

ENVIRONMENTAL PRODUCT DECLARATION TYPE III ITB NO. 951/2026  
ISSUANCE DATE: 14.04.2026 | VALIDATION DATE: 06.05.2026 | INVALIDITY DATE: 14.04.2031

# VOLTEX<sup>®</sup> · VOLTEX<sup>®</sup> DS

## BENTONITE-GEOTEXTILE WATERPROOFING MEMBRANES



### Owner of the EPD

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ITB is the verified member of  
The European Platform  
for EPD program  
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# MANUFACTURER

CETCO is the construction technologies business unit of Minerals Technologies Incorporated, established in 1992. Minerals Technologies Inc. is a global leader in minerals-based application technology with operations spanning over 30 countries and 158 locations. Our international team of clay mineralogists, chemists and polymer scientists, transforms ordinary minerals into extraordinary technology. CETCO-Poland, Cetco Sp. z o.o. S.K.A. is the Polish headquarter of the company located in Szczytno where, since 1998, the largest CETCO production plant in Europe and modern research and development laboratory have operated.

## Passion for Innovation

Our multidisciplinary research and development team creates new products and provides the support our customers need. Our growing portfolio demonstrates our commitment to technological innovation across the markets that we serve.

# BASIC INFORMATION

This declaration is the type III Environmental Product Declaration (EPD) based on PN-EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment. Their aspects were verified by the independent body according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to PN-EN 15804.

### Life cycle analysis (LCA):

A1-A4, C1- C4 and D according to PN-EN 15804 +A2(Cradle to Gate with options)

### The year of preparing the EPD:

2026

### Service Life:

Predicted to be durable for a minimum of 25 years in natural soils with  $4 < \text{pH} < 9$  and soil temperature  $< 25^\circ \text{C}$

### PCR:

ITB-PCR A (PCR based on PN-EN 15804)

### Declared unit:

1 m<sup>2</sup>

### Reasons for performing LCA:

B2B

### Origin:

Polish product



# PRODUCT DESCRIPTION

**VOLTEX®**, **VOLTEX® DS** – bentonite – geotextile waterproofing membranes are composite of high strength geotextiles and min. 4.8 kg/sqm of sodium bentonite. The high swelling, low permeable sodium bentonite is encapsulated between a non-woven and woven geotextile. A proprietary needle punch process interlocks the geotextiles together forming an composite that maintains the equal coverage of bentonite, as well as, protects it from inclement weather and construction related damage.

VOLTEX DS is a version of VOLTEX with an integrally bonded polyethylene liner. Voltex CR and Voltex DSCR with contaminant resistant sodium bentonite was designed for projects where contaminated ground-water / soil exist. VOLTEX waterproofing membranes are designed for below-ground vertical and horizontal structural foundation surfaces. Typical cast-in-place concrete applications include backfilled concrete walls, earth-covered roofs, structural slabs, tunnels, and property line construction. Property line construction applications include soldier pile and lagging, secant/contiguous piling, steel sheet piling, shotcrete and stabilized earth retention walls. Applications may include structures under continuous or intermittent hydrostatic pressure.

The bentonite encapsulated between geotextiles is a naturally occurring mineral that is composed predominantly of the smectite. Most bentonites are formed by the alteration of volcanic ash in marine environments and occur as layers sandwiched between other types of rocks. The smectite in most bentonites is the mineral montmorillonite, which is a dioctahedral smectite. Sodium bentonite-based VOLTEX waterproofing membranes are designed to provide an effective waterproofing barrier against water from the ground. The swelling bentonite fills up cracks and porous in concrete structures and blocks the flow path of water, resulting in an excellent waterproofing barrier.

## What makes CETCO VOLTEX®, VOLTEX® DS unique?

- **Durable needle-punched reinforcement** ensures that VOLTEX waterproofing barriers is durable on building sites. The high needlepunch density provides peel-adhesion to poured concrete.
- **Granular bentonite** creates less dust during installation than powdered bentonite. The high needlepunch density provides high peel-adhesion to poured concrete.
- **It can be custom engineered** to meet the project specific needs, in diversified environmental in both hydrostatic and non-hydrostatic conditions.

