

ENVIRONMENTAL-PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	BOSTIK
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-BST-20230003-IBC1-EN
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Valid to	08.02.2028

Bostik Nordic Fibered Floor Preparation group
BOSTIK

EPD® International ref. number
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1. General Information

BOSTIK

Programme holder

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

Declaration number

EPD-BST-20230003-IBC1-EN

This declaration is based on the product category rules:

Mineral factory-made mortar, 08.03.2023
(PCR checked and approved by the SVR)

Issue date

09.02.2023

Valid to

08.02.2028



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Bostik Nordic Fibered Floor Preparation group

Owner of the declaration

BOSTIK
rue d'Estienne d'Orves 420
92705 Colombes Cedex
France

Declared product / declared unit

1kg of Bostik Nordic Fibered Floor Preparation product.

Scope:

The Environmental Product Declaration refers to Bostik Nordic Standard Floor Preparation group. Data and calculation values refer to the BOSTIK plant located in HELSINGBORG in Sweden. It is based on data from 2020 which complies with the annual average.

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



Vito D'Incognito,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Bostik Nordic Fibered Floor Preparation group includes the following Bostik products:

- SL C400 FIBER
- SL C500 FIBER QUICK
- SL C655 FIBER MAXI
- SL C700 FIBER QUICK+

They are self-levelling compounds based on a blend of cements, organic binders and fibres.
They are supplied in 20 kg bags, 1000 kg big bags and bulk.

There are no harmonised legal provisions at EU level for the use and application of these products. Swedish national provisions therefore apply.

Please select one of the following options and delete the header of the selected [alternative]:

[Alternative 1a: Product according to the CPR based on a hEN]:

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration EN xyz:date, title and the CE-marking.

For the application and use the respective national provisions apply.

[Alternative 1b: Products according to the CPR based on an ETA]:

For the placing of the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration ETA no. xyz:date, title and the CE-marking.

For the application and use the respective national provisions apply.

[Alternative 2a: Product not harmonised in accordance with the CPR but in accordance with other provisions for harmonisation of the EU]:

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- Directive no. xyz: date, title
- Regulation no. xyz: date, title
- and the harmonised standards based on these provisions:
- EN xyz: date, title

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above.

For the application and use the respective national provisions apply.

[Alternative 2b: Product harmonized as well in accordance with the CPR as with other provisions for harmonisation of the EU]:

For the placing of the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the Regulation (EU) No. 305/2011 (CPR) and the following other provisions for harmonisation apply:

- Directive (EU) xyz: date, title
- Regulation (EU) no. xyz: date, title

The product needs a declaration of performance in accordance with the CPR taking into consideration /EN xyz: date/, title or /ETA no. xyz/:date, title respectively and the CE-marking.

The CE-marking for the product takes into account the Declaration of Performance in accordance with the CPR and the proof of conformity with the following harmonised standards or based on the other provisions for harmonisation:

- EN xyz: date, title
- Source, date, title

For the application and use the respective national provisions apply.

[Alternative 3: 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, in Germany for example the building codes of the federal states and the corresponding national specifications.

2.2 Application

Bostik Nordic Fibered Floor Preparation products are versatile products, intended to improve reinforcement and thicker application. They can be used to correct irregular substrates up to 60 mm thick and are designed to work for slope building as well as preparation before carpet laying.

2.3 Technical Data

Bostik Nordic Fibered floor preparation products comply with the European standard EN 13813:2002, which specifies the performance requirements for these cementitious bases, in particular for compressive and flexural strengths. The density of the Bostik Nordic Fibered floor preparation products is between 1.6 and 1.8 g/cm³, other relevant technical data can be found in the Bostik technical documentation available on the Bostik website:

<https://bostikdsinternal.thewerco.com/>

Constructional data

Name	Value	Unit
Compressive strength	30	N/mm ²
Flexural strength	7 - 8	N/mm ²

Please select one of the following options and delete the header of the selected [alternative]:

[Alternative 1a: Product according to the CPR, based on a hEN]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN xyz:date, title.
- Voluntary data: source, date, title (not part of CE-marking).

[Alternative 1b: Product according to the CPR, based on an ETA]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *ETA no. xyz, date, title*.
- Voluntary data: *source, date, title* (not part of CE-marking).

[Alternative 2a: Product not harmonised in accordance with the CPR but in accordance with other provisions for harmonisation of the EU]:

Performance data of the product according to the harmonised standards, based on provisions for harmonization.

Voluntary data: *source, date, title* (not part of CE-marking).

[Alternative 2b: Product harmonized as well in accordance with the CPR as with other legal provisions of the EU]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN xyz: date, title* or *ETA no. xyz, date, title* respectively.
- Performance data of the product, based on the harmonised standards, in accordance with the other provisions for harmonization.
- Voluntary data: *source, date, title* (not part of CE-marking)

[Alternative 3: Product for which no legal provisions for harmonisation of the EU exist]:

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

2.4 Delivery status

Bostik Nordic Fibered floor preparation products are supplied in 20 kg bags, 1000 kg big bags of powdered product or in bulk. This powder must be mixed with the correct amount of water and homogenised before it is poured onto the floor.

2.5 Base materials/Ancillary materials

The composition of the products included in the Bostik Nordic Fibered floor preparation group is as follows:

- Filler materials: 70-80 %
- Inorganic binder: 20-25 %
- Additives: < 1 %
- Dispersion powder: < 3 %

Bostik Nordic Standard floor preparation products are low volatile organic compounds (VOC) emission products. They contribute to preserving the indoor air quality of the buildings. They are certified M1 Emission class according to "The building Information Foundation RTS" (Finland). Cf. Certificates n°3863 and 3864 of the 17th February 2022.

REACH regulation:

- 1) This product contains substances listed in the candidate list (date: 05.09.2022) exceeding 0.1 percentage by mass: no.
- 2) This product 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.
- 3) 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.

Bostik products have safety data sheets that can be consulted at: <https://bostiksdcs.thewerco.com/default.aspx>.

For Bostik, substances, contained in the Floor preparation products, which incorporate more than 0.1 % according to the candidate list of the *REACH* regulation, are indicated in chapters 3 and 15 of the Safety Data Sheet. In this study, Bostik Nordic Floor Preparation products do not contain SVHC > 0.1 %.

2.6 Manufacture

The Nordics Standard floor preparation products are manufactured in batch operation from the ingredients and packed into the packaging, in Bostik Helsingborg plant (Sweden). The plant is certified to the Quality Management System in accordance with *EN ISO 9001*.

2.7 Environment and health during manufacturing

Whenever dust is produced in the factory, it is directed to a filtration system, taking into account the limit values applicable to the workplace and using the corresponding extraction facilities.

Powder residue: Residual product is returned to the production process as far as possible.

Air: The process air is dedusted independently, with values well below the legal requirements.

Water: The production process does not use water.

Noise: The noise level in the production facility is below the required legal limit.

Waste: The main types of waste are powdered wastes, which are disposed of as inert material in landfills.

2.8 Product processing/Installation

Nordic floor preparation products are automatically removed from a silo or manually taken from the bags, mixed with the right amount of water and homogenized, before pouring on the floor. The spread is made with a trowel depending on local circumstances.

The products are supplied in powder form and frequent inhalation of this type of dust over a long period of time increases the risk of developing lung disease. Therefore, during the installation of the product, this risk should be avoided by taking personal protective measures as indicated in the safety data sheet.

Due to the different contents of cement hydrates, binders and quartz in the powdered product, it is generally strongly alkaline when mixed with water. In case of prolonged contact, this alkaline state can cause severe damage to the eyes and skin. Therefore, any contact with the eyes or skin should be avoided by taking personal protective measures, and the information described in the safety data sheet should be followed.

All hazards and protective measures are listed in the safety data sheet for each product and are available at: <https://bostiksdcs.thewerco.com/default.aspx>.

2.9 Packaging

Bostik Nordic Fibered floor preparation products are packaged in 20 kg bags or 1000 kg big bags, or available in bulk. 20 kg sacks were modelled as packaging (worst case approach) and their composition (90 % of paper and 10 % of polyethylene) was taken into account in modelling. The pallets of 20 kg bags are shrink-wrapped (with PE-film) and unloaded from the conveyor by forklifts truck before being sent to the customer.

2.10 Condition of use

Nordic floor preparation products are durable when used in accordance with the recommended application and the

designated purpose. No environmental impact is incurred by the product during use.

2.11 Environment and health during use

BOSTIK Nordic Fibered Floor Preparation product emissions have been approved by "The building Information Foundation RTS" (Finland) and classified M1 Emission class (Certificates of the 17th February 2022).

The decision is in line with the requirements laid down in the Classification of Indoor Climate 2018 and the Classification of Building Materials: General Rules.

No risks are known for water and soil if the products are used as designated.

2.12 Reference service life

The service life of Floor Preparation products is based on the service life of the concrete on which it is installed.

According to the Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR) table "Service lives of components for life cycle assessment according to BNB", the service life of Floor Preparation products is > 50 years.

(<https://www.nachhaltigesbauen.de/austausch/nutzungsdauern-von-bauteilen/>)

Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

According to *Commission Decision 94/611/EC*, modified mineral binders with finely distributed organic components must always be classified in reaction to fire class A1 "No contribution to fire" according to *EN 135011*.

Fire protection

Name	Value
Building material class	
Burning droplets	
Smoke gas development	

Water

BOSTIK Nordic Fibered Floor Preparation product is stable in terms of structure and is not subject to any changes in form when exposed to water and drying. No substances are washed out which could be hazardous to water.

Mechanical destruction

The mechanical destruction of BOSTIK Nordic Fibered Floor Preparation products does not generate any decomposition products harmful to the health or the environment. Any dust emissions that may be generated must be avoided by appropriate measures (e.g. humidification).

2.14 Re-use phase

There is no reuse, recovery or recycling of our product.

2.15 Disposal

The Bostik Nordic Fibered floor preparation products are inert waste whose end-of-life depends on its support. In this case, the support is concrete, also an inert waste, so its end-of-life is considered to be an inert landfill (100 %).

The following waste code according to the *European List of Waste (2003/33/EC)* can apply:

Mineral filler and levelling compound: *EW C 17 01 07*.

2.16 Further information

Technical and safety data sheets, VOC Emission certificates, and further information are available at <https://www.bostik.com/>

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to the declared unit of 1 kg of Bostik Nordic Fibered floor preparation group, applied into the building with a density of 1.6 and 1.8 kg/m³ in accordance with the *IBU PCR part B* for Mineral Factory-Made Mortars.

The LCA has been calculated for each product in the group and this EPD gives the impacts average of the group.

The functional unit is the average quantity of product applied per m². This quantity depends on the thickness of the levelling required. Together with the productivity and the conversion factor, this functional unit can be calculated which gives a better view of the impact of the products.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	1.6 - 1.8	kg/m ³
Productiveness	32	kg/m ²
Conversion factor to 1kg	0.03	-

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.

3.2 System boundary

This LCA is published as a cradle-to-grave EPD, according to the *EN15804* and includes the modules A1-A3, A4, A5, C2, C4 and D:

- A1 Extraction/ production of raw materials, packaging and auxiliaries,
- A2 Transport of the raw materials to the plant,
- A3 Production, including energy, auxiliaries, packaging and waste treatment.

According to the *EN 15804+A2*, modules A1, A2 and A3 are declared as an aggregated module A1-A3.

- A4 Transport of the product to the construction site,
- A5 Product installation into the building, with also water consumption and packaging and waste water disposal (incineration for packaging materials),
- C2 Transport to waste processing (while deconstruction with concrete in place)
- C4 Inert product landfilling,
- D Credits from incineration of packaging materials.

3.3 Estimates and assumptions

Where no specific *GaBi* processes were available, the individual recipe ingredients of formulation were estimated on the basis of information provided by the manufacturer or literary sources.

3.4 Cut-off criteria

All raw materials submitted for the formulations including transport and packaging and production data were taken into consideration. The manufacture of machinery, plants and other infrastructure required for the production of the products under review, as well as energies were not taken into consideration in

the LCA.

3.5 Background data

Data from the *Gabi* professional database (2022.2) and *ecoinvent* 3.8 database were used as background data. The information about the documentation is available in *Gabi* documentation online: <https://sphera.com/product-sustainability-gabi-data-search/>

3.6 Data quality

Specific products were calculated for this EPD and the average values were calculated for the LCA results of the group. Sensitivity analysis confirmed the deviation within the group is < 20 %.

The basic datasets are less than 5 years old, and key raw materials data were provided by suppliers. Production data and packaging are based on details provided by the manufacturer.

3.7 Period under review

Reference year for manufacturing data, the average distance to customers (in A4): year 2020.

Reference year for formulation products: 2022.

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: Sweden

3.9 Allocation

No allocations were applied for production. A multiinput allocation with a credit for electricity and thermal energy was used for the incineration of packaging materials. The credits achieved through packaging disposal are declared in Module D.

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.

The used background database has to be mentioned.

4. LCA: Scenarios and additional technical information

Characteristic product properties

Information on biogenic carbon

Our products do not contain any biobased materials. Therefore, the biogenic carbon content of Bostik Nordic Fibered floor preparation products is zero.

As mentioned in the 2.9 part, the finished products are sold in 20 kg bags and we consider the biogenic carbon of the wood pallets and the paper bags.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.00189	kg C

The use of packaging material is declared in this EPD in Module A3.

Module A5 declares the disposal of the packaging materials on the construction site.

Transport to the building site (A4)

Name	Value	Unit
Transport distance	600	km
Capacity utilisation (including empty runs)	55	%
Gross density of products transported	1.6 - 1.8	kg/m ³
Payload capacity	17.3	t

Installation into the building (A5)

Name	Value	Unit
Water consumption	0.0021	m ³
Electricity consumption	0.0173	kWh
Material loss	-	kg

Losses During application:

- The powder products are delivered in bulk, losses are therefore considered to be negligible.
- The applied product (powder + water), the walls of the buckets are scraped so that there is no loss of product; losses are considered negligible.

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)

Name	Value	Unit
Collected as mixed construction waste	1.21	kg
Landfilling as inert matter	1.21	kg

The value above 1 kg is due to the use of water during the assembly step.

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

Name	Value	Unit
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The Nordics floor preparation products have no considerable benefits due to recycling or/and reuse.

For the different incineration credits (electrical and thermal) they are considered and included in the calculation.

5. LCA: Results

In Table 1 "Description of the system boundary", all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND" (As default the modules B3, B4, B5 are marked as MNR – module not relevant). In the following tables, columns can be deleted for modules that are not declared. Indicator values should be declared with three valid digits (eventually using exponential form (e.g. 1,23E-5 = 0,0000123). A uniform format should be used for all values of one indicator.

If several modules are not declared and therefore have been deleted from the table, the abbreviations for the indicators can be replaced by the complete names, while the readability and clear arrangement should be maintained; the legends can then be deleted. If due to relevant data gaps, an indicator cannot be declared in a robust way, then the abbreviation "IND" (indicator not declared) should be used for this indicator.

- 0 - calculated value is 0
- 0 - value falls under the cut-off
- 0 - assumption which exclude any flows (e.g. exported electricity A1-A3)
- IND – in cases where the inventory does not support the methodological approach or the calculation of the specific indicator IND shall be used.

If no reference service life is declared (see chapter 2.13 "Reference Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall then be indicated as an explanatory text below the tables. In addition, the formula for the quantification of such B-modules over the total life cycle shall be provided.

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 kg of Bostik Nordic Fibered floor preparation group (impacts average)

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	2.59E-01	5.09E-02	9.86E-03	0	5.14E-03	0	1.76E-02	-2.01E-03
GWP-fossil	kg CO ₂ eq	2.66E-01	4.98E-02	2.67E-03	0	5.03E-03	0	1.81E-02	-2E-03
GWP-biogenic	kg CO ₂ eq	-7.39E-03	8.32E-04	7.19E-03	0	8.4E-05	0	-5.36E-04	-1.58E-06
GWP-luluc	kg CO ₂ eq	1.13E-03	2.83E-04	1.34E-07	0	2.86E-05	0	3.34E-05	-1.34E-07
ODP	kg CFC11 eq	3.65E-09	3.04E-15	2.83E-15	0	3.07E-16	0	4.25E-14	-2.18E-15
AP	mol H ⁺ eq	8.46E-04	3.02E-04	2.55E-06	0	3.05E-05	0	1.28E-04	-1.24E-06
EP-freshwater	kg P eq	1.27E-05	1.52E-07	3.74E-08	0	1.53E-08	0	3.06E-08	-3.83E-09
EP-marine	kg N eq	3.02E-04	1.48E-04	1E-06	0	1.5E-05	0	3.28E-05	-4.57E-07
EP-terrestrial	mol N eq	3.1E-03	1.64E-03	1.09E-05	0	1.66E-04	0	3.6E-04	-4.59E-06
POCP	kg NMVOC eq	7.15E-04	2.81E-04	2.26E-06	0	2.83E-05	0	9.96E-05	-1.21E-06
ADPE	kg Sb eq	4.68E-07	4.24E-09	1.64E-10	0	4.28E-10	0	1.85E-09	-1.71E-10
ADPF	MJ	3.39E+00	6.78E-01	1.83E-02	0	6.85E-02	0	2.37E-01	-4.88E-02
WDP	m ³ world eq deprived	5.41E-02	4.55E-04	-3.59E-06	0	4.6E-05	0	1.98E-03	-1.57E-04

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 kg of Bostik Nordic Fibered floor preparation group (impacts average)

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5.15E-01	3.86E-02	1.48E-02	0	3.89E-03	0	3.55E-02	-1.72E-02
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	5.08E-01	3.86E-02	1.48E-02	0	3.89E-03	0	3.55E-02	-1.72E-02
PENRE	MJ	3.57E+00	6.8E-01	1.83E-02	0	6.86E-02	0	2.37E-01	-4.88E-02

PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	3.4E+00	6.8E-01	1.83E-02	0	6.86E-02	0	2.37E-01	-4.88E-02
SM	kg	9.63E-06	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	4.92E-02	0	0	0	0	0	0	0
FW	m ³	1.45E-03	4.36E-05	2.17E-04	0	4.4E-06	0	6.01E-05	-2.66E-05

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 kg of Bostik Nordic Fibered floor preparation group (impacts average)

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.95E-06	3.26E-12	6.76E-13	0	3.29E-13	0	1.22E-11	-2.99E-12
NHWD	kg	2.13E-02	9.75E-05	3.01E-04	0	9.84E-06	0	1.21E+00	-2.79E-05
RWD	kg	8.79E-05	8.38E-07	6.19E-06	0	8.45E-08	0	2.63E-06	-7.29E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	1.58E-02	0	0	0	0	0
EET	MJ	0	0	2.85E-02	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 kg of Bostik Nordic Fibered floor preparation group (impacts average)

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	9.3E-09	1.75E-09	1.63E-11	0	1.76E-10	0	1.58E-09	-1.06E-11
IR	kBq U235 eq	1.6E-02	1.23E-04	7.24E-04	0	1.24E-05	0	2.92E-04	-8.44E-04
ETP-fw	CTUe	1.73E+00	4.71E-01	1.48E-02	0	4.75E-02	0	1.33E-01	-1.03E-02
HTP-c	CTUh	5.59E-11	9.52E-12	5.17E-13	0	9.61E-13	0	2.02E-11	-4.34E-13
HTP-nc	CTUh	3.37E-09	5.65E-10	2.56E-11	0	5.7E-11	0	2.24E-09	-8.5E-12
SQP	SQP	1.4E+00	2.33E-01	1.02E-02	0	2.36E-02	0	4.92E-02	-1.15E-02

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, from 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 production stage (A1-A3) is the most impactful step in the product life cycle. Its relative contribution is over 70 % in some categories (such as GWP-total, ODP, WDP, ...). The most significant contribution is the extraction/manufacturing of raw materials, with the main contribution coming from cements and dispersible powders; and to a lesser extent to their transport. The Global Warming Potential (GWP) and Acidification Potential (AP) are dominated by the cement contribution (ca. 50

%) and dispersible powders (ca. 20 %), even if they are used only up to 1 %. Only the Ozone Depletion Potential (ODP) is not dominated by cements, they only account for less than 0.01 % but by the dispersible powders and the lithium carbonate which account for 49 % and 25 % respectively. Transport of the finished product (A4) represents around 20 % of the total impact and the end of life (C1-C4) less than 10 %.

7. Requisite evidence

7.1 VOC emissions

BOSTIK Nordic Fibered Floor Preparation product emissions have been approved by “The building Information Foundation RTS” (Finland).

Results: Classified M1 Emission.

Certificates n°3863 and n°3864 of the 17th February 2022

(classification valid until 28.01.2025). 7.1 Leaching Measurement of leaching performance (eluate analysis) indicating the measurement process.

Example:

based on DIN EN 12457/1-4 or DIN/CEN TS 14405 combined with the Council decision dated 19.12.2002 (2002/33/EC).

8. References

DIN EN 12457-1

DIN EN 12457-1:2003-01, Characterization of waste - Leaching; Compliance test for leaching of granular and sludges - Part 1: One stage batch test at a liquid to solid ration of 2 l/kg with particle size below 4 mm (without or with size reduction)

DIN EN 12457-2

Characterization of waste - Leaching - Compliance test for leaching of granular waste materials and sludges – Part 2: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 4 mm (without or with size reduction)

DIN EN 12457-3

Characterization of waste - Leaching - Compliance test for leaching of granular waste materials and sludges – Part 3: Two stage batch test at a liquid to solid ratio of 2 l/kg and 8 l/kg for materials with high solid content and with particle size below 4 mm (without or with size reduction)

DIN EN 12457-4

Characterization of waste - Leaching - Compliance test for leaching of granular waste materials and sludges – Part 4: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 10 mm (without or with size reduction)

EN 13813

EN 13813: 2002, Screed material and floor screeds - Screed material - Properties and requirements.

EN 135011

Commission Decision 94/611/EC

ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 14040

DIN EN ISO 14040: 2006, Environmental management – Life cycle assessment – Principles and framework.

ISO 14040

ISO 14040:2006 (German and English versions EN)

ISO 14044

DIN EN ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines (ISO 14044:2006); German and English versions EN ISO 14044:2006.

EN 15804

EN 15804:2012-04+A2 2013, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 15804

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

Further References

AgBB

AgBB: German Committee for Health-Related Evaluation of Construction Products Health-related evaluation of emissions by volatile organic compounds (VOC and SVOC) from construction products; valid as of June 2012.
www.umweltbundesamt.de/produkte/bauprodukte/agbb.htm

Commission Decision 94/611/EC

COMMISSION DECISION of 9 September 1994 implementing Article 20 of Directive 89/106/EEC on construction products (94/611/EC).

ecoinvent

ecoinvent 3.8: Life Cycle Inventory Database (Life Cycle Inventory Data), Version 3.8.

European List of Waste

2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

European Waste Code (EWC)

European Waste Catalog established by Commission decision 2000/532/EC.
<http://www.environment-agency.gov.uk/>

GaBi documentation

Gabi documentation is available on the website:
<https://sphaera.com/product-sustainability-gabi-data-search/>

Gabi® Software

Software of Sphaera, version 2022.2, Professional and Ecoinvent 3.8 databases.
Leinfelden-Echterdingen: Sphaera Solutions GmbH.

IBU 2021

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

IBU PCR Part A

Calculation Rules for the Life Cycle Assessment and Requirements on the Project report according to EN 15804+A2:2019– PCR 2020, Version 1.3 Part A: 2022-08-31.

IBU PCR Part B

Requirements on the EPD for Mineral factory-made mortar - PCR 2012, Version 1.6, Part B: 2017-11-30 & Version 1.1, Specific: 2022-09-23.

Photo Credits

Bostik.

REACH Regulation

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93, Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, 2006-12

The Building Information Foundation RTS

The Building Information Foundation RTS in Finland is a private and non-profitmaking Foundation, whose task is to foster both good planning and building methods and good property management practices. Through 54 associations and organisations, the Foundation represents the entire building

and construction industry.

<https://login.rakennustieto.fi/index/english.html>

<https://cer.rts.fi/rakennusmateriaalien-paastoluokitus-m1/>

The decision is in line with the requirements laid down in the Classification of Indoor Climate 2018 and the Classification of Building Materials: General rules.

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