

KDF

Sports Flooring Systems & Building Materials

55 YEARS OF EXPERIENCE



PLAYGROUND
FLOORING



RUNNING
TRACKS



INDOOR
COURTS



OUTDOOR
COURTS



CYCLING
TRACKS

CERTIFIED FLOORING SYSTEMS & MATERIALS FOR EVERY PROJECT



SPLASH
PARKS



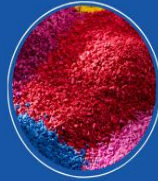
GLUE FOR
ARTIFICIAL GRASS



INDUSTRIAL
FLOORING



DECORATIVE
FLOORING



EPDM
GRANULES



19th km National Road Thessaloniki – Moudania
Neo Rysio, Thessaloniki, **Greece**

www.kdf.gr



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPDM Granules

KDF Ltd



EPD HUB, HUB-5802

Published on 20.03.2026, last updated on 20.03.2026, valid until 19.03.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



Created with One Click LCA



GENERAL INFORMATION

MANUFACTURER

Manufacturer	KDF Ltd
Address	19th km National Road Thessaloniki– Moudania, N. Risio, 57001 Thessaloniki, Greece
Contact details	exports@kdf.gr
Website	www.kdf.gr

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Dr. Petros Moschidis, Institute of Coating Technologies
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Sarah Curpen as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	EPDM Granules
Additional labels	0.5–1.5 mm, 1–3.5 mm
Product reference	-
Place(s) of raw material origin	Antwerp, Holland
Place of production	Lakkoma, Chalkidiki, Greece
Place(s) of installation and use	Greece, other European countries and selected overseas markets
Period for data	1/1/2025 - 1/1/2026
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	0
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	26,4

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of EPDM Granules
Declared unit mass	1 kg
Mass of packaging	0,0246 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	1,29
GWP-total, A1-A3 (kgCO ₂ e)	1,25
Secondary material, inputs (%)	1,15
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	3,97
Net freshwater use, A1-A3 (m ³)	0,02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

KDF Ltd is a global leader in the sports flooring industry, with a growing footprint in industrial and decorative flooring solutions. As one of the most dynamic and export-driven companies in Greece (European Union), we specialize in high-performance sports systems and unique flooring solutions designed to set you apart from the competition.

With over 50 years of experience and a strong international presence in more than 85 countries across six continents, KDF has earned a reputation for quality, reliability, and innovation in the flooring industry.

Our headquarters and manufacturing facilities are located in Greece (EU), where we produce top-quality EPDM granules, certified running tracks, polyurethane, and acrylic systems - all compliant with the highest international standards and certifications.

PRODUCT DESCRIPTION

EPDM granules are basically used for wet pour colored playground floorings, for flexible multipurpose outdoor courts and in applications of running track systems. This EPD covers EPDM rubber granules produced in different particle size ranges (0.5–1.5 mm and 1–3.5 mm), manufactured using the same raw materials and production process. The declared product represents an average EPDM granules formulation covering the range of available colour shades. Differences in granulometry do not affect the material composition or the environmental performance per kilogram of product and are therefore covered under the same EPD.

Further information can be found at:
www.kdf.gr

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	
Minerals	42	Mineral fillers and inorganic pigments
Fossil materials	58	Synthetic rubber (EPDM) and organic additives
Bio-based materials	0	

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	0,009

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of EPDM Granules
Mass per declared unit	1 kg
Functional unit	-
Reference service life	10

SUBSTANCES, REACH - VERY HIGH CONCERN

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

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	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X	Recovery	Recycling
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

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 of EPDM granules is a mechanical, electricity-driven process. The average electricity consumption amounts to 750 kWh per tonne of product. Electricity consumption during manufacturing is modelled using a location-based approach, based on the national electricity consumption mix of Greece, in accordance with EN 15804+A2 and the applicable LCA calculation rules. No water is consumed during the manufacturing process. The process consists of the following sequential steps:

Mixing:

EPDM resin, processing oil, fillers, internally recycled EPDM dust, and pigments are mixed in a high-temperature mixer. Once the resin reaches its molten state, vulcanization additives are added. Mixing continues for a short additional period to ensure homogeneous dispersion of all components.

Extrusion:

The mixed compound is fed into an extruder, where it is formed into continuous sheets. These sheets are subsequently cut into square pieces suitable for further processing.

Autoclave (Vulcanization):

The cut pieces are placed in an autoclave, where vulcanization takes place under controlled temperature and pressure conditions, resulting in cured EPDM material.

Slicing and Crushing:

After vulcanization, the cured EPDM pieces are sliced into strips and mechanically crushed into granules.

Sieving:

The granules are sieved to obtain the required particle size fractions (0.5–1.5 mm and 1–3.5 mm). Fine material below 0.5 mm, accounting for approximately 22% of total output, is fully reintroduced into the mixing stage through a closed-loop internal rework system.

In accordance with EN 15804+A2 and ISO 14044, internally reused by-products that do not leave the system boundaries are considered burden-free upstream and are modelled as internally reused materials in Module A1. Consequently, no manufacturing waste output is reported in Module A3, and the production process operates with zero manufacturing waste leaving the system.

Packing:

The final EPDM granules are packed in 25 kg polypropylene bags, palletized on wooden pallets, and wrapped with stretch film. Packaging materials (polypropylene bags, wooden pallets, and stretch film) are included in Module A3 and allocated to the declared unit based on actual packaging ratios per tonne of product. Transportation of packaging materials to the manufacturing site is included in the system boundaries.

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.

Transport to the construction site (Module A4) is modelled using a typical transport scenario representative of market practice. The declared scenario assumes road transport by heavy-duty lorry over an average distance of 1,000 km, representing the worst-case transport option in terms of greenhouse gas emissions. Alternative transport scenarios may include

overseas shipments by sea (approximately 1,500–2,000 km) combined with short-distance road transport; however, these routes are expected to result in lower environmental impacts and are therefore not included in the declared A4 scenario.

Module A5 includes the management of packaging waste generated at the construction site. Packaging materials (wooden pallets and plastic packaging) are modelled according to EU-average waste treatment routes, including recycling and energy recovery shares based on statistical data.

No installation energy use, auxiliary materials, or additional transport are required. No material losses are assumed during installation, as EPDM granules are applied as loose infill material and any excess material can be collected and reused on site.

PRODUCT USE AND MAINTENANCE (B1-B7)

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)

EPDM granules are synthetic rubber materials and, at end of life, are managed within rubber and elastomer waste streams in accordance with European waste classification practice.

According to the European Waste Catalogue (Commission Decision 2000/532/EC), relevant waste codes include:

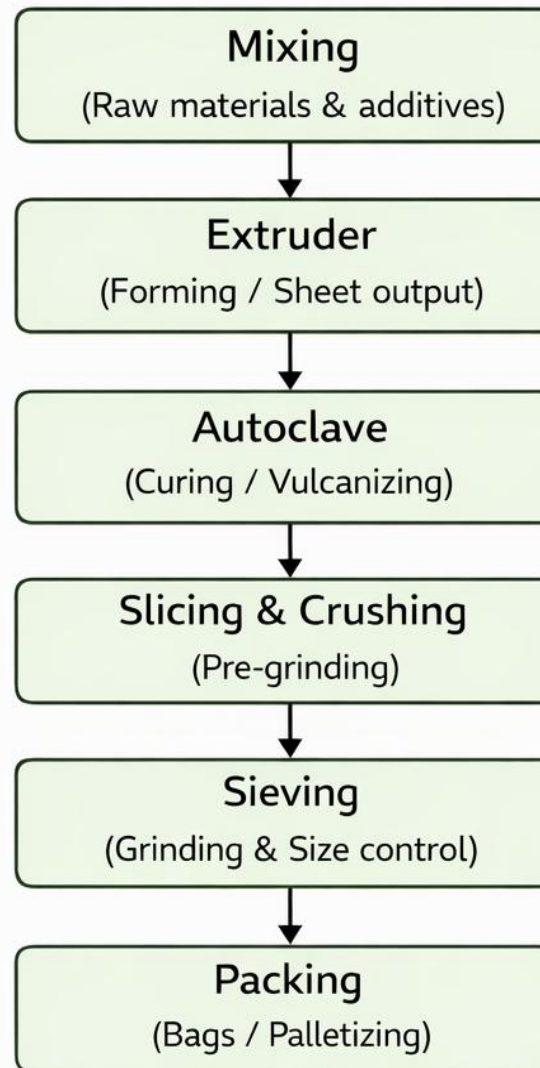
– EWC 16 01 19 (plastics and rubber), typically applicable to rubber materials removed during use or demolition of installations and surfaces, and

– EWC 07 02 99 (wastes not otherwise specified from the manufacture, formulation, supply and use of plastics, rubber and synthetic fibres), where applicable.

