ENVIRONMENTAL PRODUCT DECLARATION

VITEXTHERM

EXTERNAL THERMAL INSULATION COMPOSITE SYSTEM (ETICS)

VITEX S.A.

In accordance with ISO14025:2006 and EN 15804:2012+A2:2019

EPD REGISTRATION NUMBER	PUBLICATION DATE	DATE OF VALIDITY	PROGRAM	PROGRAM OPERATOR	UN CPC
S-P-08931	27/03/2023	23/03/2028	THE INTERNATIONAL EPD® SYSTEM www.environdec.com	EPD INTERNATIONAL AB	54650

PROGRAM INFORMATION

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PRODUCT CATEGORY RULES (PCR):	➡ CEN Standard EN 15804 serves as the Core Product Category Rules (PCR) ➡ PCR 2019:14 Construction products version 1.11 (EN 15804:A2) ➡ C-PCR-005 Thermal Insulation Products (EN 16783)
LCA ACCOUNTABILITY:	SustChem Technical Consulting S.A. **www.sustchem.gr**
INDEPENDENT THIRD-PARTY VERIFICATION OF THE DECLARATION AND DATA, ACCORDING TO ISO 14025:2006, VIA:	EPD verification by accredited certification body
THIRD-PARTY VERIFICATION:	Business Quality Verification P.C is an approved certification body accountable for the third-party verification **www.bqv.gr - info@bqv.gr**
THE CERTIFICATION BODY IS ACCREDITED BY:	Hellenic Accreditation System ESYD with accreditation number 1218
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.

The EPD is for a specific product.

COMPANY'S PROFILE

VITEX S.A. offers integrated solutions for Architectural Paints (VITEX), External Thermal Insulation System (VitexTherm), and Bituminous Waterproofing materials (Hermes), in more than 20 countries worldwide.

The Vision & Values of the company are summarized in the following points:

- **LEADERSHIP**
- **EXCELLENCE**
- **MODEL ENTREPRENEURSHIP**
- **SUSTAINABLE DEVELOPMENT**
- **LONG TERM VALUES**

Vitex S.A. nurtures environmental responsibility as an integral part of its corporate philosophy, recognizing the importance of protecting the environment, as well as the challenges arising from climate change. The strategic priority of the company is the effective management of issues related to the environmental impact of its operations, as it seeks to operate with sensitivity and responsibility towards the natural environment.

MILESTONES

1932: Waterproofing materials

1960: Production of the 1st Vitex emulsion paint

1997: Launch of the Vitex tinting system

2000: Founding of a subsidiary in Serbia

2007: New factory in Aspropyrgos

2008: Founding of a subsidiary in Bulgaria

2014: Launch of operation of VitexTherm

2015: Launch of operation of Eumaria

2019: Repacking Vitex's new image

2020: Expansion of the production and storage capacity of the Agia Paraskevi Plant

2022: New factory of ready-made plasters for ETICS

CERTIFICATIONS

ISO 9001 - Quality Management System

ISO 14001 - Environmental Management System

EMAS - EU Eco-Management and Audit Scheme

ISO 45001 - Occupational Health and Safety System

THE SYSTEM

The VitexTherm certified external thermal insulation composite system was created with the knowledge and expertise of the company's personnel and was designed to meet the needs of the market itself for quality external thermal insulation systems.

It is one arm of the overall business activity of Vitex S.A. and constitutes an effective response to the needs of consumers and professionals for a modern, economical, and easy-to-install insulation system.

This fully-integrated external thermal solution –produced at the manufacturing plant of Agia Paraskevi, Aspropyrgos– , contributes significantly to the renovation and energy upgrade of the building, having as main object to secure maximum energy savings, and unsurpassed durability via a safe, and economical system, tailor made to specific needs.

The fully installed external thermal insulation system can contribute substantially to:

- **ENERGY SAVINGS**
- **OVERALL UPGRADING OF BUILDINGS**
- **SHIELDING AND HIGH-LEVEL AESTHETICS**
- **ZERO MAINTENANCE REQUIREMENT**
- **DURABILITY OVER TIME**

The VitexTherm external thermal insulation composite system is comprised of a number of different layers and a variety of construction materials, insulating materials, bonding and reinforcing mortars and a complete range of accessories and surface finishes. Information regarding the technical characteristics of the system can be acquired from the respective Declaration of Performance (DoP), which is available on demand.

SYSTEM CERTIFICATION

Vitex S.A. received an FPC (Factory Production Control) Certificate of Conformity which applies to the construction products:

EXTERNAL THERMAL INSULATION COMPOSITE SYSTEMS (ETICS) WITH RENDERINGS:

- **VITEXTHERM (EXPANDED POLYSTYRENE)**
- **VITEXTHERM MW (MINERAL WOOL)**

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in ETA 15/0148, ETA 19/0180 and EAD 040083-00-0404 are applied and that the factory production control is assessed to be in conformity with the applicable requirements.

CPC CODE

The Central Product Classification code 54650 has been used. The specific code applies for Insulation services. Other CPC codes may also apply corresponding to the respective components that form the system.

COMPONENTS OF THE SYSTEM

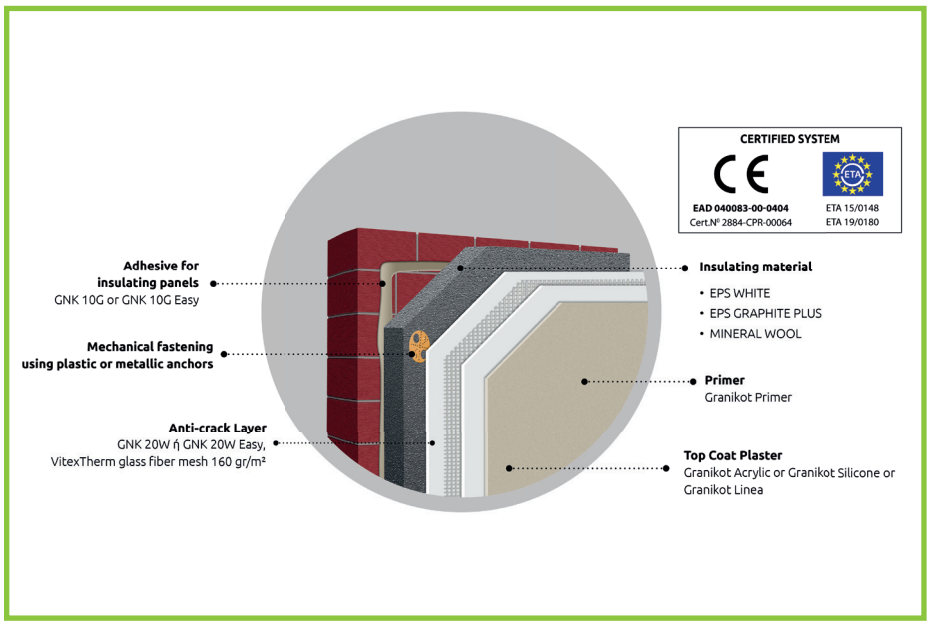
1. ADHESIVE FOR INSULATING PANELS
The first layer of the system consists of a cement-based, polymer modified adhesive for the insulation board applied on the outer surfaces of buildings. Vitex offers two adhesive products for ETICS, branded under the names GNK 10G and GNK 10G Easy. The specific products offer excellent adhesion on the substrate and the insulation boards, flexibility and high mechanical and in temperature variations resistance.

2. INSULATION BOARD
The insulating material is manually installed on the substrate where the adhesive has been applied. The insulating material is either Expanded Polystyrene (White or Graphite) or Mineral Wool. For VitexTherm system, Vitex offers four different EPS types (EPS 80 White and Graphite PLUS, EPS 100 Graphite PLUS, EPS 200 White), and one Mineral Wool, each of which is produced on varying thicknesses, ranging from 2 to 10 cm.

3. ANCHORS FOR MECHANICAL FASTENING
Special properly sized anchors for insulation panels fastening are used, either plastic or metallic. Vitextherm PL and Vitextherm MT are impact driven (metallic and plastic, respectively) anchors for brick, concrete, and other solid & perforated building materials with reinforced plastic pin for surface mounting of the insulating material. Similarly, Vitextherm Thread are threaded anchors with galvanized screw for surface mounting of the insulating material.

4. FIBER GLASS MESH
The VitexTherm Glass Fiber Mesh is an alkali resistant anti-crack layer applied over the insulation board surface to reinforce the fiber reinforced mortar.

5. BASE COAT ADHESIVE
Either GNK 20W or GNK 20W Easy white cement-based mortars, are used in VitexTherm for the coating of insulation panels, in combination with fiberglass mesh. The two mortars provide strong adhesion on the substrate and the insulation materials, flexibility and high mechanical strength and in temperature variations resistance.



6. PRIMER
Vitextherm's Granikot Primer is a white acrylic textured primer, ideal for exterior surfaces from plaster, cement and surfaces painted with water-based paints (plastic, acrylic etc.) It improves the appearance, coverage, adhesion and resistance of Acrylic and Silicone plaster on smooth and uneven surfaces.

7. FINISHING COAT
As for the finishing coat either Granikot Acrylic, Granikot Silicone or Granikot Linea are used. Granikot Acrylic is a high-quality acrylic plaster, ideal for building facades, weather resistant, with excellent protective properties against UV radiance. Highly solid with excellent adhesion and elasticity.
Granikot silicone is a high-quality silicone-based plaster with water repellent properties, resistant to weather conditions, water repellent with high transpiration to water vapor. Therefore, it protects surfaces against mould and fungi. It is highly resistant to UV radiance and temperature. Ideal for areas with high humidity and environmental pollution. Granikot Linea is a very good quality fiber reinforced acrylic plaster facade, weather-resistant with UV resistance radiation properties. It has great adhesion, firmness, and elasticity. It's used to protect and decorate exterior and interior surfaces (plaster, concrete, facade thermal insulation systems). All finishing coats are certified with the CE marking according to EN 15824.

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH Regulations that exceed 0.1% of the total weight are present in the examined systems.

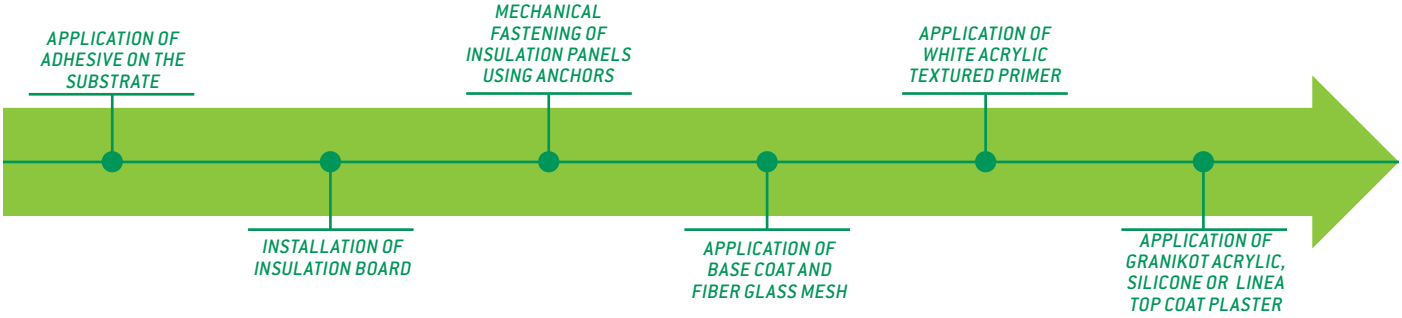
CONTENT DECLARATION (kg/m²)

COMPONENTS	VITEXTHERM WITH EPS 80 & 100	VITEXTHERM WITH EPS 200	VITEXTHERM WITH MINERAL WOOL
Adhesive	4	4	4
Insulation Board (7 cm thickness)	1.19	1.96	9.10
Anchors (7 pcs/m²)	0.105	0.105	0.105
Fiber Glass Mesh	0.176	0.176	0.176
Base Coat Adhesive	4.5	4.5	4.5
Primer	0.115	0.115	0.115
Finishing Coat	2.25	2.25	2.25
TOTAL	12.34	13.11	20.25
PACKAGING MATERIALS	**VITEXTHERM WITH EPS 80 & 100**	**VITEXTHERM WITH EPS 200**	**VITEXTHERM WITH MINERAL WOOL**
Polyethylene	0.024	0.024	0.038
Polypropylene	0.068	0.068	0.068
Kraft Paper	0.028	0.028	0.028
TOTAL	0.120	0.120	0.134

APPLICATION PROCESS OF THE SYSTEM

The company's expert staff is completely familiar with the technical specifications and the particularities of all of the component products forming part of the installation so that they are capable of providing solutions to meet any specific installation requirements. Specialized technical support at every stage is offered, from preliminary designs to construction and execution of the project.

The application of VitexTherm, the External Thermal Insulation Composite System (ETICS) that Vitex provides, on a suitable substrate-masonry, is summarized on the following process flowchart.



DESCRIPTION OF THE DEFINED SYSTEM

FