

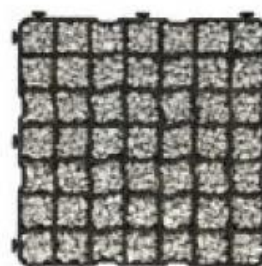
ENVIRONMENTAL PRODUCT DECLARATION

EDP nr Ref.: 2024-0051.3



GROUND REINFORCEMENT GRIDS FOR GRASS AND ROADS

In accordance with EN 15804+A2



BERA®

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Declared unit (DU): 1 m²

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1. GENERAL INFORMATION

This Environmental Product Declaration (EPD) is developed in accordance with the European standard EN 15804 and ISO 14025. It contains the information on the impacts of the declared construction materials on the environment.

EPDs may not be comparable if they do not comply with the EN 15804 standard and if the core systems are not based on the same database.

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Declared product(s)	Ground reinforcement grid for grass and roads: - BERA Stable Fix Eco 40L - BERA Stable Fix Eco 40 - BERA Stable Fix Eco 40HD - BERA Stable Fix Eco 50 - BERA Stable Fix Eco 50HD - BERA Stable Fix Eco SF-ECO-63XHD
Declaration reference number	EPD Ref. No. 2024-0051.3
PCR	PCR in accordance with EN 15804+A2:2019
Date of issue	03-06-2024
Publication date	25-03-2026
Validity date	03-06-2029
Declared unit	1 m ²
Life cycle analysis (LCA)	A1-A3, C1-C4, D modules
Reference Service Life	Depending of application type, up to 50 years
Reason for performing LCA	Business-to-business
Representativeness	Polish product, 2023

2. VERIFICATION

This Environmental Product Declaration (EPD) has been verified in accordance with ISO14025 and is valid for 5 years from the date of issue if the underlying data have not changed significantly.

CEN EN 15804 standard serves as the main PCR document

Independent verification corresponding to ISO 14025:2010

☐ Internal

☒ External

Third party verifier:

Monika Kotkiewicz, CERTBUD Sp. z o.o.

**External verification of EPD: Monika Kotkiewicz, CERTBUD Sp. z o. o.
Input data verification, LCA: Krzysztof Bałkowiec, TBF Systemy Jakości
Verification of LCA: Dominika Młot, CERTBUD Sp. z o. o.**



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3. DESCRIPTION OF THE ORGANISATION

The company BERA B.V. was founded in the Netherlands in 2009 to develop, manufacture and supply "green" products and system solutions for gardens, parks, urban and landscape projects.

Our endeavor is to create and implement projects whose basic feature is sustainability. Both from the point of view of production and subsequent use. During the first five years since its foundation, BERA B.V. has become a leader in the field of gravel stabilization solutions. For one of the supporting products – BERA Gravel Fix? Pro, it received a silver Cradle to Cradle Certificate in 2015.

Millions of square meters of Gravel Fix Pro installed in different climates on all continents help return valuable rainwater back to the soil and thus have a positive effect on the ecology of the entire planet.

4. DESCRIPTION AND CLASSIFICATION OF
PRODUCT

BEAR B.V. products are used as ecological surface stabilization systems in the form of road and parking grids. All products are made of 100% recycled raw materials, and the main production ingredients are polyethylene and polypropylene.

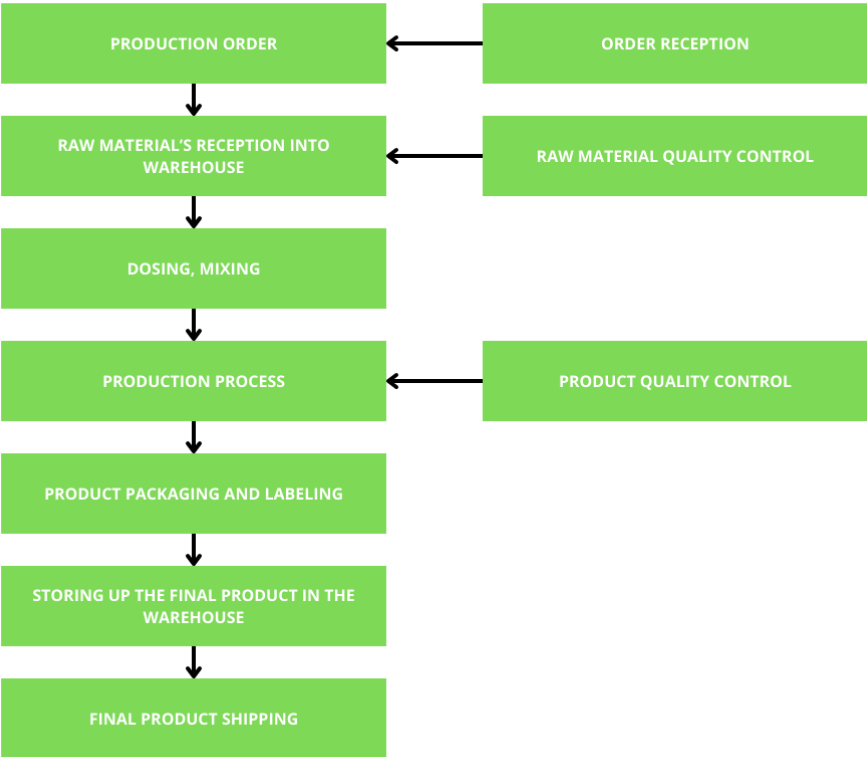
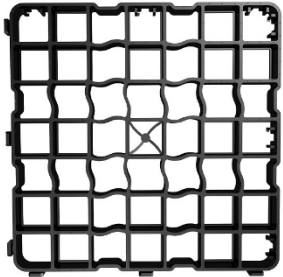


Figure 4.1: production scheme

Product name	Visualization	Dimentions per item [cm]	Load resistance [t/m²]	Compressive strength [kN/m²]	Biologically active surface [%]
BERA Stable Fix Eco 40L		50 x 50 x 4	250	>2 500	90

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BERA Stable Fix Eco 40		50 x 50 x 4	350	>3 500	89
BERA Stable Fix Eco 40HD		50 x 50 x 4	500	>5 000	87
BERA Stable Fix Eco 50		50 x 50 x 5	400	>4 000	89
BERA Stable Fix Eco 50HD		50 x 50 x 5	650	>6 500	87
BERA Stable Fix Eco SF-ECO- 63XHD		40 x 80 x 6,3	850	>8 500	86

5. LIFE CYCLE ASSESSMENT (LCA) - RULES

5.1. DECLARED UNIT (DU)

The declaration refers do declared unit – 1 m² of the ground reinforcement grids.

