kirei

ENVIRONMENTAL PRODUCT DECLARATION

KIREI PET ACOUSTIC PANELS

Product shown: Crackle Panel in Coronet

EPD®

THE INTERNATIONAL EPD® SYSTEM

In accordance with ISO 14025 and EN 15804:2023 for:

KIREI PET ACOUSTIC PANELS

MANUFACTURER

Manufacturer	Kirei
Address	8330 Arjons Drive San Diego, CA 92126
Contact	Charles Griffin, cgriffin@carnegiefabrics.com
Website	https://kireiusa.com

Product shown: PET Panel in Vineyard

Table of Contents

General Information 4

Program Information 5

Accountabilities For PCR, LCA, and Independent, Third-Party Verification 6

Environmental Data Summary 7

Product and Manufacturer 8

About Kirei 9

About Kirei PET 10

LCA Information 11

System Diagram 12

Modules Declared, Geographical Scope, Share of Specific Data & Data Variation . . 13

Content Information 14

Scenarios 15

Environmental Performance 17

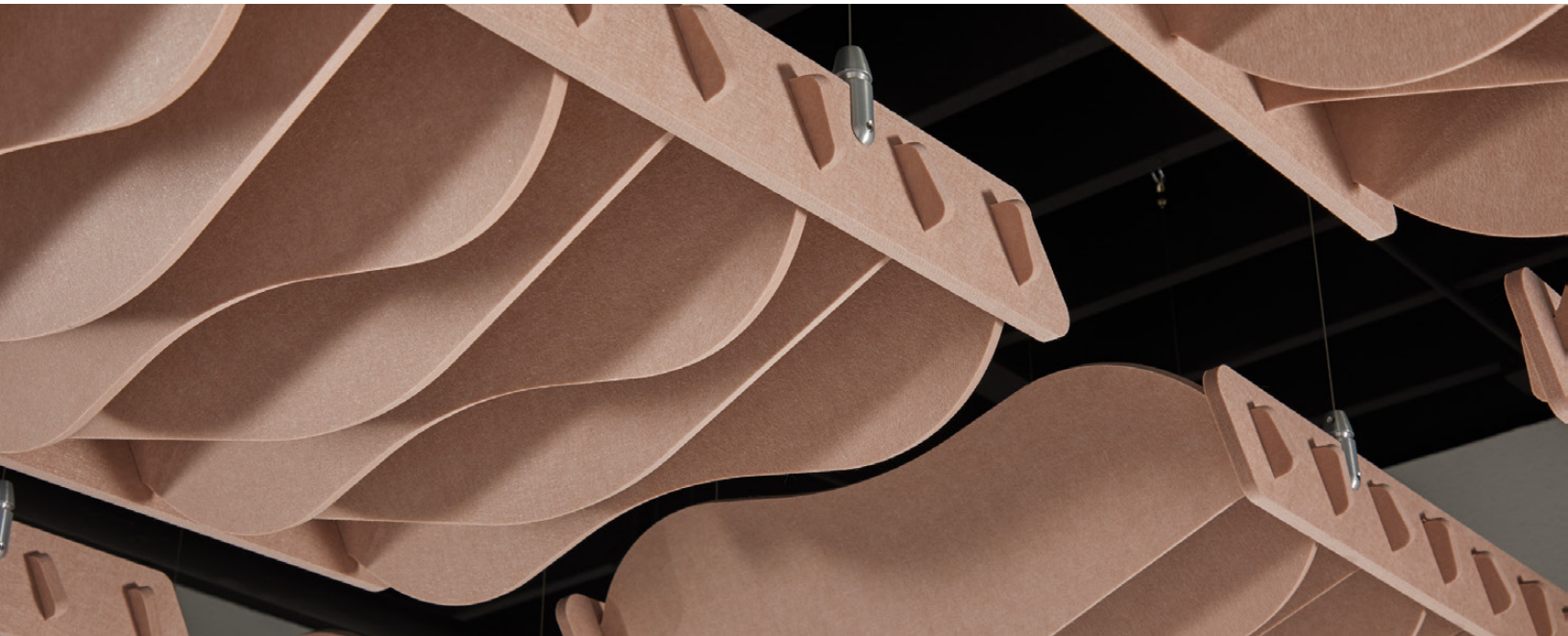
Potential Environmental Impact 18

Resource Use 20

Waste and Output Flow Indicators 23

Acronyms 25

References 26



kirei

GENERAL INFORMATION

Product shown: Contour Tiles in Nutmeg

General Information

PROGRAM INFORMATION TRANSPORT 1

Program	EPD Australasia Ltd
Program Operator	EPD Australasia Ltd
Address	EPD Australasia Ltd 315a Hardy Street Nelson 7010, New Zealand
Website	www.epd-australasia.com
E-mail	info@environdec.com
EPD Registration Number	S-P-01162
EPD Type	EPD of multiple products, based on the average of the product group
Publication Date	2018-09-24
Valid Until	2027-04-01

