

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	dormakaba International Holding GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20230256-CBA2-EN
Issue date	25.07.2023
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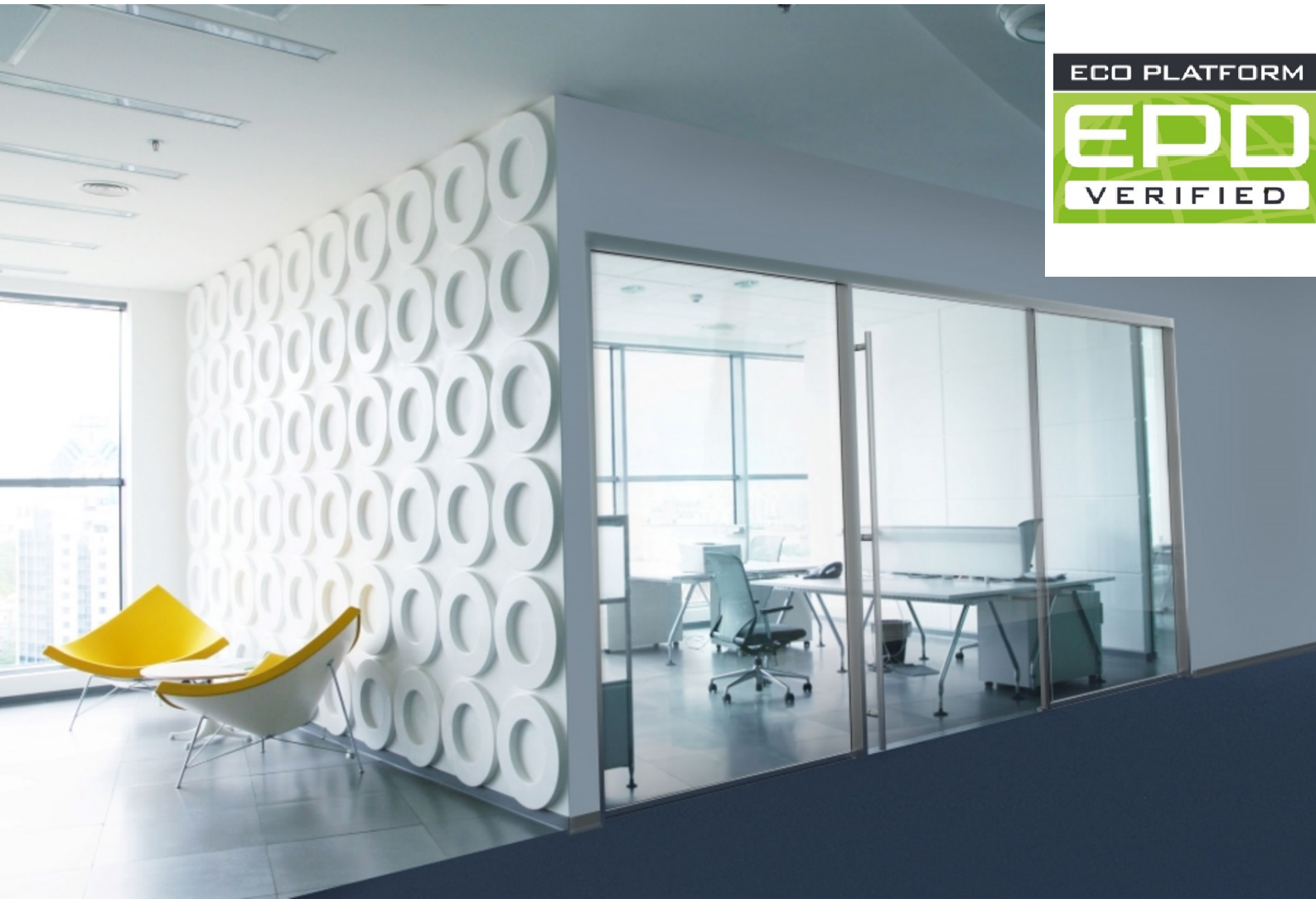
PURE Sonos
dormakaba

www.ibu-epd.com | <https://epd-online.com>



ECO PLATFORM

EPD
VERIFIED



General Information

dormakaba

Programme holder

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Declaration number

EPD-DOR-20230256-CBA2-EN

This declaration is based on the product category rules:

Building Hardware products, 01.08.2021
 (PCR checked and approved by the SVR)

Issue date

25.07.2023

Valid to

24.07.2028



Dipl.-Ing. Hans Peters
 (Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold
 (Managing Director Institut Bauen und Umwelt e.V.)

PURE Sonos

Owner of the declaration

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Declared product / declared unit

1 piece of the product: Framed Glass Wall System PURE Sonos,
 consisting of the following items:

- Framed Glass Wall System
- Product Packaging

Scope:

This EPD refers to a specific framed glass wall system manufactured by dormakaba. The production site is located in Reamstown (USA).

