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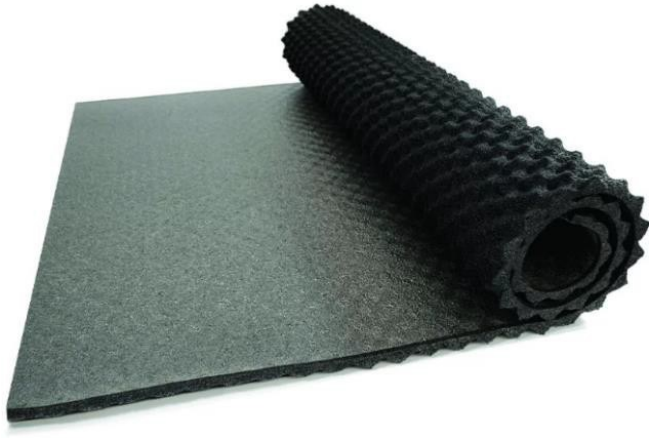
GenieMat® FF25

Roll-Out Floating Floors

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930



EPD HUB, HUB-0364
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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Pliteq Inc.
Address	131 Royal Group Cres, Vaughan, Ontario, Canada
Contact details	info@pliteq.com
Website	https://pliteq.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Aedan Callaghan
EPD verification	Independent verification of this EPD and data, according to ISO 14025: □ Internal certification ☑ External verification
EPD verifier	E.A as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	GenieMat FF25
Additional labels	GenieMat FF17, GenieMat FF10, GenieMat FF06
Product reference	-
Place of production	Vaughan, Ontario, Canada
Period for data	June 2021 - June 2022

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m^2
Declared unit mass	10.215 kg
GWP-fossil, A1-A3 (kgCO2e)	6.79E0
GWP-total, A1-A3 (kgCO2e)	6.19E0
Secondary material, inputs (%)	91.2
Secondary material, outputs (%)	79.0
Total energy use, A1-A3 (kWh)	27.2
Total water use, A1-A3 (m3e)	0.123

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Pliteq® is a leading innovator of acoustic products manufactured for the built environment from unusable materials diverted from landfill. Trusted by global architects, builders, engineers, contractors and acoustic consultants for products which are engineered for superior performance, backed by third party test data, and recognized for their sustainable credentials, Pliteq is one of the preeminent global engineering resources.

PRODUCT DESCRIPTION

Robust dimpled rubber pad made from 92% recycled rubber content used when superior sound control is required in mechanical rooms, sound studios, home theatres, entertainment venues, medical facilities, mass timber structures exercise gyms, dance floors, and commercial, industrial, and multifamily housing.
Further information can be found at https://pliteq.com/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100%	North America
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.199

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m^2
Mass per declared unit	10.215 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

GenieMat FF25

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The manufacturing is executed through molding polyurethane and recycled rubber particles in a cylinder for a 12-18 hour ambient cure. The process is slightly exothermic and molded under pressure, which results in no additional heat needing to be added to the cylinder. It is then demolded and peeled into into a large-scale roll. This roll is convoluted to be split into the dimpled sheets, and then fed through a laminator where the last raw material, a polyethylene sheet, is laminated to the surface. Each roll has a small strip of plastic wrap added to keep the roll together.

Fibre cradles are used for stacking rolls on a pallet, with edgeboard is used to protect rolls at locations where there is strapping to secure the rolls to the pallet. Lastly, some plastic wrap is used around the exterior of the pallet. These packaging materials are all allocated over the number of declared units of material on each pallet.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is determined using a weighted average based on the relative quantities being distributed to the building sites. Transportation is executed via a covered flatbed for North American projects and shipping containers for transport to Asia. It is assumed that the vehicle or container is operating at 100% capacity, with the return trip being the responsibility of the transportation company and therefore not included in this EPD. It is also assumed that transportation does not result in any losses with proper packaging. The GenieMat FF has a very simple installation method for fast and successful installs. First, a perimeter isolation strip is placed around the perimeter of the room. Second, the GenieMat FF is unrolled and trimmed to length. The excess of the roll can be used to begin the next row. Lastly, a seam tape is used along the seams if a poured topping is called for (not required when plywood is used instead), assuming an average of 1.38m tape per m2 of GenieMat FF. Closed-cell polyethylene foam (PMI) is used which is 0.29m per m2 of GenieMat FF.