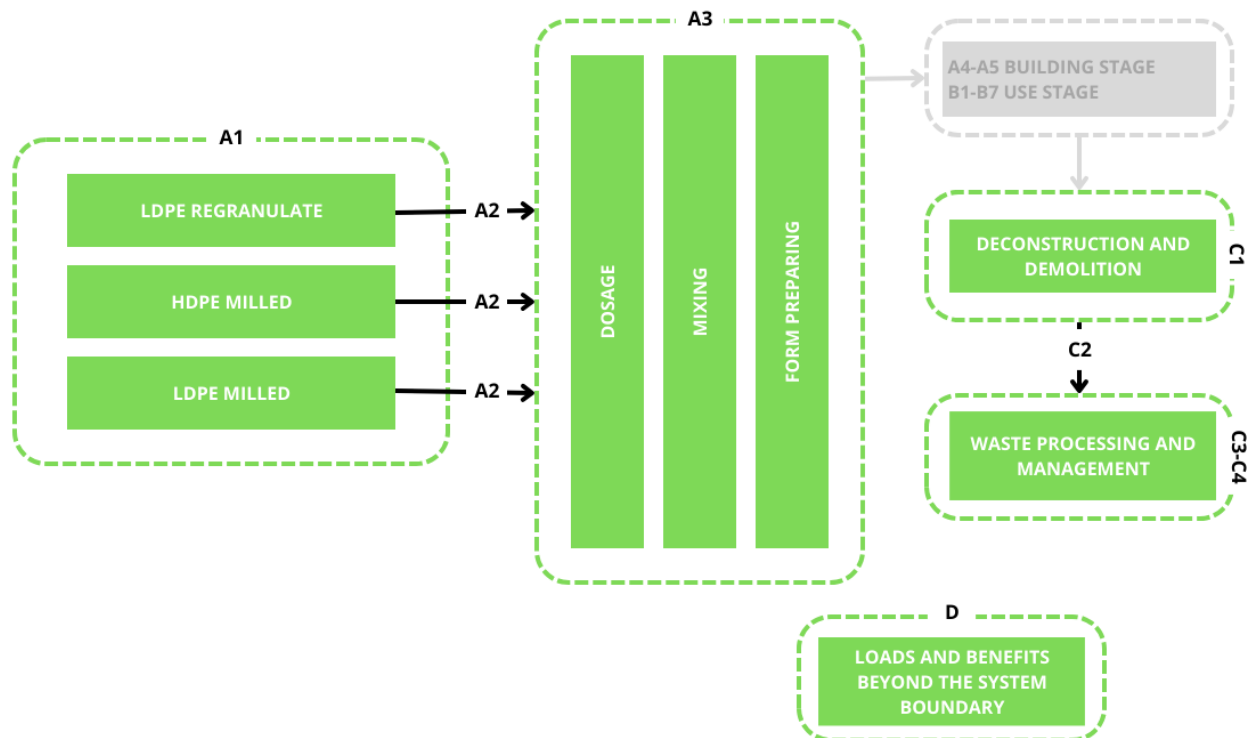
5.2. ALLOCATION

The allocation rules used for this EPD are based on EN 15804+A2. Ground reinforcement grids production is manufactured factory in Poland.

Impacts from the global line production were inventoried allocated to the production of ground reinforcement grids in terms of annual production volume expressed in m².

5.3. SYSTEM BOUNDARY

The system limits for the environmental characteristics of ground reinforcement grids are shown in figure 5.1. Data used for environmental modeling had been declared by manufacturer and describe actual state for 2023.



Legend:

- module declared
- module not defined

Figure 5.1: System boundary used to describe environmental characteristics.

This Environmental Product Declaration includes a life cycle assessment (LCA) for the Cradle-to-Gate with modules C1-C4, D, according to EN 15804+A2. Modules A4-A5, B1-B7 are not declared.

All-important parameters from collected production data, i.e. all materials used by recipe, electricity consumed, internal fuel consumption and thermal energy, direct production waste, and the results of all available emission measurements were included in the calculations. In accordance with EN 15804, machinery and equipment (capital assets) needed for and during production, as well as the transportation of production facility employees, were not included.

The sum of processes and impacts omitted from the calculations does not exceed 5% of all impact categories according to EN 15804+A2.

5.3.1. A1 – RAW MATERIALS SUPPLY

This module takes into account the treatment for waste materials for recycling, extraction and processing of all raw materials for packaging, as well as Energy consumption. The extraction and consumption of raw materials refers to specific mass shares in the production process per unit of declared product. Raw materials for the production of components of ground reinforcement grids come from Polish and foreign suppliers.

5.3.2. A2 – TRANSPORT TO THE PRODUCTION SITE

Raw materials are transported to the production plant from Polish and foreign suppliers. Distances from the place of obtaining raw materials to the production plant are individual for each raw material. The means of transport were diversified depending on the method of delivery of raw materials. The adopted model includes road transport (average values) for each raw material. For calculation purposes European fuel averages are applied in module A2.

5.3.3. A3 – PRODUCTION

Module A3 covers all production-related process – including the ground reinforcement grids production components, their packaging and internal transport.

A schematic of the production line for ground reinforcement grids is shown in Fig.4.1.

This module takes into account energy consumption and wastages generated in the production plant, as well as losses generated in the production process.

5.3.4. C1-C2 – DEMOLITION AND TRANSPORT

The end of life stage commence with demolition. C1 module covers object's deconstruction within selective waste collection at deconstruction location (tab. 5.1.).

C2 module is the beginning of waste treatment and describe waste transport. It was assumed that waste transport carried out to waste management plant and landfill (tab. 5.1.). For calculation purposes European fuel averages are applied.

5.3.5. C3-C4 – WASTE PROCESSING AND MANAGEMENT

For the purpose of life cycle analysis, scenarios were developed for modules C3 and C4. In C3 module was assumed that 42,6% of waste plastic is incinerate with energy recovery and 32,5% of waste plastic is recycled. The remaining 24,9% of waste ground reinforcement grids will undergo landfilling (tab.5.1.).

Table 5.1: End of life scenario for ground reinforcement grids

Module	Assumption
C1	42,8 MJ/kg – caloric value of diesel
C2	50 km – landfill 50 km – waste management plant
C3	42,6% - incineration with energy recovery 32,5% - recycling
C4	24,9% - landfilling

5.3.6. D – BENEFITS AND LOADS BEYOND THE SYTEM BOUNDARY

Module D describe the environmental benefits and loads of energy recovery of waste materials at the end of life.

DATA COLLECTION PERIOD	The data regarding the production of products refer to period from 01.01.2023 r. to 31.12.2023r.
DATA QUALITY	The values determined to calculate the LCA originate from verified manufacturer inventory data. The LCA analysis uses data prepared based on actual consumption at the production site. The details collected are no more than two years old.
CALCULATION RULES	The impacts of the representative ground reinforcement grids products were aggregated using weighted average. The weighted average method was used according to the percentage of each product of ground reinforcement grid based on the relations to whole production quantity. Impacts were calculated for all ground reinforcement grids: BERA Stable Fix Eco 40L, BERA Stable Fix Eco 40, BERA Stable Fix Eco 40HD, BERA Stable Fix Eco 50, BERA Stable Fix Eco 50HD, BERA Stable Fix Eco SF-ECO-63XHD. The LCA analysis was conducted in accordance with the EN 15804+A2.
BACKGROUND DATA	The main source of general and auxiliary data is the Ecoinvent 3.9 database.

