EI 3.9.1	2022
Plastic bag	Polyethylene, high density	Polyethylene, high density, granulate-polyethylene production, high density, granulate (Rest of world)	EI 3.9.1	2022
Transport				
Netherland Freight to Thailand	Aircraft	Transport, freight, aircraft, unspecified (Global)	EI 3.9.1	2022
Thailand Freight to Thailand-Sea transport	Container ship	Market for transport, freight, sea, container ship (Global)	EI 3.9.1	2022
Local Supplier Freight to Factory	Lorry	Transport, freight, lorry, unspecified (Rest of world)	EI 3.9.1	2022
Korea Freight to Thailand	Container ship	Market for transport, freight, sea, container ship (Global)	EI 3.9.1	2022
Energy				
Grid Electricity for producing	Electricity	Market for electricity, medium voltage (Thailand)	EI 3.9.1	2022
Solar Electricity for producing	Electricity production, solar	Electricity production, photovoltaic, 3 kWp slanted-roof Installation, multi-Si, panel, mounted (Thailand)	EI 3.9.1	2022
Water	Tap Water	Tap water production, conventional treatment (Rest of world)	EI 3.9.1	2022
Combustion Heat Conversion Natural Gas	Natural gas	Market for natural gas, liquefied(Global)	EI 3.9.1	2022
Waste treatment				
General waste to energy recovery	Waste incineration to produce electricity	Treatment of residue from mechanical treatment, industrial device, municipal waste incineration (Rest of world)	EI 3.9.1	2022
Liquid waste	wastewater	Treatment of wastewater, average, wastewater treatment(Rest of world)	EI 3.9.1	2022
Hazardous waste	Hazardous waste	Market for hazardous waste, for underground deposit (Rest of world)	EI 3.9.1	2022

Data Quality Assessment

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 5 Data quality assessment for the Product Name product system

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	The most recent available data are used, based on other considerations such as data quality and similarity to the actual operations. Typically, these data are less than 2 years old (typically 2022). Manufacturer-supplied data (primary data) are based on half annualized production for 2023.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The data used in the analysis provides the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data for Thailand. Surrogate data used in the assessment are representative of global or rest of world operations. Data representative of rest of world operations are considered sufficiently similar to actual processes.
Technology Coverage: Specific technology or technology mix	For the most part, data is representative of the actual technologies used for processing, transport, and manufacturing operations. Representative fabrication datasets, specific to the type of material, are used to represent the actual processes, as appropriate.
Precision: Measure of the variability of the data values for each data expressed	All relevant foreground data is primary data, which is collected from on-site reviewing and supported by professional data input document. The activity data of the enterprise are all from enterprise statistics or on-site measured data, with high precision.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of Acoupanel – Full Colour color/Acoupanel Decor (printed). No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	In this study, for all background processes representative primary data input based on specific industry averages which derived from reliable databases and the data input for foreground processes all obtained from on-site product related precise investigation. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	In order to figure out that the LCA methodology can be uniformly applied or not, various component’s qualitative assessment is conducted. The primary data input provided by manufacturers is re-checked and recalculated.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.

Data Quality Parameter	Data Quality Discussion
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use, raw and auxiliary material consumption, and emissions, etc. at Feltech's facility in Thailand represent an annual average and are considered of high quality due to the length of time over which these data are collected. For secondary LCI datasets, Ecoinvent v3.9.1 data are used.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty related to materials in the Acoupanel – Full Colour/Acoupanel Decor (printed) product is low. Actual supplier data for upstream operations was not available for all suppliers and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<3 years).

LCA Scenarios

End of Life stages (C1 - C4, D)

At the end of life, Acoupanel-solid color and Acoupanel Decor (printed) can be disassembled manually, so no emissions are generated during demolition (C1). Assumes a 161 km average distance to disposal and by diesel-powered truck (unspecified) (C2). Assumes that disassembled product are broken up by machine and the PET materials in them are recycled (C3). No waste requiring further disposal (C4).

