Environmental Product Declaration

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

Re-board Basic

from

Re-board technology AB

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-09595
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General information

Programme information

Programme:	The International EPD® System
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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): *PCR 2019:14 v1.2.5 and UN CPC code: 32141*
PCR review was conducted by: *Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se*
Life Cycle Assessment (LCA)
LCA accountability: *Karin Lindqvist & Isak Eklöv, Sweco*
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: *David Althoff Palm, Dalemarken AB.* E-mail: *david@dalemarken.se* 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: Re-board Technology AB
Contact: Ali Khalili
Description of the organisation: Re-board® Technology AB produces a patented, rigid paper-based board with a unique core. The light-weight, super strong and fully recyclable board can be digitally printed and finished in various shapes and forms for a long list of application. Today's customers and users are mainly in the expo & event segment (stands/booths & furniture), as well as visual communication (signs & display, Point-Of-Sale/Point-Of-Purchase, shop fittings). But the company's products are also gaining foothold in more and more end-use segments, where other materials such as MDF, plywood, chipboards, foamboards and EPS are being replaced.
Re-board® Technology AB is based in Norrköping and has a long tradition of sustainability and innovation. Today, the team consists of 20 employees who manage both production and global sales to +35 countries.
Product-related or management system-related certifications: The production facility in Norrköping, Sweden is FSC Chain of Custody certified according to FSC-STD-40-004 with licence code FSC-C109282.
Name and location of production site(s): Västra Bravikenvägen 1, Norrköping, Sweden

Product information

This EPD is product specific for Re-board Basic.

Product name: Re-board Basic

Re-board Basic
Re-board Basic is based on Re-board's patented core with an optimized strength to weight ratio, making it the perfect material for durable, cost-efficient builds. The natural look and feel of the surface is achieved by using 100% recycled fibres from the Nordic countries, which also contributes to making Re-board Basic one of the lighter boards available on the market.

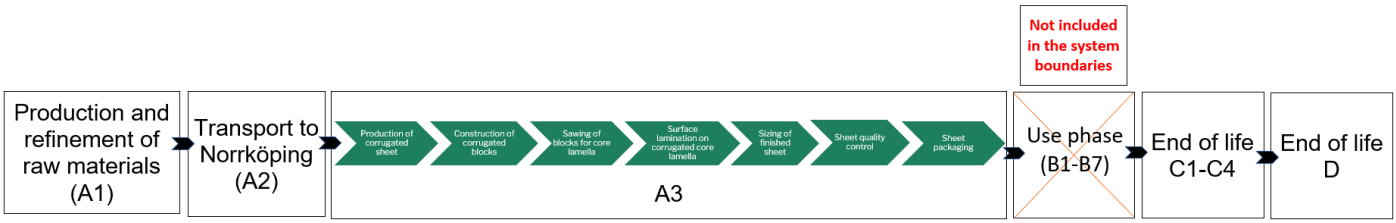
UN CPC code: 32141

Geographical scope: Global sales and distribution of products concerned.

LCA information

Declared unit: 1 m^2 of paper board
Time representativeness: 2022. Energy source for electricity represents 2023.
Database(s) and LCA software used: Ecoinvent 3.8, Simapro 9.5
Description of system boundaries:
This LCA is of the type cradle-to-gate with modules C1-C4 and module D (A1-A3 + C + D). The product stage includes raw material supply (A1), transport of raw material to core manufacturing (A2) and the manufacturing of paper boards at the Re-board production site (A3). The end-of-life stage includes the disassembly after use (C1), transport to waste management (C2), waste processing and disposal (C3, C4) and benefits and loads beyond the system boundary (D).

System diagram:



More information: The production process in A3 starts with the production of corrugated sheets, based on suitable and carefully selected raw materials from suppliers. The second step is the assembly and construction of corrugated blocks, which is done according to the patented process of producing Re-board core material. The next step in the process involves block sawing to extract core lamella, i.e. the middle layer of the finished product. This is followed by laminating surface on both sides of the core lamella, creating the actual, unsized, finished sheet. During the fifth step, the finished sheets are sized and clean-cut on all four sides. The next step in the process is a thorough quality control of the finished sheets, to detect any potential defects and imperfections and ensure highest possible product quality. This is followed by the final packaging step, where the approved sheets are stacked on pallets and packed for customer delivery.

Assumptions: When allocation was applied the method used was physical allocation. The trucks used for transportation were assumed to have the standard Euro 6. Transport distances were estimated based on the location of the supplier. The methods for waste processing in the end-of-life stage have been assumed according to European statistics for waste paperboards. The distribution of treatments used is 61% recycling, 32% incineration and 7% landfill. The amounts used for the input materials correspond to a thickness of 16 mm.

Cut-off rules: In accordance with the PCR, all inputs and outputs for which there has been data available have been included in the calculations. In case of insufficient data, the cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows, e.g., per module A1-A3 shall be a maximum of 5% of energy usage and mass (EN 15804:2012, clause 6.3.6).

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	EUR	EUR	SE	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	25%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Paper core and liner	1,30	26	33,1 resp. 0,55
Starch and polymer glue	0,36	0	0,6 resp. 0,01
TOTAL	1,66	26	33,7 resp. 0,56
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Wooden pallet	1,58E-04	0,009	0,5
Plastic	6,10E-06	0,0004	0
TOTAL	1,64E-04	0,0094	0,5

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,85E+00	0,00E+00	1,75E-02	1,26E-01	1,01E-03	-5,92E-01
GWP-biogenic	kg CO_2 eq.	-2,48E+00	0,00E+00	1,26E-04	4,60E+00	7,56E-06	-2,04E+00
GWP-luluc	kg CO_2 eq.	1,02E-02	0,00E+00	8,51E-06	4,23E-05	5,96E-07	-1,88E-03
GWP-total	kg CO_2 eq.	-6,21E-01	0,00E+00	1,77E-02	4,73E+00	1,02E-03	-2,63E+00
ODP	kg CFC 11 eq.	6,16E-08	0,00E+00	3,72E-10	2,34E-09	2,81E-11	-3,04E-08
AP	mol H^+ eq.	1,08E-02	0,00E+00	3,74E-05	6,56E-04	7,32E-06	-4,46E-03
EP-freshwater	kg P eq.	5,61E-04	0,00E+00	1,21E-06	1,47E-05	8,09E-08	-2,82E-04
EP-marine	kg N eq.	5,06E-03	0,00E+00	9,43E-06	2,99E-04	2,81E-06	-1,17E-03
EP-terrestrial	mol N eq.	2,91E-02	0,00E+00	9,58E-05	2,75E-03	3,01E-05	-1,44E-02
POCP	kg NMVOC eq.	7,25E-03	0,00E+00	2,59E-05	6,70E-04	7,50E-06	-3,03E-03
ADP-minerals & metals*	kg Sb eq.	9,32E-06	0,00E+00	5,59E-08	4,40E-07	1,35E-09	-1,03E-06
ADP-fossil*	MJ	1,65E+02	0,00E+00	2,43E-01	1,24E+00	2,42E-02	-7,71E+00
WDP*	m^3	1,46E+00	0,00E+00	9,79E-04	3,19E-02	1,07E-03	-9,71E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1,86E+00	0,00E+00	1,75E-02	1,26E-01	1,01E-03	-5,93E-01
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017							

Resource use indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,45E+00	0,00E+00	3,82E-03	0,00E+00	0,00E+00	-2,20E+01
PERM	MJ	4,11E+01	0,00E+00	0,00E+00	-3,83E+01	0,00E+00	-8,45E+00
PERT	MJ	4,66E+01	0,00E+00	3,82E-03	-3,83E+01	0,00E+00	-3,05E+01
PENRE	MJ	6,38E+01	0,00E+00	2,58E-01	0,00E+00	0,00E+00	-8,18E+01
PENRM	MJ	2,02E+01	0,00E+00	0,00E+00	-1,88E+01	0,00E+00	0,00E+00
PENRT	MJ	8,40E+01	0,00E+00	2,58E-01	-1,88E+01	0,00E+00	-8,18E+01
SM	kg	7,53E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	5,11E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,52E-02	0,00E+00	4,06E-05	1,48E-03	2,58E-05	0,00E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

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

Waste indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,10E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	9,92E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	1,27E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Output flow indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	1,39E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	1,86E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	1,06E+01	0,00E+00	0,00E+00

Differences Versus Previous Versions

2023-09-01 Version 1

2024-03-15 Version 1.1
Updated input data regarding specific electricity mixes used by suppliers, resulting in new descriptions and results.

References

ISO 14044:2006. Environmental Management – Life cycle assessment – Requirements and guidelines (SS-EN ISO 14044:2006). Swedish Standards Institute (SIS förlag AB): Stockholm, Sweden

ISO 14025:2006. Environmental label and declarations - Type III environmental declarations – Principles and procedures (ISO 14025:2006). Swedish Standards Institute (SIS förlag AB): Stockholm, Sweden

PCR, EPD International - PCR 2019:14 Construction products and construction services (version 1.2.5), 2022-11-01

SS-EN 15804:2012+A2:2019. Sustainability for construction works – Environmental product declarations – Core rules for the product category of construction products.

The International EPD System, 2021-03-29. General programme instructions for the international EPD System, 4.0

LCA-report Paper boards from Re-board Technology AB – Sweco 2023-09-01

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