6. LIFE CYCLE ASSESSMENT (LCA) - RESULTS

Life cycle assessment (LCA) of this environmental declaration covers A1-A3, C1-C4, D modules („cradle to gate” with modules C1-C4, D). Tabel 6.1. shows the LCA modules considered in calculating the environmental impact categories for the products covered by this declaration.

Tabel 1: Life cycle stages included and not declared in system boundary.

Product stage			Construction process stage		Use stage							End of life stage				
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use stage	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X – modules defined.

MND – modules not declared

Indicators describing environmental impact of product can be categorized as general environmental impacts, additional impacts and environmental aspects related to resources. The abbreviations and its explanations used to describe the environmental impact of ground reinforcement grids are shown below (tab. 6.2).

The tables 6.3-6.8. present the results of the LCA analysis for ground reinforcement grids products.

Tabel 6.2: Abbreviations and its explanations used in LCA analysis.

ENVIRONMENTAL IMPACT INDICATORS	
GWP-total	Global Warming Potential – total
GWP-fossil	Greenhouse potential - fossil
GWP-biogenic	Greenhouse potential - biogenic

GWP-luluc	Global warming potential - land use and land use change
ODP	Stratospheric ozone depletion potential
AP	Soil and water acidification potential
EP-freshwater	Eutrophication potential - freshwater
EP-marine	Eutrophication potential - seawater
EP-terrestrial	Eutrophication potential - terrestrial
POCP	Potential for photochemical ozone synthesis
ADP-minerals & metals*	Potential for depletion of abiotic resources - non-fossil resources
ADP-fossil*	Abiotic depletion potential – fossil fuels
WDP	Water deprivation potential
ADDITIONAL ENVIRONMENTAL IMPACTS INDICATORS	
PM	Particulate matter
IRP**	Potential human exposure efficiency relative to U235
ETP-fw*	Potential comparative toxic unit for ecosystems
HTP-c*	Potential comparative toxic unit for humans (cancer effects)
HTP-nc*	Potential comparative toxic unit for humans (non-cancer effects)
SQP*	Potential soil quality index
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE INDICATORS	
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
PEN-RE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
RE	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
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES INDICATORS	
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRU	Components for reuse
MFR	Materials for recycling
MER	Materials for energy recovery
EEE	Exported electrical energy
EET	Exported thermal energy

*The results should be used with caution because there is high uncertainty or limited experience with these indicators.

**Apply mainly the possible impact of the nuclear fuel cycle on human health resulting from low ionizing radiation.

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Table 6.3: Ground reinforcement grid BERA Stable Fix Eco 40L LCA analysis results

Results per m²: BERA Stable Fix Eco 40L (4.80 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	1.49E+00	3.45E-01	1.76E+00	3.60E+00	5.76E-04	2.41E-02	6.78E+00	1.52E-01	-1.11E+01
GWP-fossil	eq. kg CO2	1.91E+00	3.44E-01	1.74E+00	4.00E+00	5.76E-04	2.40E-02	6.78E+00	1.52E-01	-1.10E+01
GWP-biogenic	eq. kg CO2	-4.20E-01	3.05E-04	1.67E-02	-4.03E-01	1.25E-07	1.84E-05	-1.32E-03	1.05E-04	-5.94E-02
GWP-luluc	eq. kg CO2	1.63E-03	1.70E-04	5.30E-04	2.33E-03	6.48E-08	1.17E-05	4.04E-04	1.08E-05	-3.37E-03
ODP	eq. kg CFC 11	1.93E-08	7.50E-09	8.63E-09	3.54E-08	9.16E-12	5.45E-10	7.18E-09	3.32E-10	-5.27E-08
AP	mol H+	5.25E-03	7.53E-04	1.28E-02	1.88E-02	5.34E-06	5.95E-05	2.36E-03	1.03E-04	-8.17E-02
EP-freshwater	eq. kg P	2.62E-04	2.45E-05	2.10E-03	2.39E-03	1.77E-08	1.77E-06	8.39E-05	1.91E-06	-1.34E-02
EP-marine	eq. kg N	2.08E-03	1.90E-04	1.83E-03	4.09E-03	2.47E-06	1.62E-05	1.04E-03	5.73E-04	-1.15E-02
EP-terrestrial	eq. mol N	1.67E-02	1.93E-03	1.59E-02	3.45E-02	2.69E-05	1.66E-04	9.10E-03	4.04E-04	-1.01E-01
POCP	eq. kg NMVOC	6.39E-03	1.17E-03	4.62E-03	1.22E-02	7.96E-06	9.71E-05	2.90E-03	1.75E-04	-2.92E-02
ADP-minerals &metals*	eq. kg Sb	6.96E-06	1.15E-06	7.07E-06	1.52E-05	2.06E-10	6.89E-08	2.26E-06	3.09E-08	-4.51E-05
ADP-fossil*	MJ	2.00E+01	4.93E+00	2.03E+01	4.52E+01	7.59E-03	3.68E-01	6.49E+00	3.10E-01	-1.26E+02
WDP	eq. m³	4.29E-01	2.45E-02	3.78E-01	8.31E-01	1.88E-05	1.89E-03	2.98E-01	1.76E-03	-2.41E+00
ADDITIONAL IMPACTS										
PM	Disease incidence	1.11E-07	2.57E-08	2.29E-08	1.59E-07	1.49E-10	2.38E-09	3.71E-08	2.20E-09	-1.45E-07
IRP**	eg. kBq U235	7.49E-02	6.62E-03	5.74E-02	1.39E-01	3.58E-06	4.60E-04	2.22E-02	4.29E-04	-3.65E-01
ETP-fw*	CTUe	7.80E+00	2.42E+00	5.96E+00	1.62E+01	3.60E-03	1.75E-01	3.56E+00	2.29E-01	-3.62E+01
HTP-c*	CTUh	2.37E-09	1.58E-10	7.39E-10	3.26E-09	1.77E-13	1.07E-11	8.07E-10	8.45E-12	-4.70E-09
HTP-nc*	CTUh	1.72E-08	3.50E-09	3.42E-08	5.48E-08	1.24E-12	2.63E-10	1.46E-08	3.31E-10	-2.18E-07
SQP*	dimensionless	5.02E+01	2.96E+00	4.39E+00	5.76E+01	5.06E-04	3.70E-01	4.43E+00	6.93E-01	-2.77E+01

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ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	7.73E+00	7.69E-02	1.90E+00	9.70E+00	4.29E-05	5.34E-03	3.06E-01	5.68E-03	-1.21E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	7.73E+00	7.69E-02	1.90E+00	9.70E+00	4.29E-05	5.34E-03	3.06E-01	5.68E-03	-1.21E+01
PEN-RE	MJ	1.84E+01	4.50E+00	2.01E+01	4.30E+01	6.90E-03	3.36E-01	6.00E+00	2.83E-01	-1.25E+02
PENRM	MJ	1.57E+00	4.27E-01	1.63E-01	2.16E+00	6.93E-04	3.19E-02	4.96E-01	2.63E-02	-9.00E-01
PENRT	MJ	2.00E+01	4.93E+00	2.03E+01	4.52E+01	7.59E-03	3.68E-01	6.49E+00	3.10E-01	-1.26E+02
SM	kg	5.41E+00	5.41E-03	1.07E-01	5.52E+00	4.39E-06	3.68E-04	1.75E+00	2.69E-04	-6.83E-01
RSF	MJ	1.79E-02	1.46E-03	6.10E-02	8.04E-02	4.84E-07	8.97E-05	5.03E-03	5.49E-05	-3.89E-01
NRSF	MJ	3.04E-02	2.87E-03	2.11E-01	2.45E-01	1.31E-06	1.86E-04	8.93E-03	1.49E-04	-1.34E+00
FW	m ³	7.38E-03	5.95E-04	5.15E-02	5.95E-02	4.07E-07	4.90E-05	2.46E-03	3.09E-04	-3.35E-01

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	9.63E-02	4.62E-03	5.95E-02	1.60E-01	6.31E-06	3.44E-04	7.39E-02	4.16E-04	-3.78E-01
NHWD	kg	8.38E-01	2.39E-01	7.48E-02	1.15E+00	4.68E-06	3.16E-02	3.25E-01	1.20E+00	-4.23E-01
RWD	kg	1.90E-05	1.61E-06	1.41E-05	3.47E-05	8.26E-10	1.11E-07	5.60E-06	1.03E-07	-8.97E-05
CRU	kg	-9.99E-22	-1.88E-22	1.73E-21	5.39E-22	-5.79E-26	-6.98E-24	-6.65E-21	2.88E-23	-1.11E-20
MFR	kg	6.81E-02	4.90E-03	1.04E-01	1.77E-01	3.61E-06	3.17E-04	2.11E-02	1.91E-04	-6.63E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Table 6.4: Ground reinforcement grid BERA Stable Fix Eco 40HD LCA analysis results

Results per m²: BERA Stable Fix Eco 40HD (7.80 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	2.83E+00	5.61E-01	2.85E+00	6.24E+00	5.76E-04	3.91E-02	1.10E+01	2.48E-01	-1.36E+01
GWP-fossil	eq. kg CO2	3.01E+00	5.60E-01	2.83E+00	6.39E+00	5.76E-04	3.91E-02	1.10E+01	2.48E-01	-1.35E+01
GWP-biogenic	eq. kg CO2	-1.80E-01	4.96E-04	2.72E-02	-1.53E-01	1.25E-07	2.99E-05	-2.14E-03	1.71E-04	-7.28E-02
GWP-luluc	eq. kg CO2	2.12E-03	2.76E-04	8.61E-04	3.25E-03	6.48E-08	1.91E-05	6.56E-04	1.76E-05	-4.13E-03
ODP	eq. kg CFC 11	2.89E-08	1.22E-08	1.40E-08	5.51E-08	9.16E-12	8.86E-10	1.17E-08	5.40E-10	-6.45E-08
AP	mol H+	7.99E-03	1.22E-03	2.08E-02	3.00E-02	5.34E-06	9.67E-05	3.83E-03	1.67E-04	-1.00E-01
EP-freshwater	eq. kg P	3.92E-04	3.98E-05	3.42E-03	3.85E-03	1.77E-08	2.88E-06	1.36E-04	3.10E-06	-1.64E-02
EP-marine	eq. kg N	3.22E-03	3.09E-04	2.97E-03	6.49E-03	2.47E-06	2.63E-05	1.69E-03	9.31E-04	-1.41E-02
EP-terrestrial	eq. mol N	2.54E-02	3.14E-03	2.58E-02	5.43E-02	2.69E-05	2.70E-04	1.48E-02	6.57E-04	-1.24E-01
POCP	eq. kg NMVOC	9.61E-03	1.90E-03	7.50E-03	1.90E-02	7.96E-06	1.58E-04	4.71E-03	2.84E-04	-3.57E-02
ADP-minerals &metals*	eq. kg Sb	1.07E-05	1.87E-06	1.15E-05	2.41E-05	2.06E-10	1.12E-07	3.68E-06	5.03E-08	-5.52E-05
ADP-fossil*	MJ	3.03E+01	8.01E+00	3.30E+01	7.13E+01	7.59E-03	5.97E-01	1.05E+01	5.03E-01	-1.55E+02
WDP	eq. m³	6.22E-01	3.98E-02	6.14E-01	1.28E+00	1.88E-05	3.07E-03	4.84E-01	2.86E-03	-2.95E+00
ADDITIONAL IMPACTS										
PM	Disease incidence	1.71E-07	4.17E-08	3.73E-08	2.49E-07	1.49E-10	3.87E-09	6.02E-08	3.57E-09	-1.77E-07
IRP**	eg. kBq U235	1.11E-01	1.08E-02	9.33E-02	2.15E-01	3.58E-06	7.48E-04	3.60E-02	6.97E-04	-4.47E-01
ETP-fw*	CTUe	1.20E+01	3.93E+00	9.68E+00	2.56E+01	3.60E-03	2.85E-01	5.78E+00	3.73E-01	-4.43E+01
HTP-c*	CTUh	3.19E-09	2.56E-10	1.20E-09	4.64E-09	1.77E-13	1.74E-11	1.31E-09	1.37E-11	-5.75E-09
HTP-nc*	CTUh	2.66E-08	5.68E-09	5.55E-08	8.79E-08	1.24E-12	4.27E-10	2.38E-08	5.38E-10	-2.66E-07
SQP*	dimensionless	3.69E+01	4.80E+00	7.12E+00	4.88E+01	5.06E-04	6.01E-01	7.20E+00	1.13E+00	-3.39E+01

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	4.31E+00	1.25E-01	3.08E+00	7.52E+00	4.29E-05	8.67E-03	4.98E-01	9.23E-03	-1.48E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4.31E+00	1.25E-01	3.08E+00	7.52E+00	4.29E-05	8.67E-03	4.98E-01	9.23E-03	-1.48E+01
PEN-RE	MJ	2.79E+01	7.32E+00	3.27E+01	6.79E+01	6.90E-03	5.45E-01	9.74E+00	4.60E-01	-1.53E+02
PENRM	MJ	2.40E+00	6.94E-01	2.65E-01	3.36E+00	6.93E-04	5.18E-02	8.06E-01	4.27E-02	-1.10E+00
PENRT	MJ	3.03E+01	8.01E+00	3.30E+01	7.13E+01	7.59E-03	5.97E-01	1.05E+01	5.03E-01	-1.55E+02
SM	kg	8.74E+00	8.78E-03	1.74E-01	8.92E+00	4.39E-06	5.98E-04	2.84E+00	4.38E-04	-8.37E-01
RSF	MJ	2.58E-02	2.37E-03	9.91E-02	1.27E-01	4.84E-07	1.46E-04	8.18E-03	8.92E-05	-4.76E-01
NRSF	MJ	4.44E-02	4.66E-03	3.43E-01	3.92E-01	1.31E-06	3.02E-04	1.45E-02	2.42E-04	-1.64E+00
FW	m ³	1.03E-02	9.67E-04	8.37E-02	9.50E-02	4.07E-07	7.97E-05	4.00E-03	5.02E-04	-4.10E-01