Table 6 C1-C4 and D Scenario Information

Processes	Unit	Acoupanel – Full Colour, Acoupanel Decor (printed) Scenario Value
Collection process by type	kg collected separately	2.4
	kg collected with mixed constr5uction waste	0
Recovery system by type	kg for re-use	0
	kg for recycling	2.4
	kg for energy recovery	0
Safe disposal	kg or product or material for final disposal	2.4
Transport	km	161

Additional Technical Information

The environmental impact category indicators are also reported based on the CML-IA characterization factors according to EN15804.
No substances required to be reported as hazardous (as determined under the Resource Conservation and Recovery Act (RCRA(EPA, n.d.)) are associated with the production of flooring.
Please visit https://www.feltech.co.th for additional information regarding product.

Product Results

Table 7 LCA impact indicators, resource use, waste and other measured flows Acronyms, methods and units of impact potentials plus inventory inputs and outputs, are defined below:

Impact Potentials	Acronym	Description of Methods	Units
Climate Change biogenic	GWP_{bio}	GWP biogenic	kg CO_{2eq}

Impact Potentials	Acronym	Description of Methods	Units
Climate Change luluc	GWP $_{luluc}$	GWP land use & change	kg CO_{2eq}
Climate Change fossil	GWP $_{ff}$	GWP fossil fuels	kg CO_{2eq}
Climate Change total	GWP $_{t}$	Global Warming Potential	kg CO_{2eq}
Stratospheric Ozone Depletion	ODP	Stratospheric Ozone Loss	kg CFC_{11eq}
Photochemical Ozone Creation	POCP	Summer Smog	kg NMOC $_{eq}$
Acidification Potential	AP	Accumulated Exceedance	mol H^{+} $_{eq}$
Eutrophication Freshwater	EP $_{fresh}$	Excess nutrients freshwater	kg Po_{4} $_{eq}$
Eutrophication Marine	EP $_{marine}$	Excess marine nutrients	kg N $_{eq}$
Eutrophication Terrestrial	EP $_{land}$	Excess Terrestrial nutrients	mol N $_{eq}$
Mineral & Metal Depletion[2]	ADP $_{min}$	Abiotic Depletion minerals	kg Sb $_{eq}$
Fossil Fuel Depletion[1]	ADP $_{ff}$	Abiotic Depletion fossil fuel	MJ $_{ncv}$
Water Depletion[1]	WDP	Water Deprivation Scarcity	m^{3} $_{WDP\ eq}$
Particulate Matter Emissions	PM	SETAC-UNE	Disease incidence
Ionizing Radiation, Human Health[3]	IRP	Human health effect model	kBq U235 eq
Eco-toxicity (freshwater)[1]	ETP-fw	USEtox	CTUe
Human toxicity, cancer effects[1]	HTP-c	USEtox	CTUh
Human toxicity, non-cancer effects[1]	HTP-nc	USEtox	CTUh
Land use related impacts/ Soil quality[1]	SQP	Soil quality index	dimensionless
Resource Use		Acronym	Units
Use of renewable primary energy excluding renewable primary energy resources used as raw materials		PERE	MJ_{NCV}
Use of renewable primary energy resources used as raw materials		PERM	MJ_{NCV}

[2] The results of this environmental impact indicator shall be used with care as uncertainties on these results are high or as there is limited experience with the indicator.
[3] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Impact Potentials	Acronym	Description of Methods	Units
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)		PERT	MJ_{NCV}
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials		PENRE	MJ_{NCV}
Use of non-renewable primary energy resources used as raw materials		PENRM	MJ_{NCV}
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)		PENRT	MJ_{NCV}
Use of secondary material		SM	kg
Use of renewable secondary fuels		RSF	MJ_{NCV}
Use of non-renewable secondary fuels		NRSF	MJ_{NCV}
Use of net fresh water		FW	m3
Waste Type		Acronym	Units
Hazardous waste disposed		HWD	kg
Non-hazardous waste disposed		NHWD	kg
Radioactive waste disposed		RWD	kg
Other Outputs		Acronym	Units
Components for re-use		CRU	kg
Materials for recycling		MFR	kg
Materials for energy recovery		MER	kg
Exported energy		EE	Mj_{pec}

