Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Gyvlon Binder

from

Anhydritec



EPD Gyvlon binder 70.8 grams CO2eq per kg









General information

Programme information

Programme:	The International EPD [®] System
	EPD International AB
	Box 210 60
Address:	SE-100 31 Stockholm
	Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804:A2 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2012:01. Construction Products and Construction Services. UN CPC Code: 152 Gypsum; anhydrite; limestone flux; limestone and other calcareous stone, of a kind used for the manufacture of lime or cement

PCR review was conducted by: IVL Swedish Environmental Research Institute

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

 \Box EPD process certification \boxtimes EPD verification

Third party verifier: Dr. Hudai Kara, Metsims Sustainability Consulting [www.metsims.com]

Approved by: The International EPD[®] System

Procedure for follow-up of data during EPD validity involves third party verifier:

 \Box Yes \boxtimes No

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

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.





Company information

<u>Owner of the EPD:</u> Anhydritec UK Ltd. part of the Minersa Group <u>Contact:</u> Kevin Thomas National Sales Manager UK & Ireland

Description of the organisation:

Anhydritec[®] is the business unit of Minersa Group that transforms anhydrite into floor screed applications which are sold in more than 15 European countries.

In the UK, Anhydritec develops, produces and offers a wide range of anhydrite-based flowing screeds under the brands Gyvlon Screed & Gyvlonmobil. The whole range of Gyvlon liquid flowing screeds is manufactured in approved concrete plants or mix mobiles, based on formulations designed by Anhydritec under strict quality controls. The readymix screed is delivered on site and applied by applicators (screeder's) who are trained and approved by Anhydritec to ensure correct application of the products. Since Anhydritec introduced flowing screeds in the UK 30 years ago, its network of approved distribution partners and applicators has grown to become one of the largest in the UK.

Also, under the Tecdrit[®] brand name, anhydrite is used as a component in the formulation of adhesive mortars, cements and fertilisers (see S-P-04919).

Product-related or management system-related certifications:

Anhydritec UK has global policy with regards to management system:

- ISO 9001: 2015: Quality management systems
- ISO 14021:1999: >95% Recycled material used
- ISO14001 Enviromental management systems
- BES 6001 Responsible Sourcing (in progress)

Name and location of production site(s):

Anhydritec Ltd. Winsford works, Cheshire, CW7 3BU, UK

Product information

<u>Product name:</u> Gyvlon Binder <u>Product identification:</u> Gyvlon Binder CAB 30 (EN 13454) <u>Product description:</u>

Gyvlon Binder is a formulation of synthetic anhydrite, a by-product derived from the chemical industry, which is micronized and blended with additives and used as the binder in self levelling flowing floor screeds. Gyvlon liquid flowing screeds are produced at the readymix plants by mixing Gyvlon Binder, sand aggregates and water to produce a low carbon, low impact alternative screed to traditional and flowing sand-cement screeds. Gyvlon liquid flowing screeds are delivered by mixer truck and pumped onto the floors of buildings. Thanks to their high fluidity, they are easily compacted and levelled by screeder's using a dappling bar to achieve a flat (Surface Regularity SR1 to SR2) level, smooth surface. Within 24 hrs, the screed sets, hardens and is ready for foot traffic within 24 to 48 hrs. Gyvlon liquid flowing screeds do not shrink, which leads to no curling or cracking of the finished product, a thin cross-section (from 12mm) and high mechanical performance, unlike cementitious screeds. Gyvlon liquid flowing screeds are perfectly suited to cover underfloor heating pipes thanks to their higher thermal conductivity and thinner cross-section, exhibiting more reactivity and thermal performance than other screeds. Thus, they are thinner, lighter and more robust, they offer more thermal performance, present a very low environmental impact and have a service life 'equal to the life of the building' (BBA Certificate, 50-60 years 'Normal life').

<u>UN CPC code:</u> 152 Gypsum; anhydrite; limestone flux; limestone and other calcareous stone, of a kind used for the manufacture of lime or cement.





LCA information

<u>Functional unit / declared unit:</u> 1 kg of Gyvlon Binder CAB 30 <u>Reference service life:</u> Life of Building (BBA Certificate) <u>Time representativeness:</u> N/A <u>Database(s) and LCA software used:</u> Ecoinvent 3.7 with Simapro 9.1.0.7. <u>Description of system boundaries:</u> Cradle to gate (A1–A3)





<u>More information</u>: This EPD is based upon an underlying LCA of the Anhydritec manufacturing process, with operational data obtained for 2019. The underlying LCA was conducted by Dr Callum Hill, senior consultant at Renuables Ltd (http://renuables.co.uk). All relevant inputs and outputs have been considered in the LCA. A standard GB electricity grid mix was used. For indicator values: As per EN 15804:2012+A2:2019. Lower heating value was used for all calculations involving primary energy resources (see www.environdec.com for more information). No cut-off criteria were applied.