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	1.52E-01	7.51E-03	9.67E-02	2.56E-01	6.31E-06	5.60E-04	1.20E-01	6.76E-04	-4.63E-01
NHWD	kg	1.34E+00	3.88E-01	1.22E-01	1.85E+00	4.68E-06	5.14E-02	5.29E-01	1.95E+00	-5.17E-01
RWD	kg	2.81E-05	2.61E-06	2.29E-05	5.36E-05	8.26E-10	1.81E-07	9.09E-06	1.68E-07	-1.10E-04
CRU	kg	-1.43E-21	-3.06E-22	2.81E-21	1.07E-21	-5.79E-26	-1.13E-23	-1.08E-20	4.67E-23	-1.36E-20
MFR	kg	1.04E-01	7.96E-03	1.69E-01	2.81E-01	3.61E-06	5.15E-04	3.43E-02	3.10E-04	-8.12E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



Table 6.5: Ground reinforcement grid BERA Stable Fix Eco 40 LCA analysis results

Results per m²: BERA Stable Fix Eco 40 (6.4 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	1.99E+00	4.60E-01	2.34E+00	4.79E+00	5.76E-04	3.21E-02	9.04E+00	2.03E-01	-2.21E+01
GWP-fossil	eq. kg CO2	2.55E+00	4.59E-01	2.32E+00	5.33E+00	5.76E-04	3.20E-02	9.04E+00	2.03E-01	-2.20E+01
GWP-biogenic	eq. kg CO2	-5.60E-01	4.07E-04	2.23E-02	-5.38E-01	1.25E-07	2.46E-05	-1.75E-03	1.40E-04	-1.18E-01
GWP-luluc	eq. kg CO2	2.17E-03	2.27E-04	7.06E-04	3.10E-03	6.48E-08	1.56E-05	5.39E-04	1.44E-05	-6.71E-03
ODP	eq. kg CFC 11	2.57E-08	1.00E-08	1.15E-08	4.72E-08	9.16E-12	7.27E-10	9.58E-09	4.43E-10	-1.05E-07
AP	mol H+	7.00E-03	1.00E-03	1.71E-02	2.51E-02	5.34E-06	7.93E-05	3.14E-03	1.37E-04	-1.62E-01
EP-freshwater	eq. kg P	3.50E-04	3.26E-05	2.80E-03	3.18E-03	1.77E-08	2.37E-06	1.12E-04	2.55E-06	-2.66E-02
EP-marine	eq. kg N	2.77E-03	2.53E-04	2.43E-03	5.46E-03	2.47E-06	2.16E-05	1.38E-03	7.64E-04	-2.29E-02
EP-terrestrial	eq. mol N	2.23E-02	2.57E-03	2.12E-02	4.60E-02	2.69E-05	2.22E-04	1.21E-02	5.39E-04	-2.01E-01
POCP	eq. kg NMVOC	8.52E-03	1.56E-03	6.15E-03	1.62E-02	7.96E-06	1.30E-04	3.86E-03	2.33E-04	-5.81E-02
ADP-minerals &metals*	eq. kg Sb	9.28E-06	1.54E-06	9.42E-06	2.02E-05	2.06E-10	9.18E-08	3.02E-06	4.12E-08	-8.97E-05
ADP-fossil*	MJ	2.66E+01	6.57E+00	2.70E+01	6.03E+01	7.59E-03	4.90E-01	8.65E+00	4.13E-01	-2.51E+02
WDP	eq. m³	5.71E-01	3.26E-02	5.03E-01	1.11E+00	1.88E-05	2.52E-03	3.97E-01	2.35E-03	-4.79E+00
ADDITIONAL IMPACTS										
PM	Disease incidence	1.47E-07	3.08E-08	3.06E-08	2.09E-07	1.49E-10	3.17E-09	4.94E-08	2.93E-09	-2.88E-07
IRP**	eg. kBq U235	9.99E-02	7.94E-03	7.65E-02	1.84E-01	3.58E-06	6.14E-04	2.96E-02	5.72E-04	-7.27E-01
ETP-fw*	CTUe	1.04E+01	2.90E+00	7.94E+00	2.12E+01	3.60E-03	2.34E-01	4.74E+00	3.06E-01	-7.20E+01
HTP-c*	CTUh	3.16E-09	1.89E-10	9.85E-10	4.33E-09	1.77E-13	1.43E-11	1.08E-09	1.13E-11	-9.35E-09
HTP-nc*	CTUh	2.29E-08	4.19E-09	4.55E-08	7.26E-08	1.24E-12	3.50E-10	1.95E-08	4.42E-10	-4.33E-07
SQP*	dimensionless	6.69E+01	3.54E+00	5.84E+00	7.63E+01	5.06E-04	4.94E-01	5.91E+00	9.25E-01	-5.51E+01

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	1.03E+01	9.21E-02	2.53E+00	1.29E+01	4.29E-05	7.11E-03	4.09E-01	7.58E-03	-2.40E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.03E+01	9.21E-02	2.53E+00	1.29E+01	4.29E-05	7.11E-03	4.09E-01	7.58E-03	-2.40E+01
PEN-RE	MJ	2.45E+01	5.39E+00	2.68E+01	5.68E+01	6.90E-03	4.48E-01	7.99E+00	3.78E-01	-2.49E+02
PENRM	MJ	2.09E+00	5.12E-01	2.17E-01	2.82E+00	6.93E-04	4.25E-02	6.61E-01	3.50E-02	-1.79E+00
PENRT	MJ	2.66E+01	5.91E+00	2.70E+01	5.96E+01	7.59E-03	4.90E-01	8.66E+00	4.13E-01	-2.51E+02
SM	kg	7.22E+00	6.48E-03	1.43E-01	7.37E+00	4.39E-06	4.90E-04	2.33E+00	3.59E-04	-1.36E+00
RSF	MJ	2.39E-02	1.75E-03	8.13E-02	1.07E-01	4.84E-07	1.20E-04	6.71E-03	7.32E-05	-7.74E-01
NRSF	MJ	4.05E-02	3.43E-03	2.82E-01	3.25E-01	1.31E-06	2.48E-04	1.19E-02	1.98E-04	-2.67E+00
FW	m ³	9.84E-03	7.13E-04	6.87E-02	7.92E-02	4.07E-07	6.54E-05	3.28E-03	4.12E-04	-6.66E-01

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	1.28E-01	5.54E-03	7.93E-02	2.13E-01	6.31E-06	4.59E-04	9.86E-02	5.55E-04	-7.52E-01
NHWD	kg	1.12E+00	2.86E-01	9.97E-02	1.50E+00	4.68E-06	4.22E-02	4.34E-01	1.60E+00	-8.41E-01
RWD	kg	2.53E-05	1.93E-06	1.88E-05	4.60E-05	8.26E-10	1.48E-07	7.46E-06	1.38E-07	-1.79E-04
CRU	kg	-1.33E-21	-2.25E-22	2.30E-21	7.43E-22	-5.79E-26	-9.31E-24	-8.87E-21	3.83E-23	-2.21E-20
MFR	kg	9.08E-02	5.87E-03	1.39E-01	2.35E-01	3.61E-06	4.22E-04	2.82E-02	2.54E-04	-1.32E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