Note: MJNCV is MJ, net calorific value, Mjpec is Mj, per energy carrier

Cradle to Gate + modules C1–C4 and module D Inventory

Table 8 Inventory Resource Use Results/1 m2- Acoupanel Decor (printed)

Product stage	End of life stage	Resource recovery stage

		A1-A3	C1	C2	C3	C4	D
Module Codes	Unit	Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
GWP-total	kg CO2 eq	6.32E+00	0.00E+00	7.24E-02	1.57E-01	0.00E+00	-7.71E-03
GWP-luluc	kg CO2 eq	8.40E-03	0.00E+00	3.81E-05	3.47E-04	0.00E+00	-2.35E-06
GWP-biogenic	kg CO2 eq	1.91E-01	0.00E+00	1.91E-05	6.20E-04	0.00E+00	-2.84E-06
GWP-fossil	kg CO2 eq	6.12E+00	0.00E+00	7.23E-02	1.56E-01	0.00E+00	-7.70E-03
ADP-fossil	MJ, net calorific value	1.09E+02	0.00E+00	1.03E+00	2.00E+00	0.00E+00	-5.16E-01
ADP-minerals&metals	kg Sb eq.	3.59E-04	0.00E+00	2.35E-07	1.58E-07	0.00E+00	-5.20E-09
EP-freshwater	kg P eq.	2.28E-03	0.00E+00	5.92E-06	9.84E-05	0.00E+00	-3.90E-07
POCP	kg NMVOC eq.	2.01E-02	0.00E+00	2.39E-04	3.64E-04	0.00E+00	-6.09E-05
AP	mol H+eq.	2.65E-02	0.00E+00	1.79E-04	5.10E-04	0.00E+00	-3.22E-05
EP-terrestrial	mol N eq	5.41E-02	0.00E+00	4.49E-04	9.95E-04	0.00E+00	-9.49E-05
EP-marine	kg N eq.	5.66E-03	0.00E+00	4.37E-05	1.10E-04	0.00E+00	-8.67E-06
ODP	kg CFC 11 eq.	1.42E-05	0.00E+00	1.14E-09	3.28E-09	0.00E+00	-1.03E-09
WDP	m3 world eq	2.13E+00	0.00E+00	4.89E-03	2.79E-02	0.00E+00	-4.75E-04

See Table 8 for additional information

Table 9 Inventory Resource Use Results/1 m2- Acoupanel – Full Colour

	Product stage	End of life stage	

							Resource recovery stage
		A1-A3	C1	C2	C3	C4	D
Module Codes	Unit	Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
GWP-total	kg CO2 eq	6.32E+00	0.00E+00	7.24E-02	1.57E-01	0.00E+00	-7.71E-03
GWP-luluc	kg CO2 eq	8.40E-03	0.00E+00	3.81E-05	3.47E-04	0.00E+00	-2.35E-06
GWP-biogenic	kg CO2 eq	1.91E-01	0.00E+00	1.91E-05	6.20E-04	0.00E+00	-2.84E-06
GWP-fossil	kg CO2 eq	6.12E+00	0.00E+00	7.23E-02	1.56E-01	0.00E+00	-7.70E-03
ADP-fossil	MJ, net calorific value	1.09E+02	0.00E+00	1.03E+00	2.00E+00	0.00E+00	-5.16E-01
ADP-minerals&metals	kg Sb eq.	3.59E-04	0.00E+00	2.35E-07	1.58E-07	0.00E+00	-5.20E-09
EP-freshwater	kg P eq.	2.28E-03	0.00E+00	5.92E-06	9.84E-05	0.00E+00	-3.90E-07
POCP	kg NMVOC eq.	2.01E-02	0.00E+00	2.39E-04	3.64E-04	0.00E+00	-6.09E-05
AP	mol H+eq.	2.65E-02	0.00E+00	1.79E-04	5.10E-04	0.00E+00	-3.22E-05
EP-terrestrial	mol N eq	5.40E-02	0.00E+00	4.49E-04	9.95E-04	0.00E+00	-9.49E-05
EP-marine	kg N eq.	5.66E-03	0.00E+00	4.37E-05	1.10E-04	0.00E+00	-8.67E-06
ODP	kg CFC 11 eq.	1.42E-05	0.00E+00	1.14E-09	3.28E-09	0.00E+00	-1.03E-09
WDP	m3 world eq	2.12E+00	0.00E+00	4.89E-03	2.79E-02	0.00E+00	-4.75E-04

See Table 8 for additional information

Table 10 Optional Indicators - Acoupanel Decor (printed)

		Product stage	End of life stage				Resource recovery stage
		A1-A3	C1	C2	C3	C4	D
Module Codes	Unit	Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
ETP-fw	CTUe	2.21E+01	0.00E+00	5.56E-01	2.81E-01	0.00E+00	-1.05E-02
HTP-c	CTUh	3.14E-09	0.00E+00	3.29E-11	3.09E-11	0.00E+00	-3.68E-12
HTP-nc	CTUh	7.74E-08	0.00E+00	7.40E-10	9.72E-10	0.00E+00	-2.91E-11
SQP	dimension less	1.66E+01	0.00E+00	6.17E-01	9.96E-02	0.00E+00	-4.90E-03
PM	Disease incidence	3.03E-07	0.00E+00	5.39E-09	1.08E-09	0.00E+00	-1.07E-10
IRP	kBq U235 eq	2.12E-01	0.00E+00	8.78E-04	4.25E-04	0.00E+00	-5.10E-05

See Table 8 for additional information

Table 11 Optional Indicators – Acoupanel – Full Colour

		Product stage	End of life stage				Resource recovery stage
		A1-A3	C1	C2	C3	C4	D
Module Codes	Unit	Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
ETP-fw	CTUe	3.14E-09	0.00E+00	3.29E-11	3.09E-11	0.00E+00	-3.68E-12
HTP-c	CTUh	7.74E-08	0.00E+00	7.40E-10	9.72E-10	0.00E+00	-2.91E-11
HTP-nc	CTUh	1.66E+01	0.00E+00	6.17E-01	9.96E-02	0.00E+00	-4.90E-03
SQP	dimension less	3.03E-07	0.00E+00	5.39E-09	1.08E-09	0.00E+00	-1.07E-10
PM	Disease incidence	2.12E-01	0.00E+00	8.78E-04	4.25E-04	0.00E+00	-5.10E-05
IRP	kBq U235 eq	3.14E-09	0.00E+00	3.29E-11	3.09E-11	0.00E+00	-3.68E-12

See Table 8 for additional information

Table 12 Resource Use and other environmental flows - Acoupanel Decor (printed)

		Product stage	End of life stage				Resource recovery stage
		A1-A3	C1	C2	C3	C4	D
		Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
Resource Use	Unit						
PERE	MJ_{NCV}	6.90E+00	0.00E+00	1.32E-02	8.01E-02	0.00E+00	0.00E+00
PERM	MJ_{NCV}	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ_{NCV}	8.07E+00	0.00E+00	1.32E-02	8.01E-02	0.00E+00	0.00E+00
PENRE	MJ_{NCV}	7.22E+01	0.00E+00	1.03E+00	2.00E+00	0.00E+00	0.00E+00
PENRM	MJ_{NCV}	3.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ_{NCV}	1.09E+02	0.00E+00	1.03E+00	2.00E+00	0.00E+00	0.00E+00
SM	kg	1.44E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ_{NCV}	3.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ_{NCV}	9.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.03E-02	0.00E+00	6.47E-05	5.97E-04	0.00E+00	0.00E+00
Waste	Unit						
HWD	kg	1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	6.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	5.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Outputs	Unit						
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.94E-02	0.00E+00	0.00E+00	0.00E+00	2.40E+00	0.00E+00
MER	kg	3.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	M_{jpec}	4.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

