Environmental Product Declaration

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

DRYSEAL

from

DRYKOS SRL

Programme:	The International EPD® System, www.environdec.com
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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

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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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 CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES, PCR 2019:14, v 2.0.0, Codice CPC: 3549
PCR review was conducted by: The Technical Committee of the International EPD® System. Review chairs: Rob Rouwette (chair), Noa Meron (co-chair). A full list of members available on www.environdec.com.
Life Cycle Assessment (LCA)
LCA accountability: *DRYKOS SRL*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: < *Bureau Veritas Italia SpA* > Approved by: The International EPD® System
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: Drykos Srl
Contact: Clara Bisotto (c.bisotto@drykos.com)

Description of the organisation: Drykos conducts research, development and production in Italy, and it'is a leading manufacturer of crystallizing action waterproofing and in the supply and installation of systems that extend the life of concrete works. Drykos' crystallizing technology is an innovative water-based chemical treatment that, when added as an admixture to concrete, waterproofs it and protects it from chemical attacks, extending its service life.

Name and location of production site(s):
Registered office: Via Poli 29, 00187, Rome
Offices: Via San Vittore 7, 20123, Milan; Piazza Marconi 7, 12020, Tarantasca (CN)
Manufacturing Plant: North Industrial Area 68, Via Villafalletto, 12020 Tarantasca (CN)

Product information

Product name: Dryseal
Product identification: Code Mixture. Product name: DRYKOS®DRYSEAL
Product description: DRYSEAL is a single-component, water-based liquid waterproofing agent with crystallizing action that, through a surface spray application, penetrates deeply into concrete and cement-based substrates, remediating them from moisture, sealing any wet cracks up to 0.5 mm, and protecting the concrete from chemical attacks. The product penetrates into the concrete pores and, by chemically reacting with moisture and cement hydration by-products, develops a needle-like crystalline formation that seals pores and micro-cracks, deeply restoring the substrate and increasing the durability of the cement conglomerate. The latter significantly depends on the porosity of the conglomerate through which aggressive gases and liquids can penetrate. The considerable decrease in the permeability of the cement system also results in a significant improvement in the material's resistance to chemical attacks and freeze-thaw cycles. A single application is sufficient for the product to exert its restoring and waterproofing action. DRYSEAL reactivates whenever new moisture phenomena occur, creating a perennial protection mechanism.
The conversion from liters to kilograms was carried out using the provided density of 1,167 g/cm^3.

Since the product is a mixture obtained starting from inorganic compounds, the content of biogenic carbon is null.

Technical Data sheet:
https://res.cloudinary.com/dz0auzjfr/image/upload/v1697807169/Drykos%20Product%20Pdfs%20EN/SCHEDA_TECNICA_DRYSEAL_ENG.pdf

UN CPC code: 3549

Geographical scope: GLO (A1-A2), ITA (A3)

LCA information

Functional unit / declared unit: 1 litre + packaging
Reference service life: not applicable
Time representativeness: 2024
Database(s) and LCA software used: Ecoinvent, SimaPro
Description of system boundaries: Cradle to gate (A1–A3).
Modules C1-C4 and module D are excluded according to Section 2.2.2.1 of PCR 2019:14 v 2.0.0.

System diagram:
The following production stages are listed below:

1. purchasing
2. transportation
3. incoming raw material quality control
4. storage
5. loading materials into the plant
6. mixing
7. finished product quality control
8. discharge into IBCs
9. internal storage
10. transfer to logistics
11. logistics storage
12. delivery to customer

Data Quality summary: the data quality was assessed in accordance with the Commission Recommendation 2013/179/EU (PEF) and UNI EN 15804:2019 (Annex E).
For each dataset, three scores were assigned related to temporal representativeness (TiR), technical representativeness (TeR), and geographical representativeness (GR), following the criteria set out in Table 5 of the PEF Recommendation.
The overall Data Quality Rating (DQR) was then calculated as the arithmetic mean of these three values: DQR = (TiR + TeR + GR) / 3. Based on the obtained value, datasets were classified into quality levels ranging from “excellent” to “poor,” with only those achieving at least a “good quality” level being considered acceptable.
Overall, the data quality was considered “good” and no data were excluded from the analysis in the LCA report. A summary is reported in the table in the next page.

Process name	Source type	Source	Relevance year	Data category	Share of data, of GWP-GHG results for A1-A3	Relevance	TiR	TeR	GR	DQR	Quality rating
Carbonate	Company data	Ecoinvent 3.11	2024	secondary	6%	6% for GWP GHG; for others from 5,65% (Land use) to 68,66% (Water use)	2	2	2	2,00	Very good quality
Isopropyl alcohol	Company data	Ecoinvent 3.11	2024	secondary	28%	28% for GWP GHG; for others from 6,56% (Water use) to 40,81% (Ecotoxicity, freshwater)	2	2	2	2,00	Very good quality
packaging	Company data	Ecoinvent 3.11	2024	secondary	38%	38% for GWP GHG; for others from 12,03% (Water use) to 46,57 % (Ozone depletion)	2	2	2	2,00	Very good quality
upstream packaging processing	Company data	Ecoinvent 3.11	2024	secondary	16%	16% for GWP GHG; for others from 1,50% (Resource use, minerals and metals) to 52,32% (Land use)	2	2	2	2,00	Very good quality
										2,19	Good quality

Share of primary data used: Within modules A1–A3, 2% of the GWP-GHG results are based on primary data. The table below reports the processes that contribute more than 10% to the GWP-GHG results of modules A1–A3.

Process name	Source type	Source	Relevance year	Data category	Share greater than 10% GWP-GHG results for A1-A3
Isopropyl alcohol	Company data	Ecoinvent 3.11	2024	secondary	28%
packaging	Company data	Ecoinvent 3.11	2024	secondary	38%
upstream packaging processing	Company data	Ecoinvent 3.11	2024	secondary	16%
total share of primary data, of GWP-GHG results for A1-A3					3%

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	GLO	GLO	IT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific data used	3%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

System boundaries considered in the study (ND = module not declared). The GWP-GHG value of the electricity generated in A1 and used in A3 is equal to 6,56E-01 kgCO2/kWh. The processing is carried out at a single site in Drykos.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
H2O	0,84826	0	0
Calcium Carbonate (B)	0,14525	0	0
Isopropyl alcohol (C)	0,14525	0	0
Inorganic substance (D)	0,01162	0	0
Inorganic substance (E)	0,01162	0	0
TOTAL	1,16200	0	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
HDPE	0,0750	64,54%	-
TOTAL	0,0750	64,54%	-

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
-	-	-	-

Results of the environmental performance indicators

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

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit		
Indicator	**Unit**	**A1-A3**
GWP-fossil	kg CO_2 eq.	1,77E+00
GWP-biogenic	kg CO_2 eq.	-3,38E-02
GWP-luluc	kg CO_2 eq.	1,92E-03
GWP- total	kg CO_2 eq.	1,74E+00
ODP	kg CFC 11 eq.	4,03E-08
AP	mol H^+ eq.	8,22E-03
EP-freshwater	kg P eq.	4,65E-04
EP-marine	kg N eq.	1,51E-03
EP-terrestrial	mol N eq.	1,56E-02
POCP	kg NMVOC eq.	7,88E-03
ADP-minerals&metals*	kg Sb eq.	3,63E-05
ADP-fossil*	MJ	3,81E+01
WDP*	m^3	1,58E+00
Acronyms	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	

** 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.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit		
Indicator	**Unit**	**A1-A3**
GWP-GHG[1]	kg CO_2 eq.	1,76E+00

Resource use indicators

Results per functional or declared unit		
Indicator	**Unit**	**A1-A3**
PERE	MJ	5,47E+00
PERM	MJ	0,00E+00
PERT	MJ	5,47E+00
PENRE	MJ	3,80E+01
PENRM	MJ	1,02E-01
PENRT	MJ	3,81E+01
SM	kg	0,00E+00
RSF	MJ	0,00E+00
NRSF	MJ	0,00E+00
FW	m^3	3,82E-02
Acronyms	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	

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per functional or declared unit		
Indicator	**Unit**	**A1-A3**
Hazardous waste disposed	kg	5,37E-04
Non-hazardous waste disposed	kg	2,33E-01
Radioactive waste disposed	kg	4,20E-05

Output flow indicators

Results per functional or declared unit		
Indicator	**Unit**	**A1-A3**
Components for re-use	kg	0,00E+00
Material for recycling	kg	0,00E+00
Materials for energy recovery	kg	0,00E+00
Exported energy, electricity	MJ	0,00E+00
Exported energy, thermal	MJ	0,00E+00

References

General Programme Instructions of the International EPD® System. Version 5.0.1
PCR 2019:14. CONSTRUCTION PRODUCTS 2.0.0
Report LCA_DRYKOS_REV01_2024

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