Environmental Product Declaration

Una compañía participada por Sacyr Servicios

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

BioRoad® additive

from

Único green

Programme:	The International EPD® System, www.environdec.com
Programme operator:	PLP group S.r.l.
EPD registration number:	S-P-09424
Publication date:	2023-07-07
Valid until:	2023-07-07

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

ECO PLATFORM EPD VERIFIED

EPD®

GRUPPO PLP

General information

Programme information

Programme:	The International EPD® System
Address:	PLP group S.r.l. Via Provinciale, Via Turci, 9 83025 Montoro Italy
Website:	www.plpgroup.it
E-mail:	info@plpgroup.it

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products (EN 15804:A2) UN CPC 35 Other chemical products; man-made fibres
Life Cycle Assessment (LCA)
LCA accountability: Andrea Rocco - *info@plpgroup.it* PLP group S.r.l.
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: Certiquality is an approved certification body accountable for third-party verification Third-party verifier is accredited by: PLP, certificate n. 003H rev. 17
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, 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 and ISO 14025.

Company information

Owner of the EPD: Sacyr Único S.I. (Único Green) Calle Condesa de Venadito 7, 28027 Madrid - Spain
Contact: Leonardo Coelho
Description of the organisation: Único Green is a leading Spanish company in the production of high-tech additives and sustainable technologies for asphalt pavements.

Vision

Safety and environmental impact reduction through the reuse and recycling of existing asphalt pavements, by using innovative production materials and technologies.

Mission

Long-lasting, safe and ecological roads. From the project to the construction.

For more than 10 years Único green has been producing high-tech additives for the construction of longer-lasting and sustainable asphalt pavements. The company is strongly customer-oriented and provides technical assistance and know-how from the project to the construction and laying of asphalt pavements.

Name and location of production site: Arrabal Zona Valor Pedregals, 4, 46181 Benisanó – Valencia – Spain

Product information

Product name: BioRoad®

Safe, ecological and long-lasting road, from the project to the construction. Único green's commercial policy combines the quality of products and services with technical support, assistance and consultancy in order to meet customers' requests and specifications' requirements.

Product identification: BioRoad®
Product description: BioRoad® is a new generation asphalt additive based on amphiphilic surfactant based on environmentally friendly residual vegetable graxo acid ester enriched with graphene that provides longer asphalt concrete life while improving the manufacturing, paving and compacting processes.

LCA information

Functional unit / declared unit: 1 kg Time representativeness: 2022
Database and LCA software used: Ecoinvent 3.8, Simapro 9.4.0.2
Description of system boundaries: Cradle to gate. Modules C1–C4 and module D are not considered because:

- products are physically integrated with other products during installation so they cannot be physically separated from them at end of life;
- products are no longer identifiable at end of life as a result of a physical or chemical transformation process;

System diagram:

UPSTREAM

- A1 Raw material supply and processing (including packaging)
- A1 Generation and supply of energy
- A1 Waste production by processes above

CORE

- A2 External and internal transports
- A3 Production of the products (including packaging)
- A3 Use of auxiliar materials
- A3 Waste management by production process

More information: Leonardo Coelho – *info@unico-green.com*

Process description

The chemical plant consists of two mixers (A and B), which work at room temperature. Up to 4 different raw materials are loaded into the plant from storage tanks and taken from IBCs.
The mixing of the components takes place through a management system where lot and quantity are set. At the end of the mixing, the finished product is loaded directly into trucks or packed in the foreseen packaging.

Allocation

The allocation established for the mass balance of the products, in accordance with the reference PCR, was made on the basis of the production in kg referring to the year 2022.
The consumption of electricity, methane gas and plant waste were allocated to total production of the reference year.

Data quality

About generic data, throughout the analysis, the following criteria were applied:

- geographic equivalence, considering similar Spanish or at most European systems;
- technological equivalence, considering comparable technological systems through literature searches;
- equivalence with respect to system boundaries, considered systems that consider similar inputs and outputs and similar phases.

As regards generic data, information between 2021 and 2022 was considered. Site-specific data refer to the year 2022.

Proxy Data

Thanks to the knowledge and collaboration of the technical staff of Único Green it was possible to model the incoming raw materials with precision where available congruent Ecoinvent modules. Only for some items it was not possible to accurately model the matter with the Ecoinvent 3.8 database. For more information, contact the LCA accountable.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	ES	ES	ES	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Specific data used	>90%			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Variation – products	-			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Variation – sites	-			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-

Content information

BioRoad®

COMPOSITION: Mixture of vegetal derivatives and specific additives.
Components & Hazardous materials: Confidential. For more information please contact us.