See Table 8 for additional information

Table 13 Resource Use and other environmental flows – Acoupanel – Full Colour

		Product stage	End of life stage				Resource recovery stage
		A1-A3	C1	C2	C3	C4	D
		Production	De-construction demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
Resource Use	Unit						
PERE	MJ_{NCV}	6.90E+00	0.00E+00	1.32E-02	8.01E-02	0.00E+00	0.00E+00
PERM	MJ_{NCV}	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ_{NCV}	8.07E+00	0.00E+00	1.32E-02	8.01E-02	0.00E+00	0.00E+00
PENRE	MJ_{NCV}	7.22E+01	0.00E+00	1.03E+00	2.00E+00	0.00E+00	0.00E+00
PENRM	MJ_{NCV}	3.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ_{NCV}	1.09E+02	0.00E+00	1.03E+00	2.00E+00	0.00E+00	0.00E+00
SM	kg	1.44E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ_{NCV}	3.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ_{NCV}	9.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.03E-02	0.00E+00	6.47E-05	5.97E-04	0.00E+00	0.00E+00
Waste	Unit						
HWD	kg	1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	6.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	5.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Outputs	Unit						
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.94E-02	0.00E+00	0.00E+00	0.00E+00	2.40E+00	0.00E+00
MER	kg	3.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	M_{jpec}	4.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

See Table 8 for additional information

Interpretation

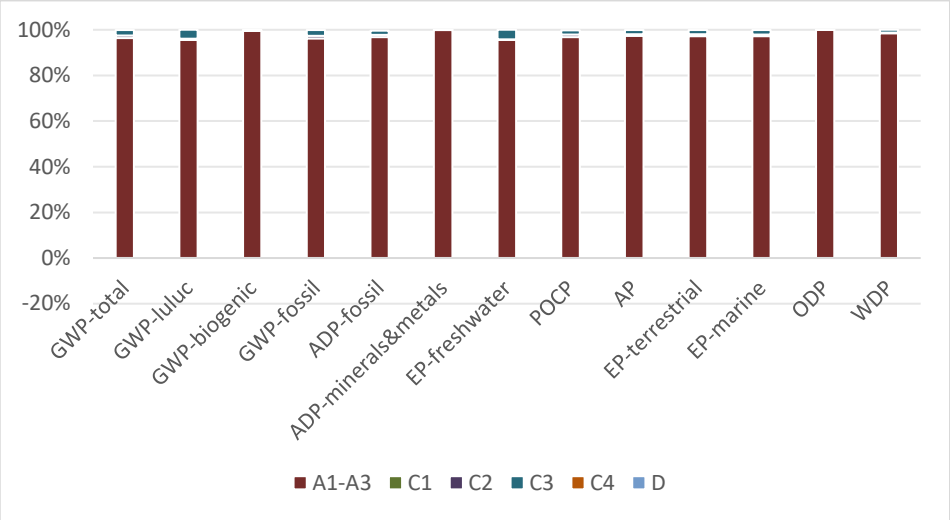

Figure 3 Acoupanel Decor (printed), Acoupanel – Full Colour each stage contribution to LCA results

Since the results for the core LCIA results for Acoupanel Decor (printed) and Acoupanel – Full Colour are nearly identical, the proportionate contribution to the results is consistent across the life-cycle phases, and is represented here in just one figure.
Shown in Figure 3, the A1-A3 manufacturing module presents the high proportion of total environmental impacts for all indicators in the modelled life-cycle modules (A1-A3, C1-C4 and D).
The wastewater generated from the used water is divided into two parts, one part needs to be discharged after WWT wastewater treatment, and the other part is directly discharged into the municipal wastewater system, therefore this part is not included in the inventory.
The LCA study has been carried out based on available data, information, regional and global knowledge and experience to achieve more possible accuracy, completeness and representative of the results.

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