PRODUCT USE AND MAINTENANCE (B1-B7)

The GenieMat FF products are encapsulated during installation and do not remain exposed or require any maintenance, cleaning, etc. This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

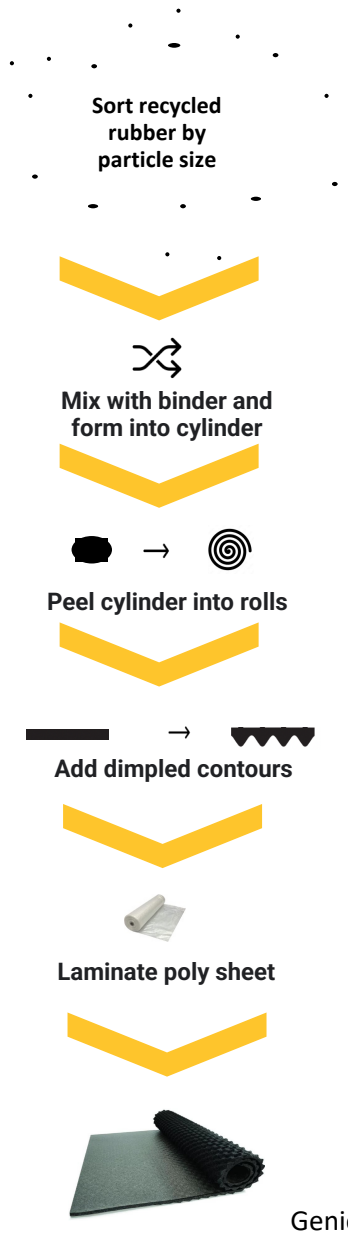
The end-of-life scenario is dependent upon the method of deconstruction for the building site, where it is assumed that 100% of waste is collected as separate construction waste. It is also assumed that the consumption of energy and resources is negligible for the disassembling of the end-of-life products as all products can be recycled back into our manufacturing process and therefore demolition has zero impact.

Typically, the construction demolition team sends all products to the nearest construction waste treatment plant, therefore a 50 km transportation distance is estimated. It is assumed that the method of transportation to do so is via lorry. The end-of-life product has the same weight as the initial product; therefore, no mass loss is considered during its lifetime.

Once the product is received at the waste treatment plant, if it can be reused, recycled, or recovered for energy, it is diverted from the landfill. As it has recycling potential through regrinding the product, it is assumed that 79% of the end-of-life product is reused or recycled and the remaining 21% remains at the landfill for final disposal. This rate of recovery is based on the 2021 average provided by Metro Vancouver for waste recycling rates from construction and demolition waste. While products that have takeback/ buyback programs will likely be on the higher end of the average the overall average is used until more data is available.

Due to the closed loop recycling potential of the GenieMat FF25, the end of life materials can be used as secondary materials. The GenieMat FF can be re-ground back into into crumb rubber and used as a raw material feed in the manufacturing process for new material. The slightly exothermic nature of the reaction during manufacturing replaces the need for heat addition that would often require fossil fuels. The treatment of all packaging materials including wooden pallets is assumed to be incinerated waste to generate electricity.

MANUFACTURING PROCESS



GenieMat FF25

GenieMat® FF25

LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	No allocation
Ancillary materials	NA
Manufacturing energy and waste	Mass Allocation