This EPD contains information about environmental impact, use of resources and waste production in the form of quantitative indicators. The following abbreviations and have been used in the tables which quantify environmental performance:

Indicator	Abbreviation
Global warming potential (Fossil, biogenic, land use and transformation (LUT))	GWP
Depletion potential of the stratospheric ozone layer	ODP
Acidification potential	AP
Eutrophication potential	EP
Formation potential of tropospheric ozone	POCP
Abiotic depletion potential – Elements	ADPE
Abiotic depletion potential – Fossil resources	ADPF
Water scarcity potential	WSP
Primary energy resources – Renewable (use as energy carrier)	PERE
Primary energy resources – Renewable (use raw materials)	PERM
Primary energy resources – Renewable (total)	PERT
Primary energy resources – Non-renewable (use as energy carrier)	PENRE
Primary energy resources – Non-renewable (use raw materials)	PENRM
Primary energy resources – Non-renewable (total)	PENRT
Secondary material	SM
Renewable secondary fuels	RSF
Non-renewable secondary fuels	NRSF
Net use of fresh water	NUFW
Hazardous waste disposed	HWD
Non-hazardous waste disposed	NHWD
Radioactive waste disposed	RWD
Components for re-use	CFR
Material for recycling	MFR
Materials for energy recovery	MFER
Exported energy, electricity	EE-E
Exported energy, thermal	EE-T





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

	Product stage			Consti proces		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	В4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	х	х	х	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Geographical Scope

Europe

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Gypsum	0.96	0	0
Additives	0.04	0	0
TOTAL	1.00	0	0
Packaging materials	Weight, kg	Weight-% (versus the proc	luct)
None	0	0	

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
None	N/A	N/A	N/A



Environmental Information

Potential environmental impact - mandatory indicators according to EN15804

			Res	ults p	er kg	of Gy	vlon	binde	r							
Indicator	Unit	Tot. A1-A3	A4	A5	B1	B2	В3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	7.07E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic	kg CO2 eq.	3.14E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc	kg CO2 eq.	4.25E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-total	kg CO ₂ eq.	7.08E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC 11 eq.	8.41E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	mol H⁺ eq.	6.94E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-freshwater	kg PO₄³- eq.	9.03E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine	kg N eq.	1.40E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial	mol N eq.	1.55E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg NMVOC eq.	4.18E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPE*	kg Sb eq.	3.50E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF*	MJ	7.77E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP	m ³	1.49E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* 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.





Use of resources

			Res	ults p	er kg	of Gy	vlon	binde	r							
Indicator	Unit	Tot. A1-A3	A4	A5	B1	B2	B 3	B 4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	3.94E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	3.94E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	8.62E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ.	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	8.62E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NRSF	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m ³	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Waste production and output flows

Waste production

	Results per kg of Gyvlon binder															
Indicator	Unit	Tot.A1-A3	A4	A5	B1	B2	B 3	B 4	B5	B 6	B7	C1	C2	C3	C4	D
HWD	kg	5.94E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	4.00E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	4.48E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Output flows

			Res	ults p	Results per kg of Gyvlon binder														
Indicator	Unit	Tot. A1-A3	A4	A5	B1	B2	B 3	B4	B5	B 6	B7	C1	C2	C3	C4	D			
CFR	kg	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
MFR	kg	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
MFER	kg	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
EE-E	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
EE-T	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			

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Additional information

Screed ingredients

Different types of screeds are available on the market, all using a different blend of materials. The most common screeds available and their respective compositions are:

GyvIon liquid flowing screed = Anhydrite-based GyvIon Binder + Sand + Water

Cementitious flowing screeds = OPC¹ Cement + Filler/binder + Sand + Water

Traditional sand cement screeds = OPC¹ cement + Sand + Water

1: Ordinary Portland Cement

Unlike the other types of screeds available, Gyvlon Flowing Liquid Screeds **do not use cement** and therefore exhibit a very low embodied carbon content.

Gyvlon Binder is a formulation of synthetic anhydrite, a by-product derived from the chemical industry, which is micronized and blended with additives. Gyvlon binder is therefore composed of >95% recycled materials (BS EN ISO 14021)

Gyvlon liquid flowing screeds are delivered directly to the site ready for use, which generates **zero waste on-site.** This compares favourably against site mixed traditional sand-cement or bagged floor levelling screeds which create bags, plastic wrappers and pallet waste.

The utilisation of Gyvlon binder in flowing screeds not only increases productivity compared to traditional screed solutions but it also improves the working conditions of the applicators. Flowing screeds are applied through a pump from a standing position, preventing musculoskeletal disorders due to kneeling working positions, heavy lifting of cement bags, shovelling of sands, repetitive manual handling and mixing as well as possible chemical burns.

Gyvlon liquid flowing screeds exhibit high thermal conductivity which, used in conjunction with under floor heating systems, can reduce carbon emissions by reducing the buildings' energy consumption.

Gyvlon screeds are also known as: Anhydrite screeds, Calcium sulphate screeds, Liquid screeds, or Flowing screeds.

Information related to Sector EPD

N/A

Differences versus previous versions

2022-02-14 Version 1.2 Editorial change: Sentence removed from Additional Information section.

References

General Program Instructions of the International EPD[®] System. Version 3.01. PCR 2012:01. Construction Products and Construction Services EN 13813 Screed material and floor screeds. Screed material. Properties and requirements. EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

