ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	dormakaba International Holding GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20210279-CBA1-EN
Issue date	22.10.2021
Valid to	15.08.2026

ALT 50
dormakaba

Institut Bauen und Umwelt e.V.

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General Information

dormakaba	ALT 50
Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** dormakaba International Holding GmbH DORMA Platz 1 58256 Ennepetal Germany
Declaration number EPD-DOR-20210279-CBA1-EN	**Declared product / declared unit** 1 specific Room Partition System (1 system with a size of 9 m²)
This declaration is based on the product category rules: Room partition systems, 01.2019 (PCR checked and approved by the SVR)	**Scope:** This EPD refers to the specific Room Partition System: ALT 50. This system is manufactured by dormakaba. The system componets are: base profiles, seals and accessories. Panes are not included in this EPD. The year of data collection is 2020.
Issue date 22.10.2021	
Valid to 15.08.2026	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*.
 Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)	**Verification** The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010* ☐ internally ☒ externally
 Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))	 Dr.-Ing. Wolfram Trinius (Independent verifier)

Product

Product description/Product definition
Retrofittability and deconstructability - These are just two of the convincing attributes which dormakaba's Room Partition Systems have in common. Narrow aluminum profiles frame glass panels or other partitioning material, thus creating new rooms in available space. Integrated doors, whether pivoting or sliding, provide access while locking systems ensure the desired security.

dormakaba introduces ALTERRA demountable partition systems which are versatile and opento infinite possibilities. The design flexibility of the profiling system, allows seamlessintegration with concealed hardware, electroniclocks with BLE Technology and thereby enablessmart access control within any premises. ALTERRA profile systems enable retrofitting in existing office spaces with minimal alterations. Hospitality, commercial, retail and residentialspaces also will benefit from upgraded andmodern interiors with ALTERRA profile systems. ALTERRA systems are your one-stop solution for customized interiors with end-to-end design support, a complete bouquet of all types ofdormakaba hardware and quick turnaround. The systems are produced in Chennai (India).

For the use and application of ALTERRA, the following standards apply:

- *ISO 10140-2 / ASTM - E 90 ASTM E-413*
- *BS 5234-2 & EN1991-1-1*

Application
Room Partition Systems can be used for:

- Offices
- Banks
- Insurance companies
- Hotels
- Schools
- Universities
- Gyms

- Hospitals
- Nursing homes
- Residential

Technical Data
The declared product (9 m² and 23,77 m profiles) has the following technical properties:

Name	Value	Unit
Total system measurements	h = max. 3000	mm
Intermediate fixed panel	w = min. 500, max. 1200 / h = max. 3000	mm
Wall mounted fixed panel	w = min. 500, max. 1200 / h = max. 3000	mm
Panel material	Glass (TSG, LSG), timber panel (10-13.5mm)	
Sound protection test acc. to DIN EN ISO 10140	up to 31	dB
Structural analysis / Proof of stability acc. to	EN 1991-1-1:2002	
Maximum door weight including all fittings for glass doors	100	kg
Frame height	up to 3000	mm
Frame width	up to 1200	mm
Additional requirements for safety barriers with glass acc.to EN 1991-1-1:2002, BS 5234-2:1992	Category of Use II	
Airborne sound reduction	up to 31	dB
Thermal conductivity	200	W/(mK)
Maximum console load acc. to DIN 4103-1	400	N/m
Maximum horizontal load acc. to DIN 4103-1	400	N/m
Weight of wall load	0,5	KN/m2

For the Room Partition Systems, no legal provisions for harmonisation of the EU exist.

Base materials/Ancillary materials
The composition of the product is the following:

- Base profiles: 87%
- Seals: 10%
- Acessories: 3%

The product/s include/s partial articles which contain substances listed in the Candidate List of *REACH* Regulation *1907/2006/EC* (date: 08.07.2021) exceeding 0.1 percentage by mass: no

Reference service life
The reference service life amounts to 30 years (see table of *Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)*).

LCA: Calculation rules

Declared Unit
The declared unit is 1 specific Room Partition System (9 m²): ALT 50

Declared unit

Name	Value	Unit
Declared unit	9	m²
Conversion factor to 1 kg	0.53	-
Declared unit	1	system
Weight per system	18,84	kg
Area	9	m²
Length of profiles	23,77	m

System boundary

The type of EPD is: cradle to gate with options, modules C1–C4, and module D
(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.

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 ts, SP40.

LCA: Scenarios and additional technical information

Characteristic product properties
Information on biogenic Carbon

Information on describing the biogenic Carbon Content on biogenic Carbon

Name	Value	Unit
Biogenic Carbon Content in accompanying packaging	0,80	kg C

The following technical scenario information is required for the declared modules

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.057	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	55	%

Installation into the building (A5)

Name	Value	Unit
Waste packaging (Paper)	2,2	kg
Waste packaging (Plastic)	0,02	kg

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 50km.

Name	Value	Unit
Recycling	16.89	kg
Energy recovery	2.13	kg
Transportation	50	km

Reuse, recovery and/or recycling potentials (D), relevant scenario information
Collection rate is 100%.

LCA: Results

Disclaimer:
EP-freshwater: This indicator has been calculated as “kg P eq” as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml).

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	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 Room Partition System - ALT 50 (9 m²)

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO_2-Eq.]	3.99E+2	1.80E-1	3.17E+0	0.00E+0	8.30E-2	5.42E+0	1.82E-5	-1.02E+2
GWP-fossil	[kg CO_2-Eq.]	4.01E+2	1.72E-1	1.29E-1	0.00E+0	7.94E-2	5.42E+0	1.81E-5	-1.01E+2
GWP-biogenic	[kg CO_2-Eq.]	-3.53E+0	7.96E-3	3.04E+0	0.00E+0	3.67E-3	1.26E-4	6.18E-8	-3.18E-1
GWP-luluc	[kg CO_2-Eq.]	5.79E-1	4.10E-6	5.42E-5	0.00E+0	1.86E-6	3.06E-4	5.21E-8	-1.90E-2
ODP	[kg CFC11-Eq.]	2.53E-11	1.82E-17	5.88E-16	0.00E+0	8.38E-18	2.73E-15	6.71E-20	-8.07E-10
AP	[mol H^+-Eq.]	4.25E+0	1.72E-4	8.83E-4	0.00E+0	7.94E-5	9.65E-4	1.30E-7	-3.83E-1
EP-freshwater	[kg PO_4-Eq.]	3.54E-4	3.68E-8	1.14E-7	0.00E+0	1.70E-8	4.36E-7	3.11E-11	-5.25E-5
EP-marine	[kg N-Eq.]	5.18E-1	5.48E-5	3.17E-4	0.00E+0	2.53E-5	2.18E-4	3.34E-8	-5.03E-2
EP-terrestrial	[mol N-Eq.]	5.68E+0	6.10E-4	3.97E-3	0.00E+0	2.81E-4	4.40E-3	3.67E-7	-5.47E-1
POCP	[kg NMVOC-Eq.]	1.58E+0	1.55E-4	8.42E-4	0.00E+0	7.15E-5	6.02E-4	1.01E-7	-1.58E-1
ADPE	[kg Sb-Eq.]	1.24E-4	5.16E-9	9.23E-9	0.00E+0	2.38E-9	3.75E-8	1.62E-12	-7.04E-5
ADPF	[MJ]	4.33E+3	2.44E+0	1.01E+0	0.00E+0	1.13E+0	2.51E+0	2.37E-4	-1.47E+3
WDP	[m^3 world-Eq deprived]	3.54E+1	3.37E-4	3.92E-1	0.00E+0	1.56E-4	5.54E-1	1.90E-6	-5.00E+0

Caption	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 Room Partition System - ALT 50 (9 m²)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	6.54E+2	7.70E-3	2.66E+1	0.00E+0	3.55E-3	6.68E-1	3.11E-5	-6.98E+2
PERM	[MJ]	2.64E+1	0.00E+0	-2.64E+1	0.00E+0	0.00E+0	-1.43E-2	0.00E+0	0.00E+0
PERT	[MJ]	6.80E+2	7.70E-3	1.85E-1	0.00E+0	3.55E-3	6.54E-1	3.11E-5	-6.98E+2
PENRE	[MJ]	4.31E+3	2.44E+0	1.87E+0	0.00E+0	1.13E+0	1.55E+1	2.37E-4	-1.47E+3
PENRM	[MJ]	1.39E+1	0.00E+0	-8.60E-1	0.00E+0	0.00E+0	-1.30E+1	0.00E+0	0.00E+0
PENRT	[MJ]	4.33E+3	2.44E+0	1.01E+0	0.00E+0	1.13E+0	2.51E+0	2.37E-4	-1.47E+3
SM	[kg]	3.38E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m^3]	1.51E+0	1.38E-5	9.23E-3	0.00E+0	6.37E-6	1.33E-2	5.98E-8	-1.22E+0

Caption	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 Room Partition System - ALT 50 (9 m²)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	4.74E-5	2.37E-10	1.54E-9	0.00E+0	1.09E-10	9.58E-9	3.62E-12	-8.35E-7
NHWD	[kg]	7.12E+1	2.50E-4	1.03E-1	0.00E+0	1.15E-4	5.63E-1	1.19E-3	-2.71E+1
RWD	[kg]	5.73E-2	2.62E-6	5.26E-5	0.00E+0	1.21E-6	9.33E-5	2.70E-9	-1.65E-1
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.69E+1	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	4.81E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	8.77E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Caption	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 Room Partition System - ALT 50 (9 m²)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease Incidence]	6.94E-5	9.06E-10	4.95E-9	0.00E+0	4.18E-10	1.23E-8	1.61E-12	-6.21E-6
IRP	[kBq U235-Eq.]	7.47E+0	3.75E-4	8.09E-3	0.00E+0	1.73E-4	8.40E-3	2.78E-7	-3.34E+1
ETP-fw	[CTUe]	1.06E+3	1.73E+0	4.76E-1	0.00E+0	7.98E-1	9.43E-1	1.36E-4	-5.54E+2
HTP-c	[CTUh]	6.66E-7	3.26E-11	2.55E-11	0.00E+0	1.50E-11	8.16E-11	2.01E-14	-2.93E-8
HTP-nc	[CTUh]	3.36E-6	1.39E-9	1.15E-9	0.00E+0	6.42E-10	8.27E-9	2.21E-12	-7.26E-7
SQP	[-]	1.15E+3	6.27E-3	2.68E-1	0.00E+0	2.89E-3	7.53E-1	4.95E-5	-4.87E+1

Caption	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 nor 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 fossil resources”, “abiotic depletion potential for non-fossil resources”, “water (user) deprivation potential”, “deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans - cancer effects”, “potential comparative toxic unit for humans – non-cancer effects”, “potential soil quality index”.
The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

References

ASTM - E 90 ASTM E-413
Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

BBSR
Nutzungsdauern von Bauteilen für Lebenszyklusanalysen nach Bewertungssystem Nachhaltiges Bauen (BNB), 24.02.2017, www.nachhaltigesbauen.de.

BS 5234-2:1992
Specification for performance requirements for strength and robustness of Partitions.

EN 1191:2013/2002
Windows and doors - Resistance to repeated opening and closing - Test method.

EN 15804:2019+A2
EN 15804:2019+A2 (in press), Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
Regulation (EC) No 1907/2006 (date: 19.01.2021) of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Further References

European Chemicals Agency (ECHA)
https://echa.europa.eu/de/

GaBi ts documentation
GaBi life cycle inventory data documentation (https://www.gabisoftware.com/support/gabi/gabidatabase-2020-lci-documentation/).

GaBi ts software
Sphera Solutions GmbH
Gabi Software System and Database for Life Cycle Engineering 1992-2020 Version 10.0.0.71
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IBU
Institut Bauen und Umwelt e.V.: General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V. Version 1., Berlin: Institut Bauen und Umwelt e.V., 2016. www.ibu-epd.com.

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, Version 1.0, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

PCR Part B
PCR – Part B: Requirements on the EPD for Building Hardware product, version 1.2, Institut Bauen und Umwelt e.V., www.ibu-epd.com, 2019.

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