ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	Etex Building Performance International
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ETE-20230251-IBA1-EN
Issue date	25.09.2023
Valid to	24.09.2028

Monalite® M1AT and Monalite® M1T
PROMAT

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Promat

1. General Information

PROMAT

Programme holder

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

Declaration number

EPD-ETE-20230251-IBA1-EN

This declaration is based on the product category rules:

Calcium silicate insulating materials, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

25.09.2023

Valid to

24.09.2028

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

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

Monalite® M1AT and Monalite® M1T

Owner of the declaration

Etex Building Performance International
Rue Marcel Demonque 500
84915 Avignon Cedex 9
France

Declared product / declared unit

1 m^2 of Monalite® M1AT/Monalite® M1T with a thickness of 38.5 mm

Scope:

This EPD is representative and relevant for Monalite® M1AT/Monalite® M1T boards produced by ETEX in Tisselt (Belgium) and installed in Europe. The data describing the direct inputs and outputs of the foreground processes are representative for ETEX production in Tisselt, Belgium, and taken from the period of one year between October 2020 and September 2021.

The results in this EPD are based on Monalite® M1AT. In the LCA background report, the representativeness of Monalite® M1AT has been checked by comparing the results of Monalite® M1AT and Monalite® M1T. This study showed that for all environmental impact indicators Monalite® M1AT is the most conservative product, and as a result representative for the product range included in the EPD.
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
☐ internally ☒ externally

Vito D'Incognito,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Monalite® M1AT and Monalite® M1T
This EPD describes the life cycle analysis of two Promat products for fire protection in heavy industries. The products under consideration are the cement-bounded high-density calcium silicate fire protective boards. In detail the investigated products are 2 for this group including Monalite® M1AT and Monalite® M1A. The results in this EPD are based on Monalite® M1AT. In the LCA background report, the representativeness of Monalite® M1AT has been checked by comparing the LCA results of Monalite® M1AT and Monalite® M1T. This study showed that for all environmental impact indicators Monalite® M1AT is the most conservative product, and as a result representative for the product range included in the EPD.

Monalite® materials are asbestos-free made from calcium silicate. These boards are used in aluminum casting and the foundry industry and are also used in the furnace industry and other process industries. The products differentiate by individual densities and the ratios of included raw materials to meet the technical requirements of individual applications with direct contact to molten metals up to 1000°C. Monalite is the only non-wettable product in the Promat range.
Product for which no legal provisions for harmonisation of the EU exist. For the use and application of the product the respective national provisions at the place of use apply.

2.2 Application

Monalite® M1AT and Monalite® M1T boards are versatile multi-purpose fire protection boards, for multiple applications:

Oil and gas

- Collars, gaskets and pipe support rings
- Spacers and bushes
- Thermal separation for high loads

Heavy industry

- The non wetting properties of Monalite mean that these products are ideally suited for use in non-ferrous casting applications
- Billet and ingot casting as transition plates, floats, spouts
- Head boxes for continuous casters
- Tips for continuous sheet casters
- Sprue bushes, tubes, nozzles and feeder box liner in low pressure die casting
- Hotfacelinings for dosing/holding furnaces
- Launders and dams
- Load bearing housings
- Structural insulation where high thermal and/or mechanical load is required

2.3 Technical Data

Constructional data

Name	Value	Unit
Gross density EN12467	850 - 992	kg/m^3
Compressive strength EN 993-5 2000 (cold)	<21	N/mm^2
Flexural strength EN 993-6 1995	>8.0	N/mm^2
Thermal conductivity at 200°C	0.274 - 0.299	W/(mK)
Thermal conductivity at 500°C	0.283 - 0.297	W/(mK)
Thermal conductivity at 800°C	0.294 - 0.303	W/(mK)

Product for which no legal provisions for harmonisation of the EU exist. For the use and application of the product the respective national provisions at the place of use apply.

2.4 Delivery status

The products have a thickness of 13.1, 19.5, 25.8, 38.5, 51.2, 76.6 or 102 mm.
The length is 2500 mm.
The width is 1200 mm.