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	5.25E0	1.2E0	-2.57E-1	6.19E0	1.67E0	1.07E0	MND	MND	MND	MND	MND	MND	MND	0E0	4.65E-2	4.52E-2	1.13E-2	0E0
GWP – fossil	kg CO_2e	5.13E0	1.2E0	4.6E-1	6.79E0	1.69E0	3.46E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4.64E-2	4.52E-2	1.13E-2	-4.44E0
GWP – biogenic	kg CO_2e	1.19E-1	5.18E-4	-7.17E-1	-5.98E-1	1.05E-3	7.28E-1	MND	MND	MND	MND	MND	MND	MND	0E0	3.37E-5	1.26E-5	2.24E-5	2.97E-1
GWP – LULUC	kg CO_2e	3.2E-4	4.35E-4	1.27E-3	2.02E-3	5.74E-4	5.83E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1.4E-5	3.82E-6	3.35E-6	-1.06E-4
Ozone depletion pot.	kg CFC_{-11}e	2.52E-8	2.57E-7	3.18E-8	3.14E-7	3.91E-7	2.46E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1.09E-8	9.77E-9	4.65E-9	7.48E-9
Acidification potential	mol H^+e	2.5E-2	7.01E-3	2.25E-3	3.43E-2	1.2E-2	2.18E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1.95E-4	4.73E-4	1.07E-4	-2.24E-2
EP-freshwater[2)]	kg Pe	2.84E-4	1.79E-5	1.83E-5	3.2E-4	1.31E-5	1.37E-5	MND	MND	MND	MND	MND	MND	MND	0E0	3.78E-7	1.83E-7	1.36E-7	-2.4E-4
EP-marine	kg Ne	8.04E-3	2.37E-3	5.1E-4	1.09E-2	3.3E-3	3.24E-4	MND	MND	MND	MND	MND	MND	MND	0E0	5.88E-5	2.09E-4	3.69E-5	-6.98E-3
EP-terrestrial	mol Ne	4.5E-2	2.61E-2	5.3E-3	7.64E-2	3.65E-2	3.77E-3	MND	MND	MND	MND	MND	MND	MND	0E0	6.49E-4	2.29E-3	4.07E-4	-3.79E-2
POCP ("smog")[3)]	kg NMVOCe	1.56E-2	7.73E-3	2.16E-3	2.55E-2	1.08E-2	1.21E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2.09E-4	6.3E-4	1.18E-4	-1.36E-2
ADP-minerals & metals[4)]	kg Sbe	4.01E-5	2.25E-5	6.26E-6	6.89E-5	2.72E-5	8.77E-6	MND	MND	MND	MND	MND	MND	MND	0E0	7.92E-7	6.91E-8	1.03E-7	-2.98E-5
ADP-fossil resources	MJ	8.81E1	1.83E1	2.01E1	1.27E2	2.58E1	5.22E0	MND	MND	MND	MND	MND	MND	MND	0E0	7.22E-1	6.22E-1	3.16E-1	-8.11E1
Water use[5)]	m^3e depr.	4.91E0	9.82E-2	4.37E-1	5.45E0	9.24E-2	1.53E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2.69E-3	1.16E-3	1.46E-2	-3.77E0

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	3.33E0	2.5E-1	2.76E0	6.34E0	3.12E-1	3.83E-1	MND	MND	MND	MND	MND	MND	MND	0E0	9.09E-3	3.37E-3	2.55E-3	-3.14E0
Renew. PER as material	MJ	0E0	0E0	7.17E0	7.17E0	0E0	-8.79E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-1.7E-2
Total use of renew. PER	MJ	3.33E0	2.5E-1	9.93E0	1.35E1	3.12E-1	-8.75E1	MND	MND	MND	MND	MND	MND	MND	0E0	9.09E-3	3.37E-3	2.55E-3	-3.16E0
Non-re. PER as energy	MJ	5.73E1	1.83E1	1.58E1	9.15E1	2.58E1	5.22E0	MND	MND	MND	MND	MND	MND	MND	0E0	7.22E-1	6.22E-1	3.16E-1	-4.9E1
Non-re. PER as material	MJ	3.08E1	0E0	4.3E0	3.51E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	-3.21E1
Total use of non-re. PER	MJ	8.81E1	1.83E1	2.01E1	1.27E2	2.58E1	5.22E0	MND	MND	MND	MND	MND	MND	MND	0E0	7.22E-1	6.22E-1	3.16E-1	-8.11E1
Secondary materials	kg	9.3E0	0E0	1.4E-2	9.31E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	9.15E-1
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	1.04E-1	4.25E-3	1.42E-2	0.123	5.12E-3	1.81E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1.5E-4	5.5E-5	3.45E-4	-9.25E-2

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1.39E-1	3.38E-2	2.73E-2	2E-1	2.55E-2	3.69E-2	MND	MND	MND	MND	MND	MND	MND	0E0	7.02E-4	0E0	2.95E-4	-1.13E-1
Non-hazardous waste	kg	9.39E-1	2.48E0	6.59E-1	4.08E0	2.57E0	6.45E-1	MND	MND	MND	MND	MND	MND	MND	0E0	7.76E-2	0E0	2.14E0	2.36E-1
Radioactive waste	kg	1.05E-5	1.16E-4	2.01E-4	3.28E-4	1.77E-4	9.77E-6	MND	MND	MND	MND	MND	MND	MND	0E0	4.96E-6	0E0	2.09E-6	1.01E-5