Table 6.6: Ground reinforcement grid BERA Stable Fix Eco 50HD LCA analysis results

Results per m²: BERA Stable Fix Eco 50HD (9.56 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	2.98E+00	6.82E-01	3.51E+00	7.17E+00	5.76E-04	4.79E-02	1.35E+01	3.04E-01	-1.64E+01
GWP-fossil	eq. kg CO2	3.81E+00	6.81E-01	3.47E+00	7.96E+00	5.76E-04	4.79E-02	1.35E+01	3.03E-01	-1.63E+01
GWP-biogenic	eq. kg CO2	-8.37E-01	6.03E-04	4.70E-02	-7.90E-01	1.25E-07	3.67E-05	-2.62E-03	2.09E-04	-8.79E-02
GWP-luluc	eq. kg CO2	3.24E-03	3.36E-04	1.06E-03	4.63E-03	6.48E-08	2.33E-05	8.05E-04	2.16E-05	-4.99E-03
ODP	eq. kg CFC 11	3.84E-08	1.48E-08	1.72E-08	7.04E-08	9.16E-12	1.09E-09	1.43E-08	6.62E-10	-7.79E-08
AP	mol H+	1.05E-02	1.49E-03	2.55E-02	3.75E-02	5.34E-06	1.18E-04	4.70E-03	2.04E-04	-1.21E-01
EP-freshwater	eq. kg P	5.22E-04	4.84E-05	4.19E-03	4.76E-03	1.77E-08	3.53E-06	1.67E-04	3.80E-06	-1.98E-02
EP-marine	eq. kg N	4.14E-03	3.76E-04	3.67E-03	8.19E-03	2.47E-06	3.23E-05	2.07E-03	1.14E-03	-1.70E-02
EP-terrestrial	eq. mol N	3.33E-02	3.82E-03	3.16E-02	6.88E-02	2.69E-05	3.31E-04	1.81E-02	8.05E-04	-1.50E-01
POCP	eq. kg NMVOC	1.27E-02	2.31E-03	9.20E-03	2.42E-02	7.96E-06	1.93E-04	5.77E-03	3.48E-04	-4.32E-02
ADP-minerals &metals*	eq. kg Sb	1.39E-05	2.28E-06	1.41E-05	3.02E-05	2.06E-10	1.37E-07	4.51E-06	6.16E-08	-6.67E-05
ADP-fossil*	MJ	3.98E+01	9.75E+00	4.04E+01	9.00E+01	7.59E-03	7.32E-01	1.29E+01	6.17E-01	-1.87E+02
WDP	eq. m³	8.54E-01	4.84E-02	7.52E-01	1.65E+00	1.88E-05	3.76E-03	5.93E-01	3.51E-03	-3.56E+00
ADDITIONAL IMPACTS										
PM	Disease incidence	2.20E-07	5.08E-08	4.57E-08	3.17E-07	1.49E-10	4.74E-09	7.38E-08	4.37E-09	-2.14E-07
IRP**	eg. kBq U235	1.49E-01	1.31E-02	1.14E-01	2.77E-01	3.58E-06	9.16E-04	4.42E-02	8.55E-04	-5.40E-01
ETP-fw*	CTUe	1.55E+01	4.78E+00	1.19E+01	3.22E+01	3.60E-03	3.49E-01	7.08E+00	4.57E-01	-5.36E+01
HTP-c*	CTUh	4.72E-09	3.12E-10	1.47E-09	6.50E-09	1.77E-13	2.14E-11	1.61E-09	1.68E-11	-6.95E-09
HTP-nc*	CTUh	3.42E-08	6.92E-09	6.81E-08	1.09E-07	1.24E-12	5.23E-10	2.92E-08	6.60E-10	-3.22E-07
SQP*	dimensionless	1.00E+02	5.85E+00	8.74E+00	1.15E+02	5.06E-04	7.37E-01	8.83E+00	1.38E+00	-4.10E+01

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	1.54E+01	1.52E-01	3.78E+00	1.93E+01	4.29E-05	1.06E-02	6.10E-01	1.13E-02	-1.79E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.54E+01	1.52E-01	3.78E+00	1.93E+01	4.29E-05	1.06E-02	6.10E-01	1.13E-02	-1.79E+01
PEN-RE	MJ	3.67E+01	8.90E+00	4.01E+01	8.57E+01	6.90E-03	6.68E-01	1.19E+01	5.64E-01	-1.85E+02
PENRM	MJ	3.13E+00	8.45E-01	3.25E-01	4.30E+00	6.93E-04	6.35E-02	9.88E-01	5.23E-02	-1.33E+00
PENRT	MJ	3.98E+01	9.75E+00	4.04E+01	9.00E+01	7.59E-03	7.32E-01	1.29E+01	6.17E-01	-1.87E+02
SM	kg	1.08E+01	1.07E-02	2.13E-01	1.10E+01	4.39E-06	7.32E-04	3.48E+00	5.37E-04	-1.01E+00
RSF	MJ	3.56E-02	2.88E-03	1.21E-01	1.60E-01	4.84E-07	1.79E-04	1.00E-02	1.09E-04	-5.76E-01
NRSF	MJ	6.05E-02	5.67E-03	4.21E-01	4.87E-01	1.31E-06	3.70E-04	1.78E-02	2.96E-04	-1.99E+00
FW	m ³	1.47E-02	1.18E-03	1.03E-01	1.19E-01	4.07E-07	9.77E-05	4.91E-03	6.15E-04	-4.95E-01

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	1.92E-01	9.15E-03	1.18E-01	3.19E-01	6.31E-06	6.86E-04	1.47E-01	8.28E-04	-5.59E-01
NHWD	kg	1.67E+00	4.72E-01	1.69E-01	2.31E+00	4.68E-06	6.30E-02	6.48E-01	2.39E+00	-6.25E-01
RWD	kg	3.78E-05	3.18E-06	2.81E-05	6.91E-05	8.26E-10	2.21E-07	1.11E-05	2.06E-07	-1.33E-04
CRU	kg	-1.99E-21	-3.72E-22	3.44E-21	1.08E-21	-5.79E-26	-1.39E-23	-1.33E-20	5.73E-23	-1.64E-20
MFR	kg	1.36E-01	9.68E-03	2.07E-01	3.53E-01	3.61E-06	6.31E-04	4.21E-02	3.80E-04	-9.82E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



Table 6.7: Ground reinforcement grid BERA Stable Fix Eco 50 LCA analysis results

Results per m²: BERA Stable Fix Eco 50 (7.20 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	2.24E+00	5.17E-01	2.63E+00	5.39E+00	5.76E-04	3.61E-02	1.02E+01	2.29E-01	-2.71E+01
GWP-fossil	eq. kg CO2	2.87E+00	5.17E-01	2.61E+00	5.99E+00	5.76E-04	3.61E-02	1.02E+01	2.29E-01	-2.69E+01
GWP-biogenic	eq. kg CO2	-6.30E-01	4.58E-04	2.51E-02	-6.04E-01	1.25E-07	2.76E-05	-1.97E-03	1.58E-04	-1.45E-01
GWP-luluc	eq. kg CO2	2.44E-03	2.55E-04	7.94E-04	3.49E-03	6.48E-08	1.76E-05	6.06E-04	1.63E-05	-8.22E-03
ODP	eq. kg CFC 11	2.89E-08	1.12E-08	1.29E-08	5.31E-08	9.16E-12	8.18E-10	1.08E-08	4.98E-10	-1.28E-07
AP	mol H+	7.88E-03	1.13E-03	1.92E-02	2.82E-02	5.34E-06	8.92E-05	3.54E-03	1.54E-04	-1.99E-01
EP-freshwater	eq. kg P	3.93E-04	3.67E-05	3.15E-03	3.58E-03	1.77E-08	2.66E-06	1.26E-04	2.86E-06	-3.26E-02
EP-marine	eq. kg N	3.12E-03	2.85E-04	2.74E-03	6.14E-03	2.47E-06	2.43E-05	1.56E-03	8.59E-04	-2.81E-02
EP-terrestrial	eq. mol N	2.51E-02	2.90E-03	2.38E-02	5.18E-02	2.69E-05	2.50E-04	1.36E-02	6.07E-04	-2.46E-01
POCP	eq. kg NMVOC	9.58E-03	1.75E-03	6.92E-03	1.83E-02	7.96E-06	1.46E-04	4.34E-03	2.62E-04	-7.12E-02
ADP-minerals &metals*	eq. kg Sb	1.04E-05	1.73E-06	1.06E-05	2.28E-05	2.06E-10	1.03E-07	3.40E-06	4.64E-08	-1.10E-04
ADP-fossil*	MJ	3.00E+01	7.39E+00	3.04E+01	6.78E+01	7.59E-03	5.51E-01	9.74E+00	4.64E-01	-3.08E+02
WDP	eq. m³	6.43E-01	3.67E-02	5.66E-01	1.25E+00	1.88E-05	2.83E-03	4.47E-01	2.64E-03	-5.87E+00
ADDITIONAL IMPACTS										
PM	Disease incidence	1.66E-07	3.85E-08	3.44E-08	2.39E-07	1.49E-10	3.57E-09	5.56E-08	3.29E-09	-3.53E-07
IRP**	eg. kBq U235	1.12E-01	9.93E-03	8.60E-02	2.08E-01	3.58E-06	6.90E-04	3.33E-02	6.44E-04	-8.91E-01
ETP-fw*	CTUe	1.17E+01	3.63E+00	8.93E+00	2.42E+01	3.60E-03	2.63E-01	5.33E+00	3.44E-01	-8.83E+01
HTP-c*	CTUh	3.55E-09	2.36E-10	1.11E-09	4.89E-09	1.77E-13	1.61E-11	1.21E-09	1.27E-11	-1.15E-08
HTP-nc*	CTUh	2.57E-08	5.25E-09	5.12E-08	8.22E-08	1.24E-12	3.94E-10	2.20E-08	4.97E-10	-5.31E-07
SQP*	dimensionless	7.53E+01	4.43E+00	6.57E+00	8.63E+01	5.06E-04	5.55E-01	6.65E+00	1.04E+00	-6.76E+01

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	1.16E+01	1.15E-01	2.84E+00	1.45E+01	4.29E-05	8.00E-03	4.60E-01	8.52E-03	-2.95E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.16E+01	1.15E-01	2.84E+00	1.45E+01	4.29E-05	8.00E-03	4.60E-01	8.52E-03	-2.95E+01
PEN-RE	MJ	2.76E+01	6.75E+00	3.02E+01	6.45E+01	6.90E-03	5.03E-01	8.99E+00	4.25E-01	-3.06E+02
PENRM	MJ	2.36E+00	6.41E-01	2.44E-01	3.24E+00	6.93E-04	4.78E-02	7.44E-01	3.94E-02	-2.20E+00
PENRT	MJ	3.00E+01	7.39E+00	3.04E+01	6.78E+01	7.59E-03	5.51E-01	9.74E+00	4.64E-01	-3.08E+02
SM	kg	8.12E+00	8.11E-03	1.61E-01	8.29E+00	4.39E-06	5.52E-04	2.62E+00	4.04E-04	-1.67E+00
RSF	MJ	2.68E-02	2.19E-03	9.14E-02	1.20E-01	4.84E-07	1.35E-04	7.55E-03	8.23E-05	-9.49E-01
NRSF	MJ	4.56E-02	4.30E-03	3.17E-01	3.66E-01	1.31E-06	2.79E-04	1.34E-02	2.23E-04	-3.27E+00
FW	m ³	1.11E-02	8.93E-04	7.72E-02	8.92E-02	4.07E-07	7.36E-05	3.70E-03	4.63E-04	-8.16E-01

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	1.44E-01	6.94E-03	8.91E-02	2.41E-01	6.31E-06	5.17E-04	1.11E-01	6.24E-04	-9.22E-01
NHWD	kg	1.26E+00	3.58E-01	1.12E-01	1.73E+00	4.68E-06	4.75E-02	4.88E-01	1.80E+00	-1.03E+00
RWD	kg	2.85E-05	2.41E-06	2.11E-05	5.20E-05	8.26E-10	1.67E-07	8.40E-06	1.55E-07	-2.19E-04
CRU	kg	-1.50E-21	-2.82E-22	2.59E-21	8.06E-22	-5.79E-26	-1.05E-23	-9.98E-21	4.31E-23	-2.71E-20
MFR	kg	1.02E-01	7.34E-03	1.56E-01	2.65E-01	3.61E-06	4.75E-04	3.17E-02	2.86E-04	-1.62E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



Table 6.8: Ground reinforcement grid BERA Stable Fix Eco SF-ECO-63XHD LCA analysis results