As no reliable, product-specific data are available regarding recycling, reuse or recovery rates for EPDM granules at end of life, a conservative European average scenario has been applied. The product is assumed to be collected as rubber waste, transported to waste treatment (Module C2), and finally disposed of in landfill (Module C4). No specific deconstruction energy is attributed to the granules (Module C1), as they are removed together with the overall system.

Module D includes potential benefits and loads beyond the system boundary associated with recycling and energy recovery of packaging materials (wood pallets, LDPE stretch film and PP bags), modelled according to EN 15804+A2 methodology using EU average end-of-life scenarios. The results represent the net effect of recovery processes and substitution of primary materials and energy.

MANUFACTURING PROCESS



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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

No relevant life cycle processes have been excluded from the study. Minor inputs with negligible mass and environmental impact (below the cut-off criteria defined in EN 15804) may be excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

A representative average European end-of-life scenario has been assumed due to lack of product-specific data from customers. Transport distances for raw materials and waste treatment are based on supplier information and standard European assumptions. Internal EPDM dust generated during production is fully reused within the manufacturing process (closed-loop internal rework) and does not leave the system boundaries. Module D includes potential benefits from recycling of packaging materials (wood pallet, LDPE film and PP bags), modelled through substitution of virgin material production in accordance with EN 15804+A2.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	0

Not applicable. No product or manufacturing site grouping is applied in this EPD.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

Standards & programme rules

EN 15804:2012+A2:2019/AC:2021

Sustainability of construction works – Environmental product declarations –

Core rules for the product category of construction products.

ISO 14025:2010

Environmental labels and declarations – Type III environmental declarations

– Principles and procedures.

ISO 14040:2006 & ISO 14044:2006

Environmental management – Life cycle assessment – Principles, framework, requirements and guidelines.

EPD Hub Core PCR, Version 1.2, 24 March 2025.

Product Category Rules for construction products.

ECO Platform Verification Guidelines, Version 8.0, December 2024.

Impact assessment method

European Commission – Joint Research Centre (JRC)

Environmental Footprint (EF) 3.1 Characterisation Factors.

Background LCA databases & software

One Click LCA – EPD Generator for EPD Hub, Version 3 (EPD Process Certification v3.2.3).

Ecoinvent database, versions 3.10.1 / 3.11,

One Click LCA Databases,

used for country-specific electricity mix (Greece) and transport modelling.

Electricity & transport assumptions

Electricity, Greece, 2023, One Click LCA dataset

(market-based electricity mix, 0.44 kg CO₂e/kWh).

Transport, freight, lorry >32 t, EURO 5,

generic European dataset, used for A2, A4 and C2 transport modelling.

End-of-life & waste treatment

Directive 2008/98/EC of the European Parliament and of the Council

Waste Framework Directive.

European Commission, Commission Decision 2000/532/EC, establishing a list of wastes pursuant to Directive 2008/98/EC (European Waste Catalogue).

European Waste Catalogue (EWC) – Commission Decision 2000/532/EC (classification of rubber and plastic waste streams).

ELCD 3.2 dataset:

Landfill of plastic/rubber waste, including landfill gas utilisation and leachate treatment,

used for modelling Modules C3–C4.

Eurostat (2022). Packaging waste statistics – EU27 average treatment rates.

