# 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-20210279-CBA2-EN |
| Issue date | 22/10/2021 |
| Valid to | 15/08/2027 |

## ALT 50

## dormakaba

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

**www.ibu-epd.com | https://epd-online.com**



## General Information

### dormakaba

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

**Declaration number**

EPD-DOR-20210279-CBA2-EN

**This declaration is based on the product category rules:**

Room partition systems, 01/08/2021
(PCR checked and approved by the SVR)

**Issue date**

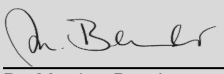
22/10/2021

**Valid to**

15/08/2027



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



Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

### ALT 50

**Owner of the declaration**

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

**Declared product / declared unit**

1 specific Room Partition System (1 system with a size of 9 m²)

**Scope:**

This EPD refers to the specific Room Partition System: ALT 50. This system is manufactured by dormakaba.

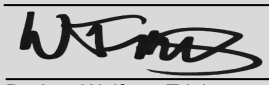
The system componets are: base profiles, seals and accessories. Panes are not included in this EPD.

The year of data collection is 2020.
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 bezeichnet*.

**Verification**

| |
|---|
| The standard EN 15804 serves as the core PCR |
| Independent verification of the declaration and data according to ISO 14025:2011 |
| ☐ internally ☒ externally |



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

### Environment and health during use

### 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 $m^2$): ALT 50

### Declared unit

| Name | Value | Unit |
|---|---|---|
| Declared unit | 9 | $m^2$ |
| 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 |

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA

values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

**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.

**Geographic Representativeness**
Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: India

**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**

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it shall be separately declared for the product and for any accompanying packaging.
If the total mass of biogenic carbon containing materials is less than 5 % of the total mass of the product and accompanying packaging, the declaration of biogenic carbon content may be omitted. The mass of packaging containing biogenic carbon shall always be declared.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO2.

**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 |

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

**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 | MND | MND | MNR | MNR | MNR | MND | MND | X | X | X | X | X |

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

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq | 3.99E+02 | 1.8E-01 | 3.17E+00 | 0 | 8.3E-02 | 5.42E+00 | 1.82E-05 | -1.02E+02 |
| GWP-fossil | kg $CO_2$ eq | 4.01E+02 | 1.72E-01 | 1.29E-01 | 0 | 7.94E-02 | 5.42E+00 | 1.81E-05 | -1.01E+02 |
| GWP-biogenic | kg $CO_2$ eq | -3.53E+00 | 7.96E-03 | 3.04E+00 | 0 | 3.67E-03 | 1.26E-04 | 6.18E-08 | -3.18E-01 |
| GWP-luluc | kg $CO_2$ eq | 5.79E-01 | 4.1E-06 | 5.42E-05 | 0 | 1.86E-06 | 3.06E-04 | 5.21E-08 | -1.9E-02 |
| ODP | kg CFC11 eq | 2.53E-11 | 1.82E-17 | 5.88E-16 | 0 | 8.38E-18 | 2.73E-15 | 6.71E-20 | -8.07E-10 |
| AP | mol $H^+$ eq | 4.25E+00 | 1.72E-04 | 8.83E-04 | 0 | 7.94E-05 | 9.65E-04 | 1.3E-07 | -3.83E-01 |
| EP-freshwater | kg P eq | 3.54E-04 | 3.68E-08 | 1.14E-07 | 0 | 1.7E-08 | 4.36E-07 | 3.11E-11 | -5.25E-05 |
| EP-marine | kg N eq | 5.18E-01 | 5.48E-05 | 3.17E-04 | 0 | 2.53E-05 | 2.18E-04 | 3.34E-08 | -5.03E-02 |
| EP-terrestrial | mol N eq | 5.68E+00 | 6.1E-04 | 3.97E-03 | 0 | 2.81E-04 | 4.4E-03 | 3.67E-07 | -5.47E-01 |
| POCP | kg NMVOC eq | 1.58E+00 | 1.55E-04 | 8.42E-04 | 0 | 7.15E-05 | 6.02E-04 | 1.01E-07 | -1.58E-01 |
| ADPE | kg Sb eq | 1.24E-04 | 5.16E-09 | 9.23E-09 | 0 | 2.38E-09 | 3.75E-08 | 1.62E-12 | -7.04E-05 |
| ADPF | MJ | 4.33E+03 | 2.44E+00 | 1.01E+00 | 0 | 1.13E+00 | 2.51E+00 | 2.37E-04 | -1.47E+03 |
| WDP | $m^3$ world eq deprived | 3.54E+01 | 3.37E-04 | 3.92E-01 | 0 | 1.56E-04 | 5.54E-01 | 1.9E-06 | -5E+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 Room Partition System - ALT 50 (9 m²)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 6.54E+02 | 7.7E-03 | 2.66E+01 | 0 | 3.55E-03 | 6.68E-01 | 3.11E-05 | -6.98E+02 |
| PERM | MJ | 2.64E+01 | 0 | -2.64E+01 | 0 | 0 | -1.43E-02 | 0 | 0 |
| PERT | MJ | 6.8E+02 | 7.7E-03 | 1.85E-01 | 0 | 3.55E-03 | 6.54E-01 | 3.11E-05 | -6.98E+02 |
| PENRE | MJ | 4.31E+03 | 2.44E+00 | 1.87E+00 | 0 | 1.13E+00 | 1.55E+01 | 2.37E-04 | -1.47E+03 |
| PENRM | MJ | 1.39E+01 | 0 | -8.6E-01 | 0 | 0 | -1.3E+01 | 0 | 0 |
| PENRT | MJ | 4.33E+03 | 2.44E+00 | 1.01E+00 | 0 | 1.13E+00 | 2.51E+00 | 2.37E-04 | -1.47E+03 |
| SM | kg | 3.38E-01 | 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 | $m^3$ | 1.51E+00 | 1.38E-05 | 9.23E-03 | 0 | 6.37E-06 | 1.33E-02 | 5.98E-08 | -1.22E+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 Room Partition System - ALT 50 (9 m²)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 4.74E-05 | 2.37E-10 | 1.54E-09 | 0 | 1.09E-10 | 9.58E-09 | 3.62E-12 | -8.35E-07 |
| NHWD | kg | 7.12E+01 | 2.5E-04 | 1.03E-01 | 0 | 1.15E-04 | 5.63E-01 | 1.19E-03 | -2.71E+01 |
| RWD | kg | 5.73E-02 | 2.62E-06 | 5.26E-05 | 0 | 1.21E-06 | 9.33E-05 | 2.7E-09 | -1.65E-01 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 1.69E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 4.81E+00 | 0 | 0 | 0 | 0 | 0 |
| EET | MJ | 0 | 0 | 8.77E+00 | 0 | 0 | 0 | 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 Room Partition System - ALT 50 (9 m²)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 6.94E-05 | 9.06E-10 | 4.95E-09 | 0 | 4.18E-10 | 1.23E-08 | 1.61E-12 | -6.21E-06 |
| IR | kBq U235 eq | 7.47E+00 | 3.75E-04 | 8.09E-03 | 0 | 1.73E-04 | 8.4E-03 | 2.78E-07 | -3.34E+01 |
| ETP-fw | CTUe | 1.06E+03 | 1.73E+00 | 4.76E-01 | 0 | 7.98E-01 | 9.43E-01 | 1.36E-04 | -5.54E+02 |
| HTP-c | CTUh | 6.66E-07 | 3.26E-11 | 2.55E-11 | 0 | 1.5E-11 | 8.16E-11 | 2.01E-14 | -2.93E-08 |
| HTP-nc | CTUh | 3.36E-06 | 1.39E-09 | 1.15E-09 | 0 | 6.42E-10 | 8.27E-09 | 2.21E-12 | -7.26E-07 |
| SQP | SQP | 1.15E+03 | 6.27E-03 | 2.68E-01 | 0 | 2.89E-03 | 7.53E-01 | 4.95E-05 | -4.87E+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 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


**Standards**

**EN 15804**

EN 15804:2012+A1 2013, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

**EN 15804**

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

**ISO 14025**

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

**Further References**

**Title of the software/database**

Title of the software/database. Addition to the title, version. Place: Publisher, Date of publication [Access on access date].

**IBU 2021**

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

**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 University of Stuttgart Leinfelden-Echterdingen.

**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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