Environmental Information - Results per functional unit (1 kg)

Impact category		Unit	A1	A2	A3	A1-A3
MAIN INDICATORS	GWP-fossil	kg CO2 eq.	1,89E+00	4,96E-02	1,18E-02	1,95E+00
	GWP-biogenic	kg CO2 eq.	-2,85E+00	2,67E-05	1,62E-03	-2,85E+00
	GWP-luluc	kg CO2 eq.	2,12E-03	2,06E-05	6,02E-06	2,14E-03
	GWP-total	kg CO2 eq.	-9,65E-01	4,97E-02	1,34E-02	-9,01E-01
	ODP	Kg CFC11 eq	1,24E-04	1,08E-08	1,08E-09	1,24E-04
	AP	Mol H+ eq.	3,65E-02	2,52E-04	5,61E-05	3,68E-02
	EP-freshwater	Kg P eq.	5,32E-04	3,74E-06	8,57E-06	5,45E-04
	EP-marine	Kg N eq.	3,26E-02	8,53E-05	1,61E-04	3,28E-02
	EP-terrestrial	Mol N eq.	1,50E-01	9,32E-04	1,60E-04	1,51E-01
	POCP	Kg NMVOC eq.	7,83E-03	2,65E-04	2,95E-05	8,13E-03
	ADPF	MJ	1,70E-05	1,71E-07	6,06E-08	1,72E-05
	ADPE	Kg Sb eq.	2,56E+01	7,37E-01	3,35E-02	2,64E+01
	Water Use	m3 world eq deprived	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	GHG (EN15804+A1)	kg CO2 eq	1,78E+00	4,92E-02	1,17E-02	1,84E+00
ADDITIONAL INDICATORS	PM	disease inc.	2,53E-07	4,36E-09	8,89E-10	2,58E-07
	IRP	kBq U235 eq.	1,10E-01	3,38E-03	7,58E-04	1,14E-01
	ETP-fw	CTUe	7,03E+01	6,34E-01	3,05E+00	7,39E+01
	HTP-nc	CTUh	1,51E-07	6,15E-10	7,85E-10	1,53E-07
	HTP-c	CTUh	2,81E-09	1,88E-11	3,08E-11	2,86E-09
	SQP	Pt	1,49E+02	5,00E-01	7,06E-02	1,50E+02
RESOURCE CONSUMPTION	PERE	MJ	3,85E+01	8,49E-03	5,34E-03	3,85E+01
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	3,85E+01	8,49E-03	5,34E-03	3,85E+01
	PENRE	MJ	2,75E+01	0,00E+00	9,89E-02	2,76E+01
	PENRM	MJ	1,46E-01	0,00E+00	0,00E+00	1,46E-01
	PENRT	MJ	2,76E+01	0,00E+00	9,89E-02	2,77E+01
	SM	Kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	FW	m3	0,00E+00	0,00E+00	0,00E+00	0,00E+00
WASTE PRODUCTION	HWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	NHWD	kg	3,15E-01	3,75E-02	6,71E-03	3,59E-01
	RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	1,43E-02	1,43E-02
	MER	kg	0,00E+00	0,00E+00	1,35E-04	1,35E-04
	EEE	MJ	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

Acronims:

GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non- renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water; HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re- use; MFR = Material for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal.

ADP-minerals&metals - ADP-fossil - WDP: *Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

References

General Programme Instructions of the International EPD® System. Version 3.1.
UNI EN ISO 14040: 2021, Gestione ambientale – Valutazione del ciclo di vita – Principi e quadro di riferimento.
UNI EN ISO 14044: 2021, Gestione ambientale – Valutazione del ciclo di vita – Requisiti e linee guida.
UNI EN ISO 14025:2010, Etichette e dichiarazioni ambientali - Dichiarazioni ambientali di Tipo III - Principi e procedure
EN 15804:2012 + A2:2019, Sostenibilità delle costruzioni – Dichiarazioni ambientali di prodotto – Regole chiave di sviluppo per categoria di prodotto.
PCR 2019:14 Construction products (EN 15804:A2) (1.11), IVL Swedish Environmental Research Institute, EPD International Secretariat
Association of Issuing Bodies – European Residual Mixes. Results of the calculation of Residual Mixes for the calendar year 2020. Version 1.0, 2021-05-31.

CONTACT INFORMATION

EPD owner: Una compañía participada por Sacyr Servicios

LCA author: Una compañía participada por Sacyr Servicios

Programme operator: GRUPPO PLP