ENVIRONMENTAL IMPACT DATA

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

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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 ₂ e	9,35E-01	8,81E-03	3,04E-01	1,25E+00	1,07E-01	4,22E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,39E-03	0,00E+00	7,04E-02	-5,77E-03
GWP – fossil	kg CO ₂ e	9,39E-01	8,80E-03	3,38E-01	1,29E+00	1,07E-01	6,28E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,38E-03	0,00E+00	7,19E-02	-3,17E-03
GWP – biogenic	kg CO ₂ e	-4,03E-03	1,97E-06	-3,46E-02	-3,86E-02	2,26E-05	3,59E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,22E-06	0,00E+00	-1,56E-03	-2,60E-03
GWP – LULUC	kg CO ₂ e	7,68E-04	3,94E-06	1,30E-04	9,03E-04	4,03E-05	1,27E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,41E-06	0,00E+00	0,00E+00	-2,85E-06
Ozone depletion pot.	kg CFC ₁₁ e	3,47E-08	1,30E-10	2,60E-08	6,09E-08	2,16E-09	1,30E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,95E-11	0,00E+00	2,27E-09	-1,04E-10
Acidification potential	mol H ⁺ e	7,30E-03	3,04E-05	1,36E-03	8,70E-03	3,46E-04	5,23E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,84E-05	0,00E+00	2,84E-04	-1,43E-05
EP-freshwater ²⁾	kg Pe	2,73E-04	6,84E-07	2,81E-05	3,01E-04	7,23E-06	2,41E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,19E-07	0,00E+00	3,38E-05	-1,27E-06
EP-marine	kg Ne	9,33E-04	9,95E-06	2,83E-04	1,23E-03	1,17E-04	5,02E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,03E-06	0,00E+00	5,99E-05	-2,34E-06
EP-terrestrial	mol Ne	9,62E-03	1,08E-04	3,03E-03	1,28E-02	1,28E-03	2,16E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,56E-05	0,00E+00	6,55E-04	-2,37E-05
POCP (“smog”) ³⁾	kg NMVOCe	4,74E-03	4,45E-05	8,83E-04	5,67E-03	5,64E-04	6,84E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,70E-05	0,00E+00	1,91E-04	-1,35E-05
ADP-minerals & metals ⁴⁾	kg Sbe	1,73E-05	2,45E-08	3,42E-07	1,77E-05	2,96E-07	3,20E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,50E-08	0,00E+00	5,47E-09	-9,54E-09
ADP-fossil resources	MJ	2,22E+01	1,28E-01	4,83E+00	2,71E+01	1,55E+00	1,18E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	1,01E+00	-8,12E-02
Water use ⁵⁾	m ³ e depr.	6,36E-01	6,30E-04	8,78E+00	9,42E+00	7,95E-03	5,11E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,86E-04	0,00E+00	4,40E-03	-9,53E-04

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	8,05E-08	8,80E-10	5,99E-09	8,74E-08	1,07E-08	1,39E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,39E-10	0,00E+00	2,21E-08	-8,93E-11
Ionizing radiation ⁶⁾	kBq 11235e	3,99E-02	1,11E-04	5,85E-03	4,58E-02	1,87E-03	3,00E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,80E-05	0,00E+00	3,58E-03	-6,61E-04
Ecotoxicity (freshwater)	CTUe	1,08E+01	1,80E-02	3,89E-01	1,12E+01	1,83E-01	4,44E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-02	0,00E+00	8,90E-01	-3,69E-02
Human toxicity, cancer	CTUh	4,11E-10	1,45E-12	4,73E-11	4,60E-10	1,76E-11	9,67E-13	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,88E-13	0,00E+00	8,17E-12	-4,08E-13
Human tox. non-cancer	CTUh	1,33E-08	8,26E-11	1,11E-09	1,45E-08	1,01E-09	2,98E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,06E-11	0,00E+00	3,91E-10	-1,85E-11
SQP ⁷⁾	-	4,54E+00	1,28E-01	3,36E+00	8,02E+00	1,56E+00	1,20E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,87E-02	0,00E+00	0,00E+00	-1,09E-02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to 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; 7) SQP = Land use related impacts/soil quality.