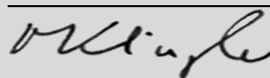
The data represents the dormakaba financial year 2022.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally



Matthias Klingler,
 (Independent verifier)

Product

Product description/Product definition

PURE Sonos Framed Glass Wall Systems provide the transparency of glass combined with STC rating to enhance privacy. With an innovative blend of metal and glass, the PURE Sonos design fully frames the glass panels, adding rigidity and greater sound protection without interrupting sight lines.

For the use and application of the product, the respective national provisions at the place of use apply:

- Sound Transmission Class (STC)
- Americans with Disabilities Act (ADA)

Application

PURE Sonos Framed Glass Walls are ideal for:

- Spaces requiring greater sound control
- Sliding door applications
- Office fronts
- Small conference rooms

Technical Data

PURE Sonos Framed Glass Walls have the following technical properties:

Model	PURE® Sonos
Glazing	1/2" Tempered
STC	35
OTC	32
Model	PURE® Sonos
Glazing	1/2" Tempered Laminated (Structural Interlayer)
STC	34
OTC	32

The product with respect to its characteristics are in accordance with the relevant technical provisions (no CE-marking):

- Americans with Disabilities Act (ADA)

Base materials/Ancillary materials

The major material composition including the packaging of the product is listed below:

Name	Value	Unit
Aluminium	80	%
Paper	8	%
Steel	7	%
Plastics	4	%
Others	<1	%

The product/s include/s partial articles which contain substances listed in *the Candidate List of REACH Regulation 1907/2006/EC* (date: 17.01.2023) exceeding 0.1 percentage by mass: No.

Reference service life

The reference service life for PURE Sonos amounts to 10 years and depends on the application and frequency of use. For repairs or renewals, suitable spare parts are available. PURE Sonos is tested and designed to withstand a minimum of 1.500.000 cycles.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product including packaging: PURE Sonos.

Name	Value	Unit
Declared unit	1	piece/product
Weight of declared unit	33,66	kg

System boundary

The type of EPD is according to EN 15804: "cradle to gate with options, modules C1–C4, and module D". The following modules are declared: A1-A3, C, D and additional modules: A4 + A5

Production - Module A1-A3

The product stage includes:
 — A1, raw material extraction, processing of secondary material input (e.g. recycling processes),
 — A2, transport to the manufacturer,
 — A3, manufacturing and assembly, processing and mechanical treatments,
 including provision of all materials, products and energy, as well as waste processing up to the end-of waste state.

Construction stage - Modules A4-A5

The construction process stage includes:
 — A4, transport to the building site;
 — A5, treatment of waste packaging materials arising during installation into the building.

End-of-life stage– Modules C1-C4 and D

The end-of-life stage includes:
 — C1, de-construction, demolition;
 — C2, transport to waste processing;
 — C3, waste processing for reuse, recovery and/or recycling;
 — C4, disposal;
 including provision and all transport, provision of all materials, products and related energy and water use. Module D (Benefits and loads beyond the system boundary) includes:
 — D, recycling potentials, expressed as net impacts and benefits.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: United States

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively

the product-specific characteristics of performance, are taken into account. Background database: GaBi, SP40

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Name	Value	Unit
Biogenic carbon content in product	0.06	kg C
Biogenic carbon content in accompanying packaging	0.99	kg C

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.00276	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	55	%

The product is transported via truck. The main distribution region is US. In order to allow scaling to a specific point of installation 100 km are declared.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (Paper)	2.7	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	10	a

End of life (C1-C4)

C1: The product dismantling from the building is done manually without environmental burden.

C2: Transport to waste treatment at end of life is 50 km.

Name	Value	Unit
Collected separately waste type	31	kg
Recycling	29.7	kg
Energy recovery	1.3	kg

The product is disassembled in a recycling process. Material recycling is then assumed for the metals. The plastic components are assumed to be incinerated with energy recovery. Minor proportions of residues arising from the recycling process are landfilled (1 %). Region for the End of Life is: Global.

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Recycling	100	%

The collection rate is 100 %.

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece PURE Sonos

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	2.58E+02	2.94E-01	3.83E+00	0	1.35E-01	3.48E+00	0	-1.62E+02
GWP-fossil	kg CO ₂ eq	2.62E+02	2.81E-01	9.59E-02	0	1.29E-01	3.21E+00	0	-1.62E+02
GWP-biogenic	kg CO ₂ eq	-4.45E+00	1.3E-02	3.73E+00	0	5.98E-03	2.69E-01	0	-5.27E-01
GWP-luluc	kg CO ₂ eq	1.16E-01	6.7E-06	6.3E-05	0	3.08E-06	1.84E-04	0	-2.52E-02
ODP	kg CFC11 eq	1.01E-10	2.97E-17	6.9E-16	0	1.37E-17	1.65E-15	0	-1.33E-09
AP	mol H ⁺ eq	1.24E+00	2.82E-04	1.07E-03	0	1.3E-04	6.09E-04	0	-6.18E-01
EP-freshwater	kg P eq	2.19E-04	6.02E-08	1.35E-07	0	2.77E-08	2.63E-07	0	-8.09E-05
EP-marine	kg N eq	1.78E-01	8.96E-05	3.87E-04	0	4.12E-05	1.41E-04	0	-8.03E-02
EP-terrestrial	mol N eq	1.94E+00	9.96E-04	4.83E-03	0	4.58E-04	2.78E-03	0	-8.73E-01
POCP	kg NMVOC eq	5.48E-01	2.53E-04	1.03E-03	0	1.17E-04	3.9E-04	0	-2.53E-01
ADPE	kg Sb eq	2.33E-04	8.44E-09	1.09E-08	0	3.88E-09	2.27E-08	0	-4.77E-05
ADPF	MJ	3.44E+03	3.99E+00	1.21E+00	0	1.84E+00	1.54E+00	0	-2.34E+03
WDP	m ³ world eq deprived	3.77E+01	5.51E-04	4.75E-01	0	2.54E-04	3.56E-01	0	-7.08E+00

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece PURE Sonos

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.45E+03	1.26E-02	3.26E+01	0	5.79E-03	2.2E+00	0	-1.13E+03
PERM	MJ	3.42E+01	0	-3.24E+01	0	0	-1.8E+00	0	0
PERT	MJ	1.48E+03	1.26E-02	2.2E-01	0	5.79E-03	3.97E-01	0	-1.13E+03
PENRE	MJ	3.4E+03	3.99E+00	1.21E+00	0	1.84E+00	4.15E+01	0	-2.34E+03
PENRM	MJ	4E+01	0	0	0	0	-4E+01	0	0
PENRT	MJ	3.44E+03	3.99E+00	1.21E+00	0	1.84E+00	1.54E+00	0	-2.34E+03
SM	kg	2.72E+00	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	3.43E+00	2.26E-05	1.12E-02	0	1.04E-05	8.5E-03	0	-1.96E+00

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 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

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:

1 piece PURE Sonos

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	3.72E-06	3.87E-10	1.78E-09	0	1.78E-10	5.7E-09	0	-1.07E-06
NHWD	kg	6.8E+01	4.08E-04	1.2E-01	0	1.88E-04	3.35E-01	0	-4.44E+01
RWD	kg	2.03E-01	4.29E-06	6.35E-05	0	1.97E-06	5.85E-05	0	-2.69E-01
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	2.96E+01	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	5.79E+00	0	0	6.32E+00	0	0
EET	MJ	0	0	1.05E+01	0	0	1.43E+01	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece PURE Sonos

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.27E-05	1.48E-09	5.94E-09	0	6.81E-10	7.47E-09	0	-1E-05
IR	kBq U235 eq	4.05E+01	6.13E-04	9.83E-03	0	2.82E-04	5.49E-03	0	-5.44E+01
ETP-fw	CTUe	1.25E+03	2.83E+00	5.74E-01	0	1.3E+00	5.83E-01	0	-8.9E+02
HTP-c	CTUh	1.72E-07	5.32E-11	3.03E-11	0	2.45E-11	4.99E-11	0	-4.36E-08
HTP-nc	CTUh	3.85E-06	2.28E-09	1.31E-09	0	1.05E-09	4.94E-09	0	-1.17E-06
SQP	SQP	8.18E+02	1.03E-02	3.2E-01	0	4.72E-03	4.61E-01	0	-6.89E+01

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

This EPD was created using a software tool.

References

- ADA**
Americans with Disabilities Act 1990 <https://www.ada.gov/>
- STC**
Sound Transmission Class
- EN 15804**
EN 15804:2019+A2, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products
- ISO 14025**
DIN EN ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures
- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)**
Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Further References**
- IBU 2021**
Institut Bauen und Umwelt e.V.: General Instructions for the EPDs programme of Institut Bauen und Umwelt e.V. Version 2.0., Berlin: Institut Bauen und Umwelt e.V., 2021. www.ibu-epd.com
- LCA-tool dormakaba**
LCA tool IBU-DOR-202106-LT1-EN, 2021, developed by Sphera Solutions GmbH
- GaBi ts software**
Sphera Solutions GmbH
Gabi Software System and Database for Life Cycle Engineering 1992-2020 Version 10.0.0.71
University of Stuttgart Leinfelden-Echterdingen
- GaBi ts documentation**
GaBi life cycle inventory data documentation (<https://www.gabisoftware.com/support/gabi/gabidatabase-2020-lci-documentation/>)
- PCR Part A**
PCR – Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019
- PCR Part B**
PCR-
Part B: Requirements on the EPD for BuildingHardware products, version 08/21, Institut Bauen und Umwelt e.V., www.ibu-epd.com.



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