Results per m²: BERA Stable Fix Eco SF-ECO-63XHD (20.28 kg/m²)										
PARAMETER	UNIT	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ENVIRONMENTAL IMPACTS										
GWP-total	eq. kg CO2	7.71E+00	1.50E+00	7.42E+00	1.66E+01	5.76E-04	1.02E-01	2.86E+01	6.44E-01	-5.74E+01
GWP-fossil	eq. kg CO2	7.72E+00	1.50E+00	7.35E+00	1.66E+01	5.76E-04	1.02E-01	2.86E+01	6.44E-01	-5.70E+01
GWP-biogenic	eq. kg CO2	-1.89E-02	1.33E-03	7.07E-02	5.32E-02	1.25E-07	7.78E-05	-5.56E-03	4.44E-04	-3.07E-01
GWP-luluc	eq. kg CO2	5.03E-03	7.40E-04	2.24E-03	8.01E-03	6.48E-08	4.95E-05	1.71E-03	4.58E-05	-1.74E-02
ODP	eq. kg CFC 11	7.30E-08	3.26E-08	3.65E-08	1.42E-07	9.16E-12	2.30E-09	3.03E-08	1.40E-09	-2.72E-07
AP	mol H+	2.03E-02	3.28E-03	5.42E-02	7.77E-02	5.34E-06	2.51E-04	9.96E-03	4.34E-04	-4.22E-01
EP-freshwater	eq. kg P	9.89E-04	1.07E-04	8.88E-03	9.97E-03	1.77E-08	7.49E-06	3.54E-04	8.07E-06	-6.91E-02
EP-marine	eq. kg N	8.22E-03	8.26E-04	7.71E-03	1.68E-02	2.47E-06	6.85E-05	4.38E-03	2.42E-03	-5.95E-02
EP-terrestrial	eq. mol N	6.45E-02	8.40E-03	6.71E-02	1.40E-01	2.69E-05	7.03E-04	3.84E-02	1.71E-03	-5.22E-01
POCP	eq. kg NMVOC	2.43E-02	5.09E-03	1.95E-02	4.89E-02	7.96E-06	4.10E-04	1.22E-02	7.38E-04	-1.51E-01
ADP-minerals &metals*	eq. kg Sb	2.74E-05	5.01E-06	2.99E-05	6.23E-05	2.06E-10	2.91E-07	9.57E-06	1.31E-07	-2.33E-04
ADP-fossil*	MJ	7.68E+01	2.14E+01	8.57E+01	1.84E+02	7.59E-03	1.55E+00	2.74E+01	1.31E+00	-6.52E+02
WDP	eq. m³	1.55E+00	1.06E-01	1.60E+00	3.25E+00	1.88E-05	7.97E-03	1.26E+00	7.45E-03	-1.24E+01
ADDITIONAL IMPACTS										
PM	Disease incidence	4.35E-07	1.12E-07	9.68E-08	6.44E-07	1.49E-10	1.01E-08	1.57E-07	9.27E-09	-7.48E-07
IRP**	eg. kBq U235	2.80E-01	2.88E-02	2.43E-01	5.51E-01	3.58E-06	1.94E-03	9.37E-02	1.81E-03	-1.89E+00
ETP-fw*	CTUe	3.07E+01	1.05E+01	2.52E+01	6.64E+01	3.60E-03	7.41E-01	1.50E+01	9.69E-01	-1.87E+02
HTP-c*	CTUh	7.69E-09	6.86E-10	3.12E-09	1.15E-08	1.77E-13	4.53E-11	3.41E-09	3.57E-11	-2.43E-08
HTP-nc*	CTUh	6.82E-08	1.52E-08	1.44E-07	2.28E-07	1.24E-12	1.11E-09	6.19E-08	1.40E-09	-1.12E-06
SQP*	dimensionless	5.57E+01	1.29E+01	1.85E+01	8.71E+01	5.06E-04	1.56E+00	1.87E+01	2.93E+00	-1.43E+02

ENVIRONMENTAL PRODUCT DECLARATION
GROUND REINFORCEMENT GRIDS
FOR GRASS AND ROADS



ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

PERE	MJ	3.81E+00	3.35E-01	8.01E+00	1.22E+01	4.29E-05	2.25E-02	1.29E+00	2.40E-02	-6.24E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.81E+00	3.35E-01	8.01E+00	1.22E+01	4.29E-05	2.25E-02	1.29E+00	2.40E-02	-6.24E+01
PEN-RE	MJ	7.07E+01	1.96E+01	8.50E+01	1.75E+02	6.90E-03	1.42E+00	2.53E+01	1.20E+00	-6.48E+02
PENRM	MJ	6.09E+00	1.86E+00	6.87E-01	8.64E+00	6.93E-04	1.35E-01	2.10E+00	1.11E-01	-4.65E+00
PENRT	MJ	7.68E+01	2.14E+01	8.57E+01	1.84E+02	7.59E-03	1.55E+00	2.74E+01	1.31E+00	-6.52E+02
SM	kg	2.27E+01	2.35E-02	4.53E-01	2.31E+01	4.39E-06	1.55E-03	7.38E+00	1.14E-03	-3.53E+00
RSF	MJ	6.43E-02	6.34E-03	2.58E-01	3.28E-01	4.84E-07	3.79E-04	2.13E-02	2.32E-04	-2.01E+00
NRSF	MJ	1.11E-01	1.25E-02	8.92E-01	1.02E+00	1.31E-06	7.86E-04	3.77E-02	6.28E-04	-6.93E+00
FW	m ³	2.54E-02	2.59E-03	2.18E-01	2.46E-01	4.07E-07	2.07E-04	1.04E-02	1.31E-03	-1.73E+00

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

HWD	kg	3.90E-01	2.01E-02	2.51E-01	6.61E-01	6.31E-06	1.46E-03	3.12E-01	1.76E-03	-1.95E+00
NHWD	kg	3.45E+00	1.04E+00	3.16E-01	4.81E+00	4.68E-06	1.34E-01	1.37E+00	5.06E+00	-2.18E+00
RWD	kg	7.06E-05	7.00E-06	5.96E-05	1.37E-04	8.26E-10	4.70E-07	2.36E-05	4.36E-07	-4.64E-04
CRU	kg	-3.54E-21	-8.18E-22	7.29E-21	2.93E-21	-5.79E-26	-2.95E-23	-2.81E-20	1.21E-22	-5.73E-20
MFR	kg	2.64E-01	2.13E-02	4.40E-01	7.25E-01	3.61E-06	1.34E-03	8.93E-02	8.06E-04	-3.43E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

7. REFERENCES

- PN-EN 15804+A2:2020 Sustainability of construction works -- Environmental product declarations -- Core rules for the product category of construction products.
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business
- PN-EN ISO 14025:2006 Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services
- PN-EN ISO 14044:2006 Environmental management -- Life cycle assessment -- Requirements and guidelines
- PN-EN ISO 14067:2018-10 Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification
- Ecoinvent 3.9. database



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CERTYFICATE No. 2024-0051.3

of TYPE III ENVIRONMENTAL DECLARATION

Product:

Ground reinforcement grids for grass and roads:

- BERA Stable Fix Eco 40L
- BERA Stable Fix Eco 40
- BERA Stable Fix Eco 40HD
- BERA Stable Fix Eco 50
- BERA Stable Fix Eco 50HD
- BERA Stable Fix Eco SF-ECO-63XHD

Manufacturer:

BERA B.V.
MIDDELAARSEWEG 3A
3871 KR HOEVELAKEN
TIN: NL 819536593B01

confirms the correctness of the data included in the development of the Type III Environmental Declaration and accordance with the requirements of the standard:

EN 15804+A2:2019

Sustainability of construction works --
Environmental product declarations --
Core rules for the product category of construction products

This certificate, published on 25/03/2026 and is valid for 5 years from issue date or until amendment of mentioned Environmental Declaration.



Director of the Certification
Department
CERTBUD Sp. z o.o.

K. Pawłowski

Kamil PAWŁOWSKI

Warsaw, 03/06/2024 r.