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	8,66E-01	1,75E-03	1,76E+00	2,63E+00	2,53E-02	-2,94E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-03	0,00E+00	3,20E-02	1,37E-02
Renew. PER as material	MJ	9,00E-02	0,00E+00	3,14E-01	4,04E-01	0,00E+00	-3,14E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-9,00E-02	2,60E-02
Total use of renew. PER	MJ	9,56E-01	1,75E-03	2,08E+00	3,04E+00	2,53E-02	-6,08E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-03	0,00E+00	-5,81E-02	3,97E-02
Non-re. PER as energy	MJ	6,67E+00	1,28E-01	4,84E+00	1,16E+01	1,55E+00	-1,79E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	1,01E+00	-8,12E-02
Non-re. PER as material	MJ	1,55E+01	0,00E+00	4,62E-02	1,56E+01	0,00E+00	-4,62E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-1,55E+01	3,37E-02
Total use of non-re. PER	MJ	2,22E+01	1,28E-01	4,88E+00	2,72E+01	1,55E+00	-2,25E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,81E-02	0,00E+00	-1,45E+01	-4,75E-02
Secondary materials	kg	1,15E-02	5,44E-05	1,19E-03	1,27E-02	6,72E-04	1,34E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,32E-05	0,00E+00	0,00E+00	7,97E-04
Renew. secondary fuels	MJ	2,18E-03	6,89E-07	1,06E-02	1,28E-02	8,47E-06	1,26E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,22E-07	0,00E+00	0,00E+00	-3,81E-08
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	1,49E-02	1,89E-05	1,58E-03	1,65E-02	2,29E-04	-2,80E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,15E-05	0,00E+00	1,01E-04	-2,21E-05

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	2,08E-01	2,16E-04	8,38E-04	2,09E-01	2,25E-03	1,25E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,32E-04	0,00E+00	0,00E+00	-1,38E-04
Non-hazardous waste	kg	3,60E+00	4,00E-03	3,59E-02	3,64E+00	4,50E-02	3,20E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,45E-03	0,00E+00	1,16E-01	-2,09E-02
Radioactive waste	kg	9,90E-06	2,72E-08	9,27E-07	1,09E-05	4,63E-07	7,47E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,67E-08	0,00E+00	3,70E-05	-1,69E-07

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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,30E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,90E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,50E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,40E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	9,39E-01	8,80E-03	3,38E-01	1,29E+00	1,07E-01	6,28E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,38E-03	0,00E+00	7,19E-02	-3,17E-03

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity, Greece, 2023, Greece, One Click LCA, 0.44 kgCO₂e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 1000 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	85
Bulk density of transported products	5,12E+02
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation waste)

1. Exported Energy: Electricity, Ecoinvent, 0.013 MJ
2. Exported Energy: Electricity, Ecoinvent, 0.012 MJ
3. Exported Energy: Thermal, Ecoinvent, 0.018 MJ
4. Exported Energy: Thermal, Ecoinvent, 0.016 MJ
5. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.0064 kg
6. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.006 kg
7. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.0076 kg
8. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.0017 kg
9. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.0011 kg
10. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0019 kg

Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process / Description or source where description can be found	Not applicable. EPDM granules do not require maintenance as a standalone product.
Maintenance cycle / Number per RSL or year (Not applicable if only B2 is declared)	Not applicable

Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair process / Description or source where description can be found	Not applicable
Inspection Process / Description or source where description can be found	Not applicable
Repair cycle / Number per RSL or year	Not applicable

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	Not applicable

Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process / Description or source where description can be found	Not applicable
Refurbishment cycle / Number per RSL or year	Not applicable
Further assumptions for scenario development, e.g., frequency and time period of use, number of occupants / Units as appropriate	No refurbishment is applicable for loose EPDM granules.

Use stages scenario documentation - B6 (Energy data source)

Use stages scenario documentation - B7 (Water data source)

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	Not applicable
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	Not applicable
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	EPDM granules do not consume operational energy or water during use.

End-of-life scenario documentation - C1-C4 (Data source)

1. Transported mass, 1.0 kg
2. Landfill of plastic waste, at landfill site, landfill including landfill gas utilisation and leachate treatment and without collection, transport and pre-treatment, ELCD3.2, 1.0 kg

Scenario information	Value
Scenario assumptions e.g. transportation	A representative average European end-of-life scenario is applied. EPDM granules are assumed to be disposed of as inert rubber waste. Transport to waste treatment is modelled with an average distance of 50 km by lorry, followed by final disposal in landfill. No recycling or energy recovery is assumed.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Sarah Curpen as an authorized verifier for EPD Hub Limited 20.03.2026