## What are the advantages of a VOLTEX® waterproofing system?

### Protection from Water Ingress:

- Can self-seal small cracks while forming watertight laps at the seams.
- Provides a mechanical bond to poured concrete.
- Proven effective in structures under continuous or intermittent hydrostatic pressure – tested up to 70 m (ASTM D 5385 mod.)

### Installation Benefits and Features:

#### Fast and Easy:

- Overlapping seams with mechanical fasteners eliminates installation variables in the field.
- Its composite construction eliminates the need for concrete underblinding.

#### Versatility:

- Can be installed in virtually any weather condition, including freezing temperatures and damp conditions.
- Can be installed on green concrete without primers or adhesives.
- Proven effective in both vertical and horizontal applications – i.e., backfilled and property-line walls.

## Delivery and Packaging

VOLTEX® waterproofing membranes are delivered in the form of rolls with standard dimensions:

1.15 m x 5 m, 2.5 m x 10m or 20 m, 5 m x 20 or 40 m. Other roll dimensions are available upon request. The rolls are packaged in a PE protective wrapping and marked with the manufacturer's label.

## Placing on the market

EN 13491:2004 + EN 13491:2004/A1:2006 can be used as waterproofing barrier as per regulation EU number 305/2011 of 9 March 2011 applies for placing on the market within the European Harmonized Standards listed below.

- EN 13491:2004 + EN 13491:2004/A1:2006 Geosynthetic barriers – Characteristics required for use as a fluid barrier in the construction of tunnels and underground structures

# LIFE CYCLE ASSESSMENT (LCA) – GENERAL RULES APPLIED

## Allocation

The allocation rules used for this EPD are based on general ITB PCR A. Production of the VOLTEX WATERPROOFING BARRIERS is a line process in one factory of CETCO-Poland, Cetco Sp. zo.o. S.K.A. in Korpele (Poland). Allocation was done on product mass basis. All impacts from raw materials extraction are allocated in A1 module of the LCA. Specific impacts from line production of CETCO-Poland, Cetco Sp. zo.o. S.K.A were inventoried and were allocated to the VOLTEX WATERPROOFING BARRIERS production. Utilization of packaging material was taken into consideration. Module A2 includes transport of raw materials from their suppliers to CETCO-Poland, Cetco Sp. zo.o. S.K.A. in Korpele. Municipal wastes were allocated to module A3. Energy supply, emissions and wastes were inventoried were allocated to module A3.

## System Limits

The life cycle analysis of the declared products covers “Product Stage”, A1-A3, C1-C4 and D modules (Cradle to Gate with options) in accordance with PN-EN 15804+A2 and ITB PCR A. The details of systems limits are provided in product technical report. All materials and energy consumption inventoried in factories were included in the calculations. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with PN-EN 15804+A2, machines and facilities (capital goods) required for and during production are excluded, as is transportation of employees.

## A1 and A2 Modules:

Raw materials supply and transport geosynthetics, polymers and packaging materials come from both local and foreign suppliers. Bentonite used in the analyzing period of 2024 originated from Turkish and other resources. Means of transport include trucks with load: <10t, 10 – 16t and >16 and ships with load > 3000t. For calculation purposes Polish and European fuel averages are applied.

## A3: Production

The production process of the VOLTEX WATERPROOFING BARRIERS by CETCO-Poland, Cetco Sp. z o.o. S.K.A. is presented in Fig. 2.

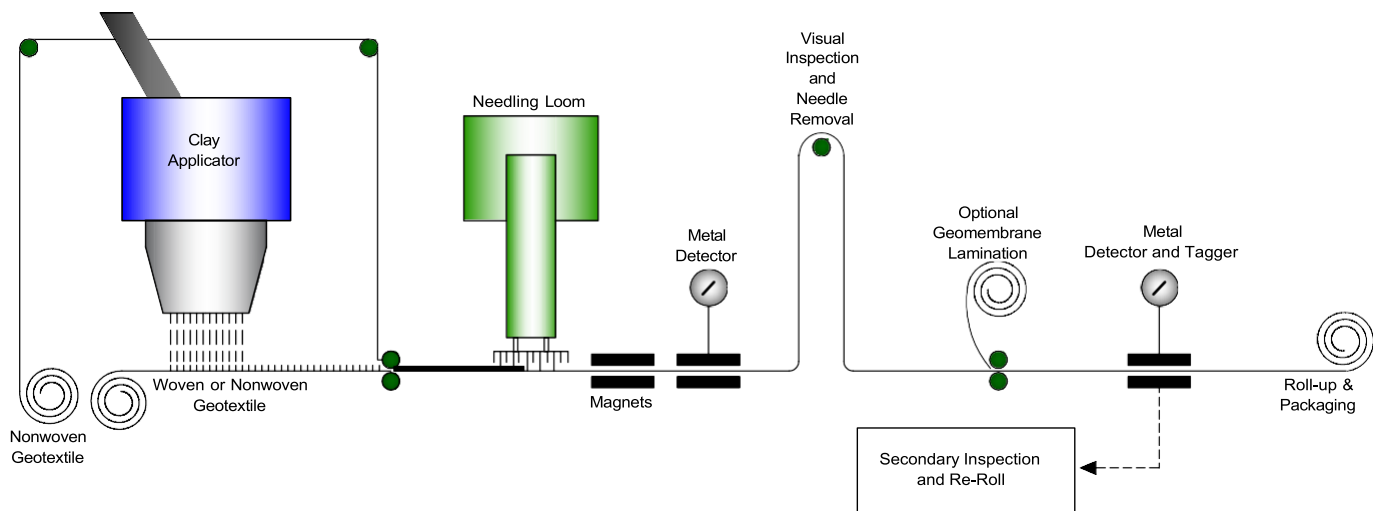


Fig 2. A scheme of manufacturing of VOLTEX WATERPROOFING BARRIERS by CETCO-Poland, Cetco Sp. zo.o. S.K.A..

## Module A4: Transport to consumer

Transport of the place of construction from the Factory to the construction site is carried out using specialized vehicles at customer's request, depending on the terms of the contract. Vehicle transport at distance 100 km is considered (emission standard: Euro 5) with 100% load capacity.

# LIFE CYCLE ASSESSMENT (LCA) – GENERAL RULES APPLIED

## C1-C4 and D Modules: End-of-Life

The end-of-life scenario for all products has been generalized based on actual state of the art. It is assumed that in the end of life stage (C1), some mechanical energy is needed to remove products from installation place, the transport distance for waste to waste processing (C2) is 100 km on > 10t loaded lorry with 100% capacity utilization and fuel consumption of 20 l per 100 km. At the end of life, the polymer based elements are dismantled and the materials recycled according to the national treatment practice of waste what is presented in Table 1. It is assumed that 50% of the mineral part product can be recovered in the recycling process. The remaining 50% goes for landfill. The reuse, recovery and recycling benefits are considered beyond the system boundaries (D) (reuse of mineral part). The end of life scenario for at end-of-life (module C) has been modelled using an average Polish electricity mix as the location where the product reaches end-of life is unknown. Environmental burdens occurring in module C4 are associated with waste-specific short-term emissions to air via landfill gas incineration and landfill leachate, burdens from treatment of short-term leachate (0-100a) in wastewater treatment plant and long-term emissions from landfill to groundwater. Impacts of packaging materials that constitute less than 1.0% of the total system flows was not taken into consideration.

### End-of-Life (modules C and D)

Material	Material Recovery	Landfilling
Bentonite	50%	50%
PP textile	0%	100%

## Data Collection Period

The data for manufacture of the declared products refer to a period between 01.01.2024 – 31.12.2024 (1 year). The life cycle assessments were prepared for Poland as reference area.

## Data Quality

The data selected for LCA originate from ITB-LCI questionnaires completed by manufacturer and verified during data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the following resources database Ecoinvent v.3.11 (polymers, rubber, bentoite, foils, textile, iron oxide). Specific (LCI) data quality analysis was a part of the input data verification. Where no background data was available, data gaps were complemented by manufacturer information and literature research.

## Assumptions and Estimates

The impacts of the representative the VOLTEX WATERPROOFING MEMBRANES were aggregated using weighted average. Impacts were inventoried and calculated for all VOLTEX WATERPROOFING MEMBRANES.

## Calculation Rules

LCA was done in accordance with ITB PCR A document. LCA was performed using ITB-LCA tool developed in accordance with EN15804+A2. Emission of greenhouse gases was calculated using the IPCC GWP method with a 100-year horizon. Emission of acidifying substances, emission of substances to water contributing to oxygen depletion, emission of gases that contribute to the creation of ground-level ozone, abiotic depletion, and ozone depletion emissions where all calculated with the EF 3.1. method. No mass balance approach was used. Biogenic content less than 5%.

## Additional information

Polish electricity mix used is 0.553 kg CO<sub>2</sub>/kWh (KOBiZE 2024). European electricity mix used is 0.43 kg CO<sub>2</sub>/kWh (Ecoinvent v3.11, RER). As a general rule, no particular environmental or health protection measures other than those specified by law are necessary.

## Databases

The data for the processes come from the following databases: Ecoinvent v.3.11, specific EPDs, ITB-Data. Specific data quality analysis was a part of external audit.

# LIFE CYCLE ASSESSMENT (LCA) – GENERAL RULES APPLIED

## LIFE CYCLE ASSESSMENT (LCA) – RESULTS

### Declared Unit

The declaration refers to declared unit (DU) – 1 m<sup>2</sup> of the VOLTEX WATERPROOFING MEMBRANES by CETCO-Poland, Cetco Sp. zo.o. S.K.A.

### Environmental Assessment Information

(MNA – Module not assessed, MD – Module Declared, INA – Indicator Not Assessed)

Product stage	Raw material supply	A1	MD
	Transport	A2	MD
	Manufacturing	A3	MD
Construction process	Transport to construction site	A4	MD
	Construction-installation process	A5	MNA
Use stage	Use	B1	MNA
	Maintenance	B2	MNA
	Repair	B3	MNA
	Replacement	B4	MNA
	Refurbishment	B5	MNA
	Operational energy use	B6	MNA
	Operational water use	B7	MNA
End of life	Deconstruction demolition	C1	MD
	Transport	C2	MD
	Waste processing	C3	MD
	Disposal	C4	MD
Benefits and loads beyond the system boundary	Reuse-recovery-recycling potential	D	MD

Table 1. System boundaries for the environmental characteristic the VOLTEX WATERPROOFING BARRIERS manufactured by CETCO-Poland, Cetco Sp. z o.o. S.K.A.



Table 4. Life cycle assessment (LCA) results for specific product – environmental impacts (DU: 1 m<sup>2</sup>)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.16E+00	8.99E-02	1.37E-01	7.02E-01	2.27E-02	8.60E-02	1.83E-02	9.17E-03	1.11E-02	-1.05E-01
Consumption of renewable primary energy resources used as raw materials	MJ	8.23E-01	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
Total consumption of renewable primary energy resources	MJ	2.81E+00	1.68E-01	1.37E-01	1.47E+00	2.27E-02	8.60E-02	1.83E-02	9.17E-03	1.11E-02	-1.05E-01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	3.01E+01	3.27E+00	1.84E+00	3.36E+01	1.40E+00	1.16E+00	1.28E+00	6.39E-01	6.81E-01	-9.11E-01
Consumption of non-renewable primary energy resources used as raw materials	MJ	1.52E+01	0.00E+00	0.00E+00	1.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	7.61E+01	9.71E+00	2.11E+00	8.29E+01	1.40E+00	1.16E+00	1.28E+00	6.39E-01	6.81E-01	-9.11E-01
Consumption of secondary materials	kg	8.30E-03	1.72E-03	1.88E-04	6.22E-03	6.24E-04	1.06E-04	4.28E-04	2.14E-04	0.00E+00	-5.51E-04
Consumption of renew. secondary fuels	MJ	1.39E-02	1.87E-05	9.46E-07	1.89E-03	8.19E-06	5.91E-07	4.72E-06	2.36E-06	0.00E+00	-3.35E-05
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	1.48E-03	1.48E-03	0.00E+00	9.39E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m3	3.10E-02	6.26E-04	1.49E-03	3.09E-02	1.69E-04	3.15E-04	1.61E-04	8.04E-05	9.83E-05	-1.65E-03

Table 5. Life cycle assessment (LCA) results for specific product – environmental impacts (DU: 1 m<sup>2</sup>)

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	2.97E-01	5.73E-03	2.39E-03	2.97E-01	2.00E-03	1.20E-05	1.43E-03	7.17E-04	9.92E-07	-6.35E-03
Non-hazardous waste	kg	6.39E-01	1.53E-01	3.37E-03	5.39E-01	4.29E-02	6.24E-04	2.55E-02	1.27E-02	2.60E+00	-1.77E-01
Radioactive waste	kg	3.62E-05	4.42E-05	1.46E-06	7.20E-05	4.11E-07	8.70E-07	9.54E-08	4.77E-08	3.83E-06	-2.40E-06
Components for re-use	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	0.00E+00
Materials for recycling	kg	2.24E-03	5.44E-05	1.35E-02	1.57E-02	1.67E-05	1.20E-06	3.96E-06	1.98E-06	0.00E+00	-1.23E-05
Materials for energy recovery	kg	2.36E-06	2.12E-07	9.32E-02	9.32E-02	8.87E-08	1.05E-08	3.20E-08	1.60E-08	0.00E+00	-1.14E-06
Exported Energy	MJ	4.40E+00	2.26E-03	5.51E-03	4.39E+00	6.11E-04	3.46E-03	0.00E+00	0.00E+00	0.00E+00	-2.47E-03

## Verification

The process of verification of this EPD is in accordance with ISO 14025.

After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

## The basis for LCA analysis was PN-EN 15804 and ITB PCR A

Independent verification corresponding to ISO 14025 (subclause 8.1.3.)	● external	internal
External verification of EPD: Ph.D. Halina Prejzner LCI data, audit and verification: M.Sc. Eng. Michał Chwedaczuk LCA data verification: Ph.D., D.Sc., Eng. Michał Piasecki		

Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent, third-party verification organization (see ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

## Normative references

- ITB PCR A General Product Category Rules for Construction Products
- 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
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- PN-EN 15804– Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- PN-EN 15804+A2:2020-03 – 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
- KOBiZE Emissivity rates CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and total dust for electricity, December 2024
- EN 13491:2004 + EN 13491:2004/A1:2006 Geosynthetic barriers – Characteristics required for use as a fluid barrier in the construction of tunnels and

LCA/LCI, input data verification  
Michał Piasecki, Ph.D. D.Sc.

Qualified electronic signature

Head of Thermal Physic, Acoustic and Environment Department  
Agnieszka Winkler-Skalna, Ph.D.

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ITB is the verified member of The European Platform  
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**CERTIFICATE № 951/2026**  
**of TYPE III ENVIRONMENTAL DECLARATION**

Product:  
**VOLTEX® • VOLTEX® DS**  
**BENTONITE-GEOTEXTILE WATERPROOFING MEMBRANES**

Manufacturer:  
**CETCO-Poland, Cetco Sp. z o.o. S.K.A**

Korpele No. 13A - Zone, 12-100 Szczytno, Poland

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

**EN 15804+A2**

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

This certificate, issued for the first time on  
14<sup>th</sup> April 2026  
is valid for 5 years or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics  
and Environment Department  
  
Agnieszka Winkler-Skalna, PhD



Deputy Director  
for Research and Innovation  
  
Krzysztof Kuczyński, PhD

Warsaw, April 2026