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	2.92E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8.07E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	4.42E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	4.72E0	1.18E0	4.4E-1	6.34E0	1.67E0	3.31E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4.6E-2	4.49E-2	1.11E-2	-4.04E0
Ozone depletion Pot.	kg CFC_{-11}e	2.63E-8	2.05E-7	2.71E-8	2.58E-7	3.11E-7	2.11E-8	MND	MND	MND	MND	MND	MND	MND	0E0	8.67E-9	7.73E-9	3.69E-9	3.29E-9
Acidification	kg SO_2e	2.11E-2	2.9E-3	1.81E-3	2.58E-2	7.57E-3	1.79E-3	MND	MND	MND	MND	MND	MND	MND	0E0	9.44E-5	6.68E-5	4.47E-5	-1.91E-2
Eutrophication	kg PO_4^3e	5.49E-3	7.31E-4	6.46E-4	6.87E-3	1.12E-3	6.15E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1.91E-5	1.18E-5	8.65E-6	-3.55E-3
POCP (“smog”)	kg C_2H_4e	1.04E-3	1.66E-4	2.01E-4	1.41E-3	3.12E-4	1.39E-4	MND	MND	MND	MND	MND	MND	MND	0E0	5.98E-6	6.87E-6	3.28E-6	-9.79E-4
ADP-elements	kg Sbe	4.01E-5	2.25E-5	6.26E-6	6.89E-5	2.72E-5	8.77E-6	MND	MND	MND	MND	MND	MND	MND	0E0	7.92E-7	6.91E-8	1.03E-7	-2.98E-5
ADP-fossil	MJ	8.81E1	1.83E1	2.01E1	1.27E2	2.58E1	5.22E0	MND	MND	MND	MND	MND	MND	MND	0E0	7.22E-1	6.22E-1	3.16E-1	-8.11E1

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	4.78E0	1.18E0	4.42E-1	6.4E0	1.67E0	3.32E-1	MND	MND	MND	MND	MND	MND	MND	0E0	4.59E-2	4.47E-2	1.1E-2	-4.09E0
Ozone Depletion	kg CFC_{-11}e	2.81E-8	2.72E-7	3.6E-8	3.37E-7	4.14E-7	2.76E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1.16E-8	1.03E-8	4.91E-9	9.73E-9
Acidification	kg SO_2e	2.05E-2	6.31E-3	1.92E-3	2.88E-2	1.03E-2	1.83E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1.7E-4	4.34E-4	9.51E-5	-1.83E-2
Eutrophication	kg Ne	6.95E-3	7.46E-4	2.91E-4	7.99E-3	9.92E-4	1.87E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2.39E-5	3.82E-5	1.14E-5	-6.07E-3
POCP (“smog”)	kg O_3e	2.47E-1	1.5E-1	3.01E-2	4.28E-1	2.09E-1	2.07E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3.73E-3	1.33E-2	2.35E-3	-2.09E-1
ADP-fossil	MJ	1.11E1	2.46E0	1.31E0	1.49E1	3.7E0	5.41E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1.03E-1	9.2E-2	4.58E-2	-1.04E1

APPENDIX – CONVERSION TABLE FOR ALTERNATIVE THICKNESS

This EPD is calculated for GenieMat FF25 which has a thickness of 25mm. The GenieMat product line also has GenieMat FF17, GenieMat FF10 and GenieMat FF06. Based on the standardization of raw materials and manufacturing process, the calculations have been scaled for each thickness of GenieMat FF as per the calculation completed for GenieMat FF25 and detailed above. The correlation between the material and energy inputs to calculate the A1-A5 data is linear. Therefore, to calculate A1-A5 values for a different thickness, apply the percentages in the table below to the A1-A5 number shown within this document.

Conversion Factor							
Products	Thickness (mm)	A1	A2	A3	A1-A3	A4	A5
GenieMat FF17	17	84.7%	86.0%	88.2%	84.8%	86.4%	99.8%
GenieMat FF10	10	53.6%	54.4%	44.1%	54.1%	54.3%	66.1%
GenieMat FF06	06	41.1%	41.2%	27.5%	41.7%	41.3%	62.3%

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli as an authorized verifier acting for EPD Hub Limited 03.04.2023

Elma Avdyli, EPD Hub

VERIFIED ISO 14025