PROGRAM INFORMATION TRANSPORT 2

Program	UL Environment
Program Operator	UL Environment
Address	UL Environment 333 Pfingsten Rd. Northbrook, IL 60611
Website	www.ul.com
E-mail	epd@ul.com
Declaration Number	4790099995.101.2
EPD Type	EPD of multiple products, based on the average of the product group
Publication Date	2022-04-01
Valid Until	2027-04-01

General Information

ACCOUNTABILITIES FOR PCR, LCA, AND INDEPENDENT, THIRD-PARTY VERIFICATION TRANSPORT 1

Product Category Rules (PCR)	CEN standard EN 15804 serves as the Core Product Category Rules (PCR) Product Category Rules (PCR): PCR for Construction Products and Construction Services CPC 54 Version 2.2. 2017-05-30 PCR review was conducted by: IVL Swedish Environmental Research Institute Moderator: Martin Erlandsson, martin.erlandsson@ivl.se
Life Cycle Assessment (LCA)	LCA author: Edge Environment Pty Lt
Third-party verification	☒ EPD verification by individual verifier Third-party verifier: Jane Anderson, ConstructionLCA Limited Approved by: The International EPD® System Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

ACCOUNTABILITIES FOR PCR, LCA, AND INDEPENDENT, THIRD-PARTY VERIFICATION TRANSPORT 2

Product Category Rules (PCR)	CEN standard EN 15804 serves as the Core Product Category Rules (PCR) Product Category Rules (PCR): Part B for Non-Metal Ceiling Products to confirm with ISO 21930:2017 and UL Part A v3.2 PCR review was conducted by: UL, PCR Review Panel, epd@ul.com
Life Cycle Assessment (LCA)	LCA practitioner: SRF Testing and Certification (Changzhou) Co., Ltd.
Third-party verification	☒ EPD verification by individual verifier Third-party verifier: James Mellentine, Thrive ESG Approved by: The International EPD® System Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

General Information

PRODUCT

Product Name	Kirei PET Acoustic Panels
Product Coverage	Products included in the scope of this EPD: Kirei PET Acoustic Panels Cradle to Gate with options
UN CPC Code Transport 1	54
Declaration Number Transport 2	4790099995.101.2
Geographical Scope	Manufacturing in Australia and China, shipped to the United States for warehousing, use, and end-of-life.

ENVIRONMENTAL DATA SUMMARY

	9mm	12mm	24mm
Declared Unit	1 m^2 of PET	1 m^2 of PET	1 m^2 of PET
Declared Unit Mass	1.90 kg/m^2	2.40 kg/m^2	3.60 kg/m^2
GWP-total, A1-A3 ($kgCO_2e$)	2.13E +02	8.69E+00	1.06E+00
Secondary Material, Inputs (%)	100%	100%	100%
Secondary Material, Outputs (%)	100%	100%	100%
Total energy use (renewable and non-renewable), A1-A3 (m3e)	4.65E+00	4.91E+00	8.84E+00
Total Water Use, A1-A3 (m3e)	6.55E+03	1.17E+00	1.44E+00

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
EPDs within the same product category but registered in different EPD programs, 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

kirei

PRODUCT & MANUFACTURER

Product shown: EchoStar+ in White

Product and Manufacturer

kirei

INSPIRE A BEAUTIFUL WORLD

Kirei has been designing and manufacturing iconic architectural design elements that improve the acoustics and functionality of any room for over 20 years. Kirei products empower interior designers, architects, contractors, and end users across North America to create elegant, healthy spaces to live, work and play.

Kirei is dedicated to delivering innovative high-quality, eco-certified, sustainable products that are easy to understand, specify, and install. Made from recycled materials, Kirei products divert waste from landfills, extending product life and protecting the environment.

Our proven process is simple and guides all that we do. Support is paramount in our DNA. We guide architects and designers through the specification process with great products that can be relied on. We work with contractors todeliver on time with great installation support, all while providing best-in-class service.

With a strong commitment to sustainable materials, innovative design, and unparalleled service through the entire design process, you can easily inspire a more beautiful world with Kirei in your corner.

Learn more about Kirei at kireiusa.com

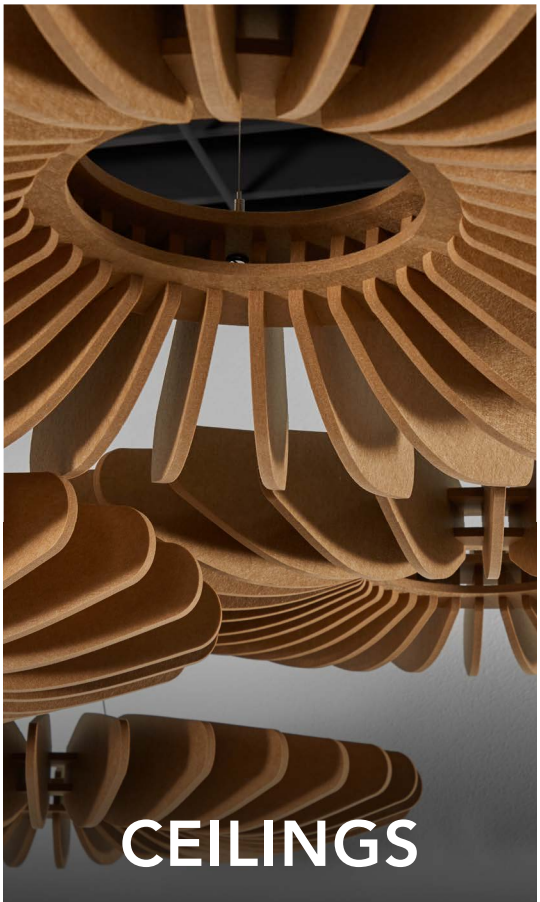
Product and Manufacturer

ABOUT KIREI'S PET PRODUCTS

Kirei strives to inspire a beautiful world by providing Interior Designers, Architects, and Installers with acoustic solutions that are designed to be aesthetically beautiful and sustainable.

Our PET products are made from 60% recycled post consumer plastics so you can be surethat every panel you specify is diverting hundreds of plastic bottles from landfills. Get exactly what you need to help achieve LEED credits and Green Building certifications with our products' Declare Labels, EPDs, HPDs, and more. Available in over 30 colors, over 50 standard prints, and a variety of products across walls, ceilings, and screens, creating custom sound solutions has never been easier.

With cutting-edge product design, precise assembly techniques, and a team dedicated to their craft, Kirei transforms recycled PET felt into show-stopping, iconic feature pieces for your next project. From cutting to custom printing to assembly, the Kirei suite of acoustic panels and products are expertly hand-crafted in Southern California so you can count on exact execution from concept to construction.



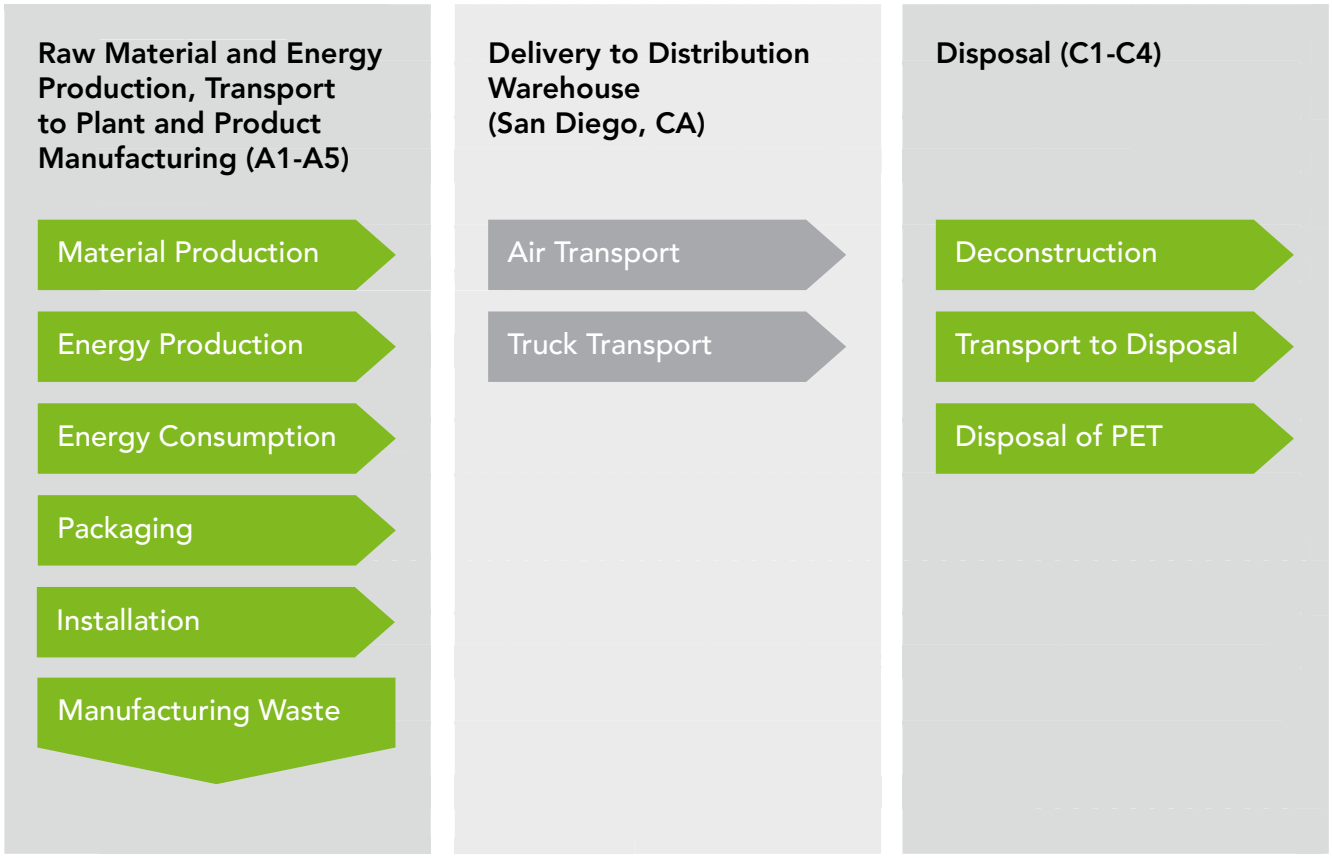
kirei

LCA INFORMATION

Product shown: Dash Tiles in Frost & Jade

LCA Information

SYSTEM DIAGRAM



LCA Information

MODULES DECLARED, GEOGRAPHICAL SCOPE, SHARE OF SPECIFIC DATA (IN GWP-GHG RESULTS) AND DATA VARIATION (IN GWP-GHG RESULTS)

TRANSPORT 1

	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	ND	x	ND

TRANSPORT 2

	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	ND

LCA Information

Declared Unit	1 m^2 of PET 1.90 kg/m^2 (9mm) | 2.40 kg/m^2 (12mm) | 3.60 kg/m^2 (12mm)
Reference Service Life	Not declared as use phase is not included in the study
Description of the System Boundaries	Cradle to Gate with Options, including A1-A5,C1-C4, and D Since Kirei PET is an intermediate product and has a variety of potential in-use applications, the B1-B7 (use) and D (benefits and loads beyond the system boundary) modules are not included in this assessment.
Time Representativeness	Primary data collected for calendar year 2017, 2021
Cut-off Rules Transport 1	Environmental impacts relating to personnel, infrastructure, and production equipment not directly consumed in the process are excluded from the system boundary as per the PCR CPC 54 Version 2.2.2017-05-30 (EPD International, 2017). All other reported data were incorporated and modeled using the best available life-cycle inventory data.
Cut-off Rules Transport 2	According to the section 2.9 of PCR (UL 10010 Version 3.2), the procedure detailed in ISO 21930, section 7.1.8 was followed regarding the exclusion of inputs and outputs. For energy, mass and environmental impacts, the cut-off criteria were 1% per standard. Per the standard "the total of neglected input flows per module shall be a maximum of 5% of energy usage, mass, and environmental impacts".
Database and LCA Software Used Transport 1	Data were primarily modeled with the AusLCI (AusLCI, 2017) and ecoinvent 3.5 (Ecoinvent Centre, 2016) databases. All background data used was less than 10 years old.
Database and LCA Software Used Transport 2	LCA Software & Version Number: Simparo 9.1 LCI Database(s) & Version Number: Ecoinvent 3.6 LCI Methodology & Version Number: CML-IA baseline 4.2; TRACI 2.1 v1.05
LCA Report Transport 1	LCA of Kirei PET, Edge Environment Pty Lt
LCA Report Transport 2	LCA of Kirei PET, SRF Testing and Certification (Changzhou) Co., Ltd., date 2021

LCA Scenarios

TRANSPORT TO THE BUILDING SITE (A4)

LCA SCENARIO DATA	
Fuel type	Diesel fuel
Liters of fuel (9mm)	Road: 1.13E+00 (1/100km) Ocean: 3.08E-03 (1/100km)
Liters of fuel (12mm)	Road: 1.61E+00 (1/100km) Ocean:4.41E-03 (1/100km)
Liters of fuel (24mm)	Road: 2.14E+00 (1/100km) Ocean: 5.84E-03 (1/100km)
Vehicle type	Truck/Container ship
Transport distance	Road: 500 km Ocean: 11900 km
Capacity utilization (including empty runs. mass based)	Road: 95% Ocean:90%
Gross density of products transported	9mm:2.11E+02 (kg/m^3) 12mm: 3.23E+02 (kg/m^3) 24mm: 4.00E+02 (kg/m^3)
Weight of products transported (if gross density not reported)	9mm: 1.90E+00 (kg) 12mm: 2.45E+00 (kg) 24mm: 3.G0E+00 (kg)
Volume of products transported (if gross density not reported)	- (m^3)
Capacity utilization volume factor (factor: =1 or <1 or; 1 for compressed or nested packaging products)	1

INSTALLATION INTO THE BUILDING (A5)

LCA SCENARIO DATA	
Ancillary materials	0.00E+00 (kg)
Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer)	0.00E+00 (m^3)
Other resources	0.00E+00 (kg)
Electricity consumption	0.00E+00 (kWh)
Other energy carriers	0.00E+00 (MJ)
Product loss per functional unit	0.00E+00 (kg)
Waste materials at the construction site before waste processing, generated by product installation	0.00E+00 (kg)
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)	0.00E+00 (kg)
Biogenic carbon contained in packaging	0.00E+00 (kg CO_2)
Direct emissions to ambient air, soil, and water	0.00E+00 (kg)
VOC content	0.00E+00 ($\mu g/m^3$)

LCA Scenarios

END OF LIFE (C1-C4)

Assumptions for scenario development see description of deconstruction, collection. recovery. disposal method and transportation above.

COLLECTION PROCESS (SPECIFIED BY TYPE)	
Collected separately	- (kg)
Collected with mixed construction waste	9mm: 1.90E+00 (kg) 12mm: 2.45E+00 (kg) 24mm: 3.60E+00 (kg)
RECOVERY (SPECIFIED BY TYPE)	
Reuse	-
Recycling	9mm: 5.00E-01 (kg) 12mm: 7.33E-01 (kg) 24mm: 9.47E-01 (kg)
Landfill	- (kg)
Incineration	- (kg)
Incineration with energy recovery	- (kg)
Energy conversion efficiency rate	-
DISPOSAL (SPECIFIED BY TYPE)	
Incineration	Landfill: 9mm: 1.16E+00 (kg) 12mm: 1.67E+00 (kg) 24mm: 2.20E+00 (kg) Incineration: 9mm: 2.40E-01 (kg) 12mm: 3.41E-01 (kg) 24mm: 4.50E-01 (kg)
REMOVALS OF BIOGENIC CARBON (EXCLUDING PACKAGING)	
	- (kg CO_2)

kirei

ENVIRONMENTAL PERFORMANCE

Product shown: Simple Baffles in Green & Grey

Environmental Performance

POTENTIAL ENVIRONMENTAL IMPACT TRANSPORT 1

Table 1.1: Results for 12mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
GWP ($kgCO_2$ eq)	8.50E+00	3.07E-02	4.82E-02
ODP (kgCFC11 eq)	4.32E-07	5.34E-09	4.04E-09
POCP (kgC_2H_2 eq)	1.46E-03	5.80E-06	1.20E-05
AP ($kgSO_2$ eq)	3.37E-02	1.47E-04	1.96E-04
EP ($kgPO_4^{3-}$ eq)	4.89E-03	2.82E-05	4.28E-05
ADPE (kgSb eq)	1.95E-05	1.66E-07	1.97E-07
ADPF (MJ)	1.45E+02	4.60E-01	6.97E-01

Table 1.2: Results for 24mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
GWP ($kgCO_2$ eq)	1.06E+01	3.83E-02	6.03E-02
ODP (kgCFC11 eq)	5.51E-07	6.67E-09	5.05E-09
POCP (kgC_2H_2 eq)	1.82E-03	7.26E-06	1.51E-05
AP ($kgSO_2$ eq)	4.21E-02	1.84E-04	2.45E-04
EP ($kgPO_4^{3-}$ eq)	6.10E-03	3.52E-05	5.35E-05
ADPE (kgSb eq)	2.43E-05	2.07E-07	2.46E-07
ADPF (MJ)	1.82E+02	5.75E-01	8.71E-01

Environmental Performance

POTENTIAL ENVIRONMENTAL IMPACT TRANSPORT 2

Table 2.1: Results for 9mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
GWP 100 (kgCO_2 eq)	6.39E+00	1.33E-01	3.24E+00	3.73E-01	3.13E-02	0.00E+00	1.62E-02	0.00E+00	7.47E-01
ODP (kg CFC-11 eq)	4.06E-07	3.15E-08	5.10E-08	8.29E-08	2.43E-10	0.00E+00	3.79E-09	0.00E+00	6.15E-09
AP (kg SO_2 eq)	2.51E-02	6.11E-04	1.58E-02	6.61E-03	1.84E-05	0.00E+00	7.43E-05	0.00E+00	2.55E-04
EP (kg N eq)	1.31E-02	1.55E-04	5.12E-03	5.11E-04	2.44E-04	0.00E+00	1.89E-05	0.00E+00	1.70E-02
POCP (kg O_3 eq)	3.30E-01	1.46E-02	2.35E-01	1.26E-01	3.52E-04	0.00E+00	1.77E-03	0.00E+00	6.62E-03
ADP fossil (MJ, LHV)	1.97E+01	2.84E-01	5.93E-01	7.42E-01	2.25E-03	0.00E+00	3.42E-02	0.00E+00	6.05E-02

Table 2.2: Results for 12mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
GWP 100 (kgCO_2 eq)	8.62E+00	1.33E-01	3.24E+00	5.12E-01	3.13E-02	0.00E+00	2.33E-02	0.00E+00	9.78E-01
ODP (kg CFC-11 eq)	5.76E-07	3.15E-08	5.10E-08	9.91E-08	2.43E-10	0.00E+00	5.11E-09	0.00E+00	8.98E-09
AP (kg SO_2 eq)	3.62E-02	6.11E-04	1.58E-02	8.94E-03	1.84E-05	0.00E+00	9.21E-05	0.00E+00	3.52E-04
EP (kg N eq)	1.88E-02	1.55E-04	5.12E-03	7.36E-04	2.44E-04	0.00E+00	2.51E-05	0.00E+00	2.45E-02
POCP (kg O_3 eq)	4.78E-01	1.46E-02	2.35E-01	1.87E-01	3.52E-04	0.00E+00	2.27E-03	0.00E+00	8.32E-03
ADP fossil (MJ, LHV)	2.86E+01	2.84E-01	5.93E-01	9.49E-01	2.25E-03	0.00E+00	4.55E-02	0.00E+00	8.17E-02

Table 2.3: Results for 24mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
GWP 100 (kgCO_2 eq)	1.21E+01	1.33E-01	3.24E+00	7.06E-01	3.13E-02	0.00E+00	3.06E-02	0.00E+00	1.40E+00
ODP (kg CFC-11 eq)	7.66E-07	3.15E-08	5.10E-08	1.57E-07	2.43E-10	0.00E+00	7.17E-09	0.00E+00	1.15E-08
AP (kg SO_2 eq)	4.74E-02	6.11E-04	1.58E-02	1.25E-02	1.84E-05	0.00E+00	1.41E-05	0.00E+00	4.79E-04
EP (kg N eq)	2.46E-02	1.55E-04	5.12E-03	9.69E-04	2.44E-04	0.00E+00	3.58E-05	0.00E+00	3.20E-02
POCP (kg O_3 eq)	6.23E-01	1.46E-02	2.35E-01	2.39E-01	3.52E-04	0.00E+00	3.36E-03	0.00E+00	1.24E-02
ADP fossil (MJ, LHV)	3.72E+01	2.84E-01	5.93E-01	1.41E+00	1.25E-03	0.00E+00	6.48E-02	0.00E+00	1.13E-01

Environmental Performance

RESOURCE USE TRANSPORT 1

Table 1.3: Results for 12mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
PERE (MJ)	4.86E+00	6.02E-03	8.41E-03
PERM (MJ)	0	INA	INA
PERT (MJ)	4.69E+00	6.02E-03	8.41E-03
PENRE (MJ)	1.49E+02	4.89E-01	7.25E-01
PENRM (MJ)	2.38E+01	INA	INA
PENRT (MJ)	1.72E+02	4.89E-01	7.25E-01
SM (kg)	1.50E+00	INA	INA
RSF (MJ)	0	INA	INA
NRSF (MJ)	0	INA	INA
FW (m^3)	1.15E-01	7.39E-05	2.28E-04

Table 1.4: Results for 24mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
PERE (MJ)	6.05E+00	7.52E-03	1.05E-02
PERM (MJ)	0.00E+00	INA	INA
PERT (MJ)	6.05E+00	7.52E-03	1.05E-02
PENRE (MJ)	1.86E+02	6.11E-01	9.07E-01
PENRM (MJ)	2.97E+01	INA	INA
PENRT (MJ)	2.16E+02	6.11E-01	9.07E-01
SM (kg)	1.87E+00	INA	INA
RSF (MJ)	0.00E+00	INA	INA
NRSF (MJ)	0.00E+00	INA	INA
FW (m^3)	1.44E-01	9.24E-05	2.85E-04

Environmental Performance

RESOURCE USE TRANSPORT 2

Table 2.4: Results for 9mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
RPR_E (MJ, LHV)	4.42E+00	2.23E-02	2.97E+00	4.55E-02	5.64E-04	0.00E+00	2.71E-03	0.00E+00	1.10E-02
RPR_M (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_T (MJ, LHV)	4.42E+00	2.23E-02	2.97E+00	4.55E-02	5.64E-04	0.00E+00	2.71E-03	0.00E+00	1.10E-02
$NRPR_E$ (MJ, LHV)	1.56E+02	2.04E+04	3.13E+01	5.20E+00	1.81E-02	0.00E+00	2.46E-01	0.00E+00	4.61E-01
$NRPR_M$ (MJ, LHV)	5.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_T$ (MJ, LHV)	2.06E+02	2.04E+04	3.13E+01	5.20E+00	1.81E-02	0.00E+00	2.46E-01	0.00E+00	4.61E-01
SM (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (m^3)	3.00E+00	6.97E-03	3.54E-01	1.24E-02	1.19E-03	0.00E+00	8.12E-04	0.00E+00	4.44E-02

Table 2.5: Results for 12mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
RPR_E (MJ, LHV)	6.03E+00	2.23E-02	2.97E+00	6.44E-02	5.64E-04	0.00E+00	3.78E-03	0.00E+00	1.53E-02
RPR_M (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_T (MJ, LHV)	6.03E+00	2.23E-02	2.97E+00	6.44E-02	5.64E-04	0.00E+00	3.78E-03	0.00E+00	1.53E-02
$NRPR_E$ (MJ, LHV)	2.21E+02	2.04E+04	3.13E+01	7.18E+00	1.81E-02	0.00E+00	1.42E-01	0.00E+00	6.32E-01
$NRPR_M$ (MJ, LHV)	7.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_T$ (MJ, LHV)	2.92E+02	2.04E+04	3.13E+01	7.18E+00	1.81E-02	0.00E+00	1.42E-01	0.00E+00	6.32E-01
SM (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (m^3)	4.11E+00	6.97E-03	3.54E-01	1.89E-02	1.19E-03	0.00E+00	9.84E-04	0.00E+00	6.21E-02

Environmental Performance

RESOURCE USE TRANSPORT 2

Table 2.6: Results for 24mm PET (Transport 2) per 1m^2

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
RPR_E (MJ, LHV)	7.90E+00	2.23E-02	2.97E+00	8.61E-02	5.64E-04	0.00E+00	5.14E-03	0.00E+00	2.06E-02
RPR_M (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_T (MJ, LHV)	7.90E+00	2.23E-02	2.97E+00	8.61E-02	5.64E-04	0.00E+00	5.14E-03	0.00E+00	2.06E-02
$NRPR_E$ (MJ, LHV)	2.95E+02	2.04E+04	3.13E+01	9.85E+00	1.81E-02	0.00E+00	4.66E-01	0.00E+00	8.65E-01
$NRPR_M$ (MJ, LHV)	9.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_T$ (MJ, LHV)	3.90E+02	2.04E+04	3.13E+01	9.85E+00	1.81E-02	0.00E+00	4.66E-01	0.00E+00	8.65E-01
SM (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (m^3)	5.66E+00	6.97E-03	3.54E-01	2.35E-02	1.19E-03	0.00E+00	1.54E-04	0.00E+00	8.32E-02

Environmental Performance

WASTE PRODUCTION AND OUTPUT FLOWS TRANSPORT 2

Table 1.5: Results for 12mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
HWD (kg)	7.43E-04	3.88E-07	7.58E-07
NHWD (kg)	8.36E-01	1.37E-02	2.28E+00
RWD (kg)	2.01E-04	2.99E-06	1.64E-08
CRE (kg)	0	INA	INA
MRE (kg)	0	INA	INA
MER (kg)	0	INA	INA
EE (MJ)	0	INA	INA

Table 1.6: Results for 24mm PET (Transport 1) per 1m^2

INDICATOR	A1-A3	C2	C4
HWD (kg)	9.21E-04	4.85E-07	9.48E-07
NHWD (kg)	1.04E+00	1.71E-02	2.86E+00
RWD (kg)	2.57E-04	3.74E-06	2.05E-08
CRE (kg)	0	INA	INA
MRE (kg)	0	INA	INA
MER (kg)	0	INA	INA
EE (MJ)	0	INA	INA

Environmental Performance

WASTE PRODUCTION AND OUTPUT FLOWS TRANSPORT 2

Table 2.7: Results for 9mm PET (Transport 2) per 1m²

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
HWD (kg)	2.54E-04	5.20E-06	4.26E-06	8.89E-06	3.62E-08	0.00E+00	6.40E-07	0.00E+00	8.73E-07
NHWD (kg)	6.25E-01	1.17E-01	2.76E-01	1.21E-01	1.40E-02	0.00E+00	1.15E-02	0.00E+00	1.32E+00
HLRW (kg) or (m³)	1.63E-04	1.33E-05	1.72E-05	3.49E-05	8.62E-08	0.00E+00	1.60E-06	0.00E+00	2.26E-06
CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
R (kg)	8.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-01
MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.8: Results for 12mm PET (Transport 2) per 1m²

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
HWD (kg)	3.43E-04	5.20E-06	4.26E-06	9.97E-06	3.62E-08	0.00E+00	8.11E-07	0.00E+00	9.98E-07
NHWD (kg)	8.18E-01	1.17E-01	2.76E-01	1.64E-01	1.40E-02	0.00E+00	1.52E-02	0.00E+00	1.78E+00
HLRW (kg) or (m³)	2.11E-04	1.33E-05	1.72E-05	4.98E-05	8.62E-08	0.00E+00	2.12E-06	0.00E+00	3.08E-06
CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
R (kg)	9.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-01
MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.9: Results for 24mm PET (Transport 2) per 1m²

INDICATOR	A1	A2	A3	A4	A5	C1	C2	C3	C4
HWD (kg)	4.80E-04	5.20E-06	4.26E-06	1.68E-05	3.62E-08	0.00E+00	1.21E-06	0.00E+00	1.64E-06
NHWD (kg)	1.18E+00	1.17E-01	2.76E-01	2.29E-01	1.40E-02	0.00E+00	2.17E-02	0.00E+00	2.47E+00
HLRW (kg) or (m³)	3.07E-04	1.33E-05	1.72E-05	6.61E-05	8.62E-08	0.00E+00	3.02E-06	0.00E+00	4.24E-06
CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
R (kg)	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.47E-01
MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Performance

ACRONYMS

GWP	Global Warming Potential
ODP	Ozone Depletion Potential
POCP	Photochemical Oxidant Formation Potential
AP	Acidification Potential
EP	Eutrophication Potential
ADPE	Abiotic Resource Depletion Potential – Elements
ADPF	Abiotic Resource Depletion Potential – Fossil Fuel
PERE	Use of renewable primary energy excluding 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 raw materials
PENRM	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRE	Components for reuse
MRE	Materials for recycling
MER	Materials for energy recovery
EE	Exported energy

kirei

REFERENCES

Product shown: Cypher Panels in Mint

References Transport 1

AWTA Product Testing. 2014. Test Report "EchoPanel® 24mm". Method AS/NZS 3837:1998 Test for Heat and Smoke Release Rates f or Materials and Products Using an Oxygen Consumption Calorimeter.

AWTA Product Testing. 2013. Test Report "EchoPanel® 12mm". Method AS/NZS 3837:1998 Test for Heat and Smoke Release Rates f or Materials and Products Using an Oxygen Consumption Calorimeter.

AWTA Product Testing. 2004. Test Report "EchoPanel® 24mm". AS/NZS 1530.3 – 1999 Simultaneous determination of Ignitability, Flame Propagation, Heat Release and Smoke Release.

BTTG Fire Technology Services. 2010. Fire tests according to BS 476: Part 7: 1987 Method for Classification of the surface spread of flame products. 7mm Gyprock Backed Panels.

CETEC. 2020. Emissions Test Certificated based on CDPH Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2: 2017 (Emission testing method for Californian Specification CA 01350). EchoPanel®.

CETEC. 2011. Emission Test Certificate based on ASTM D5116 "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products". Pigment Printed EchoPanel® AU.

CETEC. 2010. Emission Test Certificate based on ASTM D5116 "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products". WI Echo Wallcovering Printed.

CETEC. 2008. Emission Test Certificate based on ASTM D5116 "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products". EchoPanel.

EPD International. 2017. General Programme Instructions of the International EPD® System. Version 3.

EPD International. 2017. PCR for Construction Products and Construction Services CPC 54. Version 2.2.

European Standards. 2013. Sustainability of construction works - Environmental product declarations, EN 15804:2012+A1:2013. Pilsen: European Standards.
Greenfleet. 2018. About Greenfleet. Retrieved from: https://greenfleet.com.au/About-us/About-Greenfleet
GreenTag. 2018. GreenRate Level A. Woven Image EchoPanel® (plain) 7mm, 9mm, 12mm, 24mm, Mura™ (plain).

ISO 14025. 2006. Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures. Geneva: International Organization for Standardization.

PSB Singapore. 2016. Classification of Reaction to Fire in accordance with BS EN 13501-1:2007 + A1: 2009 Fire classification of construction products and building elements. 'EchoPanel® 12mm'.

PSB Singapore. 2016. Ignitability according to EN ISO 11925- 2: 2010 Reaction to fire tests - Ignitability of products subjected to direct impingement of flame. Part 2: Single- flame source test (BS EN ISO 11925-2: 2010). 'EchoPanel® 12mm'.

PSB Singapore. 2016. Reaction to Fire Performance of Building Products according to EN 13823: 2010+ A1:2014 Reaction to fire tests for building products. 'EchoPanel® 12mm'.

RMIT University. 2013. Report on the determination of sound absorption coefficients of "EchoPanel® 24mm" tested with no air gap measured in a reverberation room. Testing procedure: AS ISO 354-2006 Acoustics - Measurement of sound absorption in a reverberation room.

RMIT University. 2010. Report on the determination of sound absorption coefficients of "EchoPanel® 12mm" tested with no air gap measured in a reverberation room. Testing procedure: AS ISO 354-2006 Acoustics - Measurement of sound absorption in a reverberation room.

RMIT University. 2010. Report on the determination of sound absorption coefficients of "EchoPanel® 2mm" wall tested with no air gap measured in a reverberation room. Testing procedure: AS ISO 354-2006 Acoustics - Measurement of sound absorption in a reverberation room.

References Transport 2

PCR Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment (December 12, 2018, version 3.2)

PCR Part B: Mechanical, Specialty, Thermal and Acoustic Insulation EPD Requirements, UL Environment, UL 1001003 (September 3, 2019, version 1.0)

ISO 14040: 2006 Environmental Management - Life cycle assessment - Principles and Framework

ISO 14044: 2006 Environmental Management - Life cycle assessment - Requirements and Guidelines

ISO 21930: 2017 Sustainability in buildings and civil engineering works - Core rules and environmental product declarations of construction products and services.

ASTM C423, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

ASTM E84, Stanton Test Method for Surface Burning Characteristics of Building Materials UL General Program Rules v. 2.5 March 2020


kirei
kireiusa.com