

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 AND EN 15804:A2:2019/AC:2021

SmartEPD-2024-026-0136-01

Nullifire FB750



 **TREMCO**
Construction Products Group



Date of Issue:
Jun 11, 2024

Expiration:
Jun 11, 2029

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General Information

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Product Name:	Nullifire FB750
Declared Unit:	1 m2
Declaration Number:	SmartEPD-2024-026-0136-01
Date of Issue:	June 11, 2024
Expiration:	June 11, 2029
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EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, B1, C1 - C4, D
Market(s) of Applicability:	Europe

Reference Standards

Standard(s):	ISO 14025 and EN 15804:A2:2019/AC:2021
Core PCR:	EPD International AB EPD International PCR for Construction Products 2019:14 (EN 15804:A2:2019/AC:2021) v.1.3.2 Date of issue: December 08, 2023 Valid until: December 20, 2024
Sub-category PCR review panel:	 Contact Smart EPD for more information.
General Program Instructions:	 Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

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Verification:

Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071 :

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Independent external verification of EPD, according to ISO 14025 and reference PCR(s) :

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Limitations, Liability, and Ownership

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804+A2, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804+A2 and ISO 14025.

The primary goal of this EPD is to serve as a business-to-business communication tool, however, as the results will be made publicly available, it can also serve as a business-to-consumer communication tool.

Organization Information

For nearly 50 years, Nullifire has developed smart fire protection solutions. We are specialists with one focus that has not and will not change, to protect people and buildings from fire.

The only manufacturer of both intumescent coatings and fire stopping products, Nullifire's continuous investment in research and development allows us to remain at the forefront of innovation when it comes to passive fire protection. Offering a wide range of passive fire protection products to suit your project requirements, our team are on hand to help every step of the way.

A brand of Tremco CPG UK, we pride ourselves on excellence in customer service, technical support, and service delivery. Working in unison with our sister brands, here at Nullifire we can offer an array of construction products for all stages of your projects.

With an experienced technical and sales team, we are positioned to aid with specification, application-specific product development, problem solving and assistance on-site. So, when it comes to protecting the entire building envelope, we are the best choice for single-source products, services, and solutions.

Further information can be found at: <https://www.nullifire.com/en-gb/about-us/>

Product Description

FB750 Intubatt is a lightweight fire barrier comprising of a rock mineral fibre board with an uniquely identifiable ablative coating, containing Optifire™ unique traceability identifier. FB750 is designed to reinstate the fire performance of compartment walls and floors which have been breached by penetrating services, providing a fire, smoke, thermal, acoustic and air pressure seal.

FB750 must be used in conjunction with FS702 Intumastic to be suitable for sealing around the following service types: non-combustible pipes, cable trays, ladders and baskets (perforated or non-perforated), armoured cables, data cables, HV cables, cable bundles up to 100 mm.

FB750 can be used on flexible walls & rigid walls (90 mm or wider), rigid floors (150 mm or wider), beneath raised access floors / suspended floors and ceiling voids, as a continuation of the fire compartment.

When used with a Nullifire closer device (FS709 HP, FP302 Intustrap, FP220 Service Sleeve, FP170 Intucollar), FB750 Intubatt also becomes suitable for penetrating combustible services & conduits such as PVC, PE, PP, HDPE, PPR, PEX, Uponor and combustible ducting.

FB750 has also been tested to fire protect the underside of loaded timber floors for up to 120 minutes (BS 476 Pt 21). Typical areas of use include: health and leisure facilities, schools, universities, commercial buildings, hospitals, retail and industrial units and nuclear power plants.

Further information can be found at: <https://www.nullifire.com/en-gb/products-systems/product-finder/fb750-intubatt-coated-batt/#product-details-about>

Product Information

Declared Unit:	1 m2
Mass:	9.95 kg
Reference Service Life:	60 Years
Product Specificity:	✗ Product Average ✓ Product Specific

Averaging:

Averaging was not conducted for this EPD.

Plants



Tremco - Wigan

Tremco Illbruck Coatings Ltd, Coupland Road, Hindley Green, Wigan, UK

Product Specifications

Product SKU(s):	FB750345146, FB750502465
Product Classification Codes:	EC3 - ThermalMoistureProtection -> Insulation -> BoardInsulation Masterformat - 07 81 33

Material Composition

Material/Component Category	Origin	% Mass
Mineral Board	RoW	70-90
Coating	RoW	10-30

Packaging Material	Origin	kg Mass
LDPE bag	RER	9.79E-02
Wood Pallet	RER	3.47E-01
Pallet Wrap	RER	1.45E-02

Biogenic Carbon Content	kg C per m2
Biogenic carbon content in product	None
Biogenic carbon content in accompanying packaging	0.144

Hazardous Materials
The product does not contain any substances from the Candidate List of Substances of Very High Concern (SVHC)f or authorisation in amounts greater than 0,1%(1000ppm).

EPD Data Specificity

Primary Data Year:	2023
Manufacturing Specificity:	✗ Industry Average ✗ Manufacturer Average ✓ Facility Specific

Software and LCI Data Sources

LCA Software:	 SimaPro v. 9.5
LCI Foreground Database(s):	 Ecoinvent v. 3.9.1
LCI Background Database(s):	 Ecoinvent v. 3.9.1

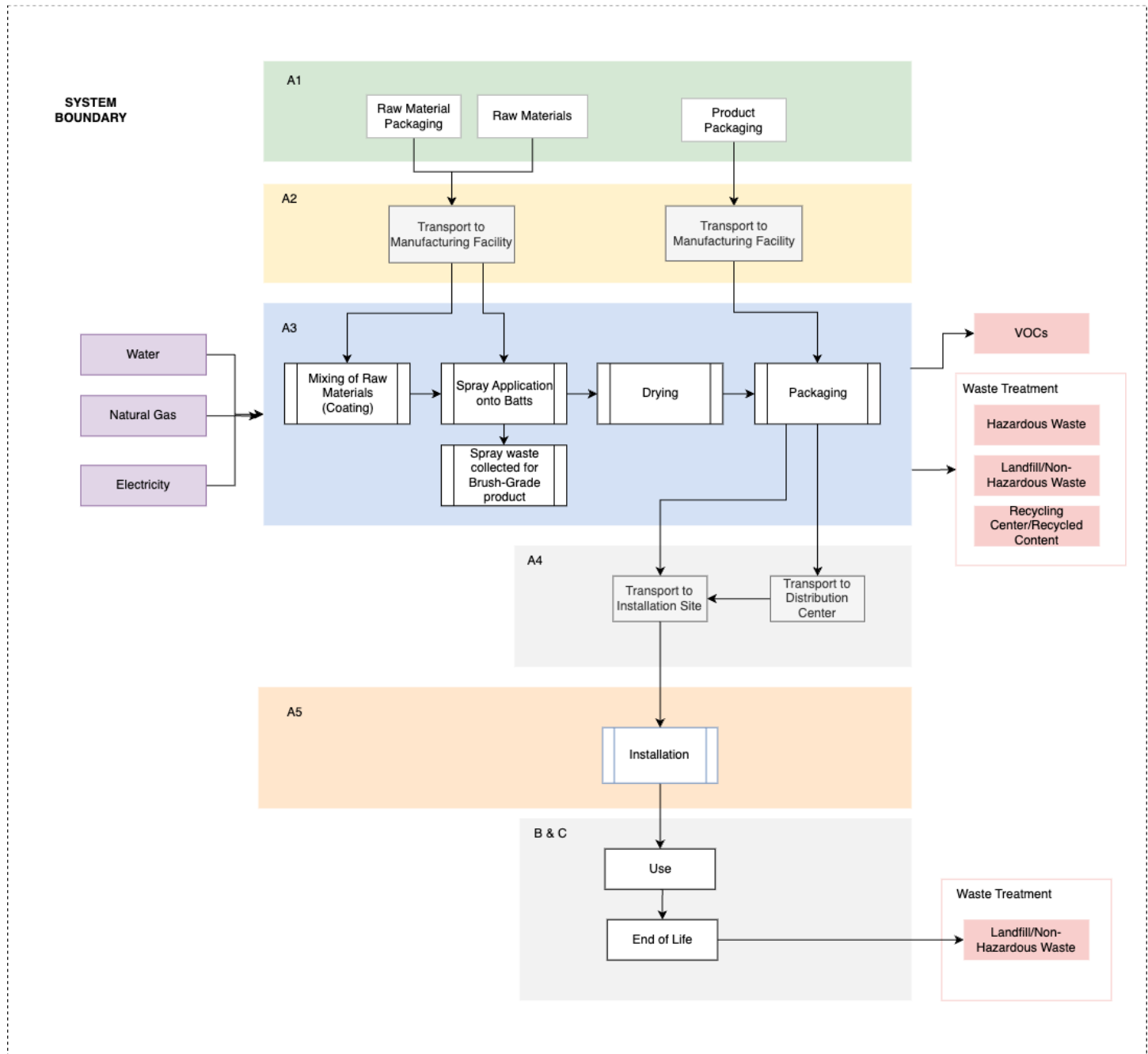
Renewable Electricity

Renewable electricity is used:	No
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System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	✓
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	✓

Product Flow Diagram



Life Cycle Module Descriptions

The upstream phase includes raw materials and packaging production which are required for Nullifire FB750 (phase A1). All materials are transported to the production site (Wigan, UK) where they are being used (phase A2). The coating component is produced by mixing and blending the coating raw materials. It is then spray-applied

on the mineral fibre board and put through a drying tunnel. Finally it is packaged in a clear plastic film bag (phase A3). Tremco tracks energy usage on major equipment used in the manufacturing process. The impact of infrastructure and capital goods was excluded from the LCA, as it is explicitly accepted in PCR 2019:14. Most of the product is shipped in wood pallets to a single distribution centre and then directly to construction sites throughout the UK. Remaining product is shipped directly to construction sites in Europe with a small percentage in the Far East (phase A4). The product is then used at the building sites to reinstate the fire performance of compartment walls and floors that have been breached by penetrating services (phase A5). Once installed, there are limited impacts associated with the end use stage (B1). Modules Calculations were made based on a 3rd party VOC emissions test for Nullifire FB750 dated 2017. Modules B2-B7 were not declared as no maintenance, repair, replacement, refurbishment or operation energy or water use are usually associated with the use phase of the product. At end of life, the product is assumed to be 100% landfilled (C1-C4). For these modules we considered only the transport (C2) and disposal (C4) impacts as deconstruction (C1) and preprocessing (C3) impacts are deemed immaterial for the product, because deconstruction is manual and no significant pre-processing needs are deemed necessary for landfilling. D module is also declared, but as the materials that go to recycling do not reach the end-of-waste when they cross the system boundaries, no impacts beyond the system boundaries need to be accounted for.

LCA Discussion

Allocation Procedure

To the extent it was possible, no allocation was performed at the foreground in this study, The Intucoat coating mixture that is applied to the mineral fibre board is also spray applied to other products, but the exact quantity applied to the board is known, so no allocation is needed. Excess coating is collected and packaged into a brush-grade product. Electricity and fuel input values were based on the specific equipment used. The process have sensors on major equipment, including the sprayer and conveyor (where electricity is used) and the drying tunnels (where natural gas is consumed). Only the water consumption needs to be allocated among co-products using mass as allocation criterion. Water use was estimated based on mass allocation based on the products manufactured in Wigan in the reference period, (20% of total water allocated to the Intucoat clean-up; 90% of which is allocated to FB750 batt). No declaration of loads and benefits in Module D from allocated flows leaving the product system, as waste flows do not achieve the end-of-waste status when they leave the system boundaries. Capital goods and infrastructure were not considered within the scope of this life cycle assessment.

Cut-off Procedure

A cut-off rule of 1% was applied to all raw materials, packaging materials, energy, water and waste flows.

Data Quality Discussion

All raw material input data, core production process and packaging come from primary quality data for quantities and materials. This high-quality primary data also applies for upstream transportation. Regarding the life cycle inventory modelling of raw materials, secondary data from the well-known and internationally accepted ecoinvent 3.9.1 repository was used for all.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, EF3.1

per 1 m2 of product.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Method	Unit	A1A2A3	A4	A5	B1	C1	C2	C3	C4	D
GWP-total	IPCC AR5 GWP 100	kg CO2 eq	1.61e+1	2.10e-1	6.84e-1	0	0	5.79e-2	0	5.06e+0	0
GWP- total	EF3.1	kg CO2 eq	1.61e+1	2.10e-1	6.84e-1	0	0	5.79e-2	0	5.06e+0	0
GWP- fossil	EF3.1	kg CO2 eq	1.66e+1	2.10e-1	9.66e-3	0	0	5.78e-2	0	3.40e-1	0
GWP-biogenic	EF3.1	kg CO2 eq	-5.19e-1	1.92e-4	6.75e-1	0	0	5.29e-5	0	4.72e+0	0
GWP-luluc	EF3.1	kg CO2 eq	1.50e-2	1.04e-4	3.89e-6	0	0	2.85e-5	0	1.37e-4	0
ODP	EF3.1	kg CFC11 eq	4.07e-6	4.56e-9	6.34e-11	0	0	1.26e-9	0	2.21e-9	0
AP	EF3.1	mol H+ eq	1.12e-1	4.74e-4	3.05e-5	0	0	1.26e-4	0	1.07e-3	0
PM	EF3.1	disease incidence	7.97e-7	1.55e-8	3.94e-10	0	0	4.29e-9	0	1.38e-8	0
IRP	EF3.1	kBq U235 eq	4.35e-1	1.51e-3	8.68e-5	0	0	4.16e-4	0	3.06e-3	0
POCP	EF3.1	kg NMVOC eq	1.58e+1	7.23e-4	6.56e-5	9.27e-11	0	1.96e-4	0	2.31e-3	0
EP-fw	EF3.1	kg P eq	2.02e-4	1.70e-6	9.47e-7	0	0	4.69e-7	0	3.34e-5	0
EP-marine	EF3.1	kg N eq	1.07e-2	1.17e-4	2.25e-4	0	0	3.11e-5	0	7.94e-3	0
EP-terrestrial	EF3.1	mol N eq	3.25e-1	1.22e-3	8.65e-5	0	0	3.24e-4	0	3.04e-3	0
SQI	EF3.1	dimensionless	2.01e+1	1.80e+0	1.06e-1	0	0	4.96e-1	0	3.74e+0	0
WDP	EF3.1	m3 world eq deprived	3.78e+0	1.23e-2	2.13e-3	0	0	3.38e-3	0	7.50e-2	0
ADP-fossil	EF3.1	MJ, net calorific value	2.43e+2	2.98e+0	6.14e-2	0	0	8.21e-1	0	2.15e+0	0
ADP-minerals&metals	EF3.1	kg Sb eq	3.91e-5	6.84e-7	1.12e-8	0	0	1.89e-7	0	3.92e-7	0
ETP-fwio	EF3.1	CTUe	6.25e+1	1.42e+0	4.52e-1	0	0	3.91e-1	0	1.59e+1	0
ETP-fwo	EF3.1	CTUe	1.42e+2	5.35e-2	2.68e-3	2.34e-11	0	1.47e-2	0	9.44e-2	0
HTP-cio	EF3.1	CTUh	4.08e-9	4.66e-11	4.85e-12	0	0	1.28e-11	0	1.71e-10	0
HTP-co	EF3.1	CTUh	3.59e-8	4.90e-11	8.66e-13	5.57e-22	0	1.35e-11	0	3.03e-11	0
HTP-ncio	EF3.1	CTUh	1.52e-7	2.00e-9	7.93e-11	0	0	5.51e-10	0	2.79e-9	0
HTP-nc	EF3.1	CTUh	9.91e-7	1.13e-10	1.81e-10	1.80e-19	0	3.12e-11	0	6.39e-9	0

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particulate Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

This EPD includes results beyond the product stage (A1-A3); in such cases, when evaluating or comparing EPD results the entire life cycle module should be considered.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 m2 of product.

Indicator	Unit	A1A2A3	A4	A5	B1	C1	C2	C3	C4	D
PERE	MJ	2.27e+1	4.68e-2	2.87e-3	0	0	1.29e-2	0	1.01e-1	0
PERM	MJ	9.87e+0	0	0	0	0	0	0	0	0
PERT	MJ	3.26e+1	4.68e-2	2.87e-3	0	0	1.29e-2	0	1.01e-1	0
PENRE	MJ	2.34e+2	2.98e+0	6.14e-2	0	0	8.21e-1	0	2.15e+0	0
PENRM	MJ	8.17e+0	1.49e-4	4.83e-6	0	0	4.12e-5	0	1.70e-4	0
PENRT	MJ	2.42e+2	2.98e+0	6.14e-2	0	0	8.21e-1	0	2.15e+0	0
SM	kg	2.27e+0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
RE	MJ	0	0	0	0	0	0	0	0	0
FW	m3	1.17e-1	3.67e-4	5.40e-5	0	0	1.01e-4	0	1.90e+0	0

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRM or PENRT = Total non-renewable primary resources with energy content, SM: Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 1 m2 of product.

Indicator	Unit	A1A2A3	A4	A5	B1	C1	C2	C3	C4	D
HWD	kg	2.35e-3	7.45e-5	1.35e-4	0	0	2.06e-5	0	4.76e-3	0
NHWD	kg	2.38e+0	1.48e-1	1.78e-1	0	0	4.08e-2	0	6.28e+0	0
RWD	kg	4.61e-3	9.78e-7	5.49e-8	0	0	2.70e-7	0	1.93e-6	0
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals
per 1 m2 of product.

Indicator	Unit	A1A2A3	A4	A5	B1	C1	C2	C3	C4	D
BCRP	kg CO2	0	0	0	0	0	0	0	0	0
BCEP	kg CO2	0	0	0	0	0	0	0	0	0
BCRK	kg CO2	5.27e-1	0	0	0	0	0	0	0	0
BCEK	kg CO2	0	0	5.27e-1	0	0	0	0	0	0
BCEW	kg CO2	0	0	0	0	0	0	0	0	0

Abbreviations:
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	24.59 l/100km
Vehicle Type:	Truck
Transport Distance:	813.4871272 km
Capacity Utilization:	36.67 %
Packaging Mass:	0.45964325 kg
Weight of products transported:	8.867 kg
Capacity utilization volume factor:	<1
Assumptions for scenario development:	Weight of product transported, correspond to the packaging, the board and the wet coating. Most of the product is shipped to a single distribution centre and then directly to construction sites throughout the UK. Remaining product is shipped directly to construction sites in Europe with a small percentage in the Far East
Transport by sea:	44.54211735 km

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	2 %
Product Lost per Functional Unit:	0.177 kg
Mass of Packaging Waste Specified by Type:	0.46 kg
Biogenic Carbon Contained in Packaging:	0.144 kg

Reference Service Life

B1 Module

RSL: 60 Years

Declared Product Properties:

Product Classification and Description

Nullifire FB750 is a fire protecting panel that falls under the MasterFormat classification 07 81 33 Fire and Smoke Protection: Applied Fireproofing: Mineral-Fiber Fireproofing. It is a single product formed from a mineral wool fibre board panel and a spray-applied coating.

The mineral wool fibre board is sourced from a third party and comes in standard and high-density variations. The standard board has a mean density of 149 kg/m3. The high density board is 180 kg/m3. Mineral wool is mainly made from volcanic rock, typically basalt and/or dolomite. An increasing proportion is recycled material from slag, a waste product from blast furnaces. The raw materials are melted and then spun into fine strands of wool. A binder is used to bind the wool together to form a mat of insulation, which is then cut into slabs.

The coating is a specially-formulated liquid that is spray applied to the top and bottom sides of the mineral fibre board. The coating mixture is also used for other batts. Excess coating is packaged into a brush-grade product.

Design Application Parameters:

Nullifire FB750 is typically installed in industrial and commercial applications, primarily in walls and floors that have been breached by penetrating surfaces.

End of Life

C1 - C4 Modules

Collection Process

Collected with Mixed Construction Waste: 8.69 kg

Recovery

Landfill: 8.69 kg

Disposal

Product or Material for Final Disposal: 8.69 kg

Assumptions for scenario development:

At end of life, the product is assumed to be 100% landfilled (C1-C4). For these modules we considered only the transport (C2) and disposal (C4) impacts as deconstruction (C1) and preprocessing (C3) impacts are deemed immaterial for the product, because deconstruction is manual and no significant pre-processing needs are deemed necessary for landfilling.

Reuse, Recovery and / or Recycling Potentials & Relevant Scenario Information

D Module

Recycled Content of Product: 22.7 %

Interpretation

The module of raw material extraction and processing (A1) was the main driver of most environmental impacts and resource use indicators, with particular influence of the upstream manufacture of the uncoated mineral wool batt. Manufacturing related impacts (A3) are important with regard to water depletion and toxicity impact

categories. This means, for example, that interventions regarding the sustainable procurement of raw materials, in particular the procurement of the uncoated batt, will have the most impact regarding climate change and non-renewable energy consumption indicators. On the other hand, significant improvements on toxicity impacts can be better achieved by intervention on the manufacturing process itself. Finally, the end-of-life phase has also a noticeable influence on climate change, eutrophication, and ecotoxicity indicators.



Other Environmental Impacts

Impact Category	Indicator	Unit	A1A2A3	A4	A5	B1	C1	C2	C3	C4	D
GWP-GHG	ND	kg CO2 eq	1.67e+1	2.10e-1	9.67e-3	0	0	5.78e-2	0	3.40e-1	0

Abbreviations:

GWP-IOBC/GWP-GHG = Climate change indicator with instantaneous oxidation of biogenic carbon. The GWP-IOBC indicator has zero contribution to GWP from biogenic carbon temporary stored in products and packaging. The GWP-IOBC indicator, also called GWP-GHG, is identical to GWP-total except that the characterization factor (CF) for biogenic CO2 is set to zero.

References

- ISO 14040:2006, "Environmental management - Life cycle assessment - Principles and framework".
- ISO 14044:2006, "Environmental management - Life cycle assessment - Requirements and guidelines".
- EN 15804:2012+A2:2019. Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products. Brussels: European Committee for Standardization (CEN)
- Construction Products Product Category Rule (PCR) 2019:14 v1.3.4 (same requirements as v1.3.2 for verification purposes)
-

BS 476-21:1987, <https://www.en-standard.eu/bs-476-21-1987-fire-tests-on-building-materials-and-structures-methods-for-determination-of-the-fire-resistance-of-loadbearing-elements-of-construction/>

- eco-INSTITUT Germany GmbH, Cologne:2017, "Test Report No. 51960-002: Evaluation according to French VOC- and CMR-regulation for FB750"
- ecoinvent v3.9.1, December 2022, <https://ecoinvent.org/the-ecoinvent-database/data-releases/ecoinvent-3-9-1/>
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