The products are transported and delivered on a wooden pallet and packed with cartons and PET straps.

2.5 Base materials/Ancillary materials

The main constituents of the product are silica (10-25 %), wollastonite (40-60 %), cement (1-10 %), lime (10-20 %) and cellulose fibres (1-10 %).

This product/article/at least one partial article contains substances listed in the candidate list (date: accesses 31/07/2023) exceeding 0.1 percentage by mass: **no**

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: **no**

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): **no**

2.6 Manufacture

There is only one manufacturing plant of the declared products being the manufacturing plant in Tisselt (Belgium). The products are all produced on the same type of production line. All raw materials, including previously made xonotlite slurries, together with a balanced amount of water are mixed to form a slurry, and shaped by a filter press to produce a wet board. It is steam cured in an autoclave to form required calcium silicate minerals suitable for the end application. Final steps are the drying, cutting and sanding/finishing. During the cutting and finishing, scrap is produced which is partly recycled, both internally and externally, and partly landfilled.

2.7 Environment and health during manufacturing

Environmental, occupational health, safety and quality management at the Guangzhou plant are in accordance with the following standards:

- ISO 14001;2015
- ISO 9001;2015
- ISO 45001:2018

2.8 Product processing/Installation

Not considered in the EPDs. Various installation scenarios exist depending on the application.

2.9 Packaging

The products are transported and delivered on a wooden pallet and packed with cartons and PET straps.

2.10 Condition of use

B modules are not included. These products are designed for life and depending on the application in which the products are used there might be a need for maintenance/repair/replacement of the application.

2.11 Environment and health during use

Under normal conditions of use, the products do not cause any adverse health effects or release of volatile organic compounds (VOCs) into indoor air. No environmental impact on water, air or soil is expected due to the extremely low metal release from the low maintenance requirements.

2.12 Reference service life

The RSL depends on the application. Under normal conditions of use, the product is supposed to remain its characteristics as long as the application lasts. For application in building a reference service life of 60 years (i.e life time of the building) could be declared.

2.13 Extraordinary effects

Fire

Information on the fire performance according to EN 13501:1.

Fire protection

Name	Value
Building material class	A1
Burning droplets	/
Smoke gas development	/

Water

Tests on the product performance including possible impacts on the environment following the unforeseeable influence of water, e.g. flooding showed that no risks are expected to occur in terms of environment and human health.

Mechanical destruction

In case of mechanical destruction, no risks are expected to occur in terms of environment and human health.

2.14 Re-use phase

Currently, the boards can be recycled as a replacement of filler (e.g. secondary limestone fillers). In the EPD, both the 100 % recycling and 100 % landfill scenario have been calculated.

2.15 Disposal

The waste number according to the European list 'Decision N° 2000/532/CE' is '17 09 00: other construction and demolition wastes'.

2.16 Further information

https://www.promat.com/en/industry/products-solutions/high-temperature-insulation/boards-hti/monalite/

3. LCA: Calculation rules

3.1 Declared Unit

1 m^2 of Monalite® M1AT/Monalite® M1T with a thickness of 38.5 mm

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Gross density	992	kg/m^3
Grammage	38.19	kg/m^2
Conversion factor to 1 kg	0.026	
Layer thickness	0.0385	m

The results in this EPD are based on Monalite® M1AT. In the LCA background report the representativeness of Monalite® M1AT has been checked by comparing the LCA results of Monalite® M1AT and Monalite® M1T.

Assuming a linear relationship between the thickness and the mass/environmental impact of the board, the environmental impact of a product can be considered to be proportional to the thickness of the product, so products with another thickness can be calculated by the below formula:

*E=W*Eref/Wref*

E=environmental impact of a product with density d and thickness t
*W=d*t=weight of 1 m^2 product with density d and thickness t*
Eref=environmental impact of the reference product
Wref=weight of 1 m^2 reference product

3.2 System boundary

Cradle-to-gate with options, including modules C2-C4 and D

3.3 Estimates and assumptions

The results in this EPD are based on Monalite® M1AT. In the LCA background report the representativeness of Monalite® M1AT has been checked by comparing the LCA results of Monalite® M1AT and Monalite® M1T. This study showed that for all environmental impact indicators Monalite® M1AT is the most conservative product, and as a result representative for the product range included in the EPD.

3.4 Cut-off criteria

The following processes are considered below cut-off according to the rules as per the PCR, Part A:

- Packaging of raw materials, as the main raw materials (i.e. largest amounts) come in bulk.
- Ancillary materials for production
- Infrastructure and land use of the factory
- Environmental impacts caused by the personnel of the production plants are not included in the LCA, e.g. waste from the cafeteria and sanitary installations, accidental pollution caused by human mistakes, or environmental effects caused by commuter traffic. Heating or cooling of the plants in order to ensure a comfortable indoor climate for the personnel for example is also neglected.

3.5 Background data

Ecoinvent 3.8 and Industry 2.0

3.6 Data quality

Company-specific data concern the data about the production of Monalite® M1AT. All required data about the production process have been delivered to Enperas by ETEX.

The composed datasets for this project are representative and relevant for Monalite® M1AT and Monalite® M1T produced by ETEX in Tisselt, Belgium.

3.7 Period under review

The data collected by ETEX are based on data from the period of one year between October 2020 and September 2021.

3.8 Geographic Representativeness

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

3.9 Allocation

No co-products are produced.
No secondary raw materials are used.
At ETEX's plant in Tisselt, different types of calcium silicate boards are produced.
For most of the production data, product specific data is available, as the data per production step or product line could be extracted. In this case, the data have been allocated to the declared unit using the annual production volume of that product in $m^{2.5}$ (i.e. 1 m^2 with a thickness of 5 mm is the reference unit in ETEX's factory). The last step was to recalculate the amount to the declared unit by multiplying with the mass ratio between 1 $m^{2.5}$ and 1 m^2 with the thickness declared in the EPD. This approach has been used for all inputs and outputs, except for water use/discharge and production waste-externally recycled.
For the water use/discharge only facility-level data were available. These have been allocated to the individual product using the annual production volume in kg. For the production waste-externally recycled, facility-level data were available for all the declared products together with two other Promat products of the Tisselt plant. These have been allocated to the individual product using the annual production volume in kg.

3.10 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. Ecoinvent 3.8 and Industry 2.0

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The Promat boards contain biogenic carbon in the form of cellulose (assumed 0,44 kg C/kg cellulose). Also, its packaging contains biogenic carbon in the form of cartons (assumed 0,44 kg C/kg carton) and wooden pallets (assumed 0,45 kg C/kg wood).

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.679	kg C
Biogenic carbon content in accompanying packaging	0.402	kg C

End of life (C1-C4)

In the EPD, both 100 % recycling and 100 % landfill scenario have been calculated. Recycling consists in

1. milling/crushing the boards
2. sieving out the fibres which will be incinerated and used as an energy source (to heat up the machine and dry the incoming waste)
3. the remaining powder (<100µm) will be used as a filler replacing limestone in concrete applications or fibre cement production.

Name	Value	Unit
Collected as mixed construction waste	38.19	kg
Recycling Scenario 1 (cellulose content is incinerated)	38.19	kg
Landfilling Scenario 2	38.19	kg

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

In module D, the benefits and loads beyond the system boundaries are quantified. For recycling, it concerns both the loads of the recycling processes after the end-of-waste and the benefits of the avoided virgin materials, when the recycled components are used for other purposes. In case of incineration, it concerns the benefits from the avoided production of energy grace to energy recovery.

Benefits of recycling the product in limestone production have been included in module D (avoided impact of limestone production and energy recovery from incineration of cellulose), together with some minor benefits and loads due to recycling and energy recovery of the packaging.

5. LCA: Results

Note that module A5 only waste treatment of the packaging of the final product includes. Installation itself has not been included, as a wide variety exists depending on the application.

Note that both 100 % recycling (scenario 1) and 100 % landfill (scenario 2) scenarios have been calculated.

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	MND	X	MND	MND	MNR	MNR	MNR	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m^2 Monalite® M1AT/Monalite® M1T

Parameter	Unit	A1-A3	A5	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
GWP-total	kg CO_2 eq	4.51E+01	6.26E-01	3.57E-01	3.19E-01	2.98E+00	0	0	2.74E+00	-9.02E-01	-2.72E-01
GWP-fossil	kg CO_2 eq	4.92E+01	1.63E-02	3.56E-01	3.19E-01	4.64E-01	0	0	2.32E-01	-6.91E-01	-6.22E-02
GWP-biogenic	kg CO_2 eq	-4.15E+00	6.09E-01	1.28E-04	1.14E-04	2.51E+00	0	0	2.51E+00	-2.11E-01	-2.09E-01
GWP-luluc	kg CO_2 eq	1.32E-02	5.39E-06	1.43E-04	1.27E-04	1.01E-03	0	0	1.71E-04	-8.74E-04	-2.68E-04
ODP	kg CFC11 eq	5.76E-06	2.73E-09	8.26E-08	7.38E-08	3.42E-08	0	0	8.58E-08	-8E-08	-7.33E-09
AP	mol H^+ eq	1.9E-01	8.06E-05	1.01E-03	9.05E-04	3.04E-03	0	0	2.04E-03	-3.82E-03	-2.72E-04
EP-freshwater	kg P eq	3.52E-04	1.51E-07	2.54E-06	2.27E-06	4.55E-05	0	0	7.11E-06	-3.1E-05	-4.26E-06
EP-marine	kg N eq	5.21E-02	3.3E-05	2.01E-04	1.8E-04	6.33E-04	0	0	6.98E-04	-9.87E-04	-6.79E-05
EP-terrestrial	mol N eq	5.67E-01	3.29E-04	2.24E-03	2E-03	7.16E-03	0	0	7.7E-03	-1.31E-02	-7.46E-04
POCP	kg NMVOC eq	1.58E-01	9.72E-05	8.62E-04	7.7E-04	1.91E-03	0	0	2.19E-03	-3.08E-03	-2.54E-04
ADPE	kg Sb eq	4.51E-05	3.24E-08	9.65E-07	8.63E-07	1.01E-06	0	0	5.49E-07	-1.71E-06	-1.7E-07
ADPF	MJ	6.02E+02	1.92E-01	5.4E+00	4.83E+00	9.41E+00	0	0	6.62E+00	-1.25E+01	-1.14E+00
WDP	m^3 world eq deprived	2.21E+00	1.08E-03	1.65E-02	1.47E-02	1.19E-01	0	0	3.1E-02	-1.03E-01	-3.38E-02

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 m^2 Monalite® M1AT/Monalite® M1T

Parameter	Unit	A1-A3	A5	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
PERE	MJ	1.95E+02	1.65E+00	7.6E-02	6.79E-02	1.38E+00	0	0	3.42E-01	0	0
PERM	MJ	3.7E+01	-3.64E+00	0	0	-2.19E+01	0	0	0	2.39E+01	1.99E+00
PERT	MJ	2.32E+02	-1.99E+00	7.6E-02	6.79E-02	-2.03E+01	0	0	3.42E-01	2.39E+01	1.99E+00
PENRE	MJ	6.67E+02	2.36E-01	5.43E+00	4.86E+00	9.56E+00	0	0	6.79E+00	0	0
PENRM	MJ	9.82E-02	-6E-02	0	0	0	0	0	0	2.83E-02	2.83E-02
PENRT	MJ	6.68E+02	1.68E-01	5.43E+00	4.86E+00	1.12E+01	0	0	6.79E+00	2.83E-02	2.83E-02
SM	kg	6E-03	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0
FW	m^3	1.26E+00	1.12E-04	3.97E-04	3.55E-04	7.78E-03	0	0	7.11E-03	-5.83E-03	-9.95E-04

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 m^2 Monalite® M1AT/Monalite® M1T

Parameter	Unit	A1-A3	A5	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
HWD	kg	9.07E-04	4.43E-07	1.41E-05	1.26E-05	5.03E-06	0	0	7.25E-06	-1.5E-05	-1.53E-06
NHWD	kg	1.29E+01	1.51E-01	2.83E-01	2.53E-01	6.02E-02	0	0	3.82E+01	-3.24E-02	-8.41E-03
RWD	kg	1.12E-03	1.24E-06	3.65E-05	3.26E-05	6.77E-05	0	0	4.52E-05	-5.16E-05	-4.82E-06

CRU	kg	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	1.39E-01	0	0	3.82E+01	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	1.68E-01	0	0	0	0	0	0	0	0
EET	MJ	0	3.35E-01	0	0	0	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 m^2 Monalite® M1AT/Monalite® M1T

Parameter	Unit	A1-A3	A5	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
PM	Disease incidence	7.17E-07	1.39E-09	2.86E-08	2.56E-08	1.42E-08	0	0	3.96E-08	-3.92E-08	-5.89E-09
IR	kBq U235 eq	8.29E-01	8.6E-04	2.35E-02	2.1E-02	8.16E-02	0	0	3.38E-02	-5.65E-02	-5.16E-03
ETP-fw	CTUe	3.08E+02	1.76E-01	4.24E+00	3.79E+00	8.73E+00	0	0	3.8E+00	-8.56E+01	-7.48E-01
HTP-c	CTUh	8.45E-09	4.02E-11	1.36E-10	1.22E-10	6.88E-10	0	0	1.1E-10	-1.89E-10	-3.03E-11
HTP-nc	CTUh	2.11E-07	2.54E-10	4.29E-09	3.83E-09	7.8E-09	0	0	2.23E-09	-5E-09	-7.05E-10
SQP	SQP	4.46E+02	1.87E-01	3.77E+00	3.37E+00	2.04E+00	0	0	1.25E+01	-2.49E+01	-2.33E+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.

6. LCA: Interpretation

The environmental profile shows the contribution of the various steps in the life cycle, per environmental impact category. For the declared products produced in Belgium, the manufacturing stage and raw materials used in the formulation mix have the highest contribution on all impact categories. Also, the transport of the raw materials to the factory is significant for several impact indicators.

7. Requisite evidence

8. References

Standards

EN 12467

EN 12467:2012+A2:2018, Fibre-cement flat sheets. Product specification and test methods

EN 13501-1

DIN EN 13501-1:2019-05: Fire classification of constructionproducts and building elements - Part 1: classification usingdata from reaction to fire tests

EN 14306

EN 14306:2009+A1:2013, Thermal insulation products forbuilding equipment and industrial installations. Factory madecalcium silicate (CS) products. Specification

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.

EN 16757

EN 16757:2017, Sustainability of construction works– Environmental product declarations – Product Category Rulesfor concrete and concrete elements

ISO 9001

ISO 9001:2015: Quality management systems — Requirements

ISO 14001

ISO 14001:2015: Environmental management systems — Requirements with guidance for use

ISO 14025

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

ISO 14040

ISO 14040:2006: Environmental management – Life cycleassessment –Principles and framework.

ISO 14044

ISO 14044:2006: Environmental management – Life cycle assessment – Requirements and guidelines.

ISO 45001

ISO 45001:2018:Occupational health and safety management systems Requirements with guidance for use

Further references

CPR

European Regulation N° 305/2011 (CPR)

ECHA candidate list

Candidate List of substances of very high concern (SVHCs) for authorisation, last update 26.07.2022, European Chemicals Agency (ECHA), Helsinki, Finland

Ecoinvent

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The literature referred to in the Environmental Product Declaration must be listed in full.Standards already fully quoted in the EPD do not need to be listed here again.
The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.

Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

Enperas
Thorpark 8300
3600 Genk
Belgium

+32 3 376 00 19
info@enperas.com
https://www.enperas.com/en/

Owner of the Declaration

Etex Building Performance International
Rue Marcel Demonque 500
84915 Avignon Cedex 9
France

+32 2 778 12 11
info@etexgroup.com
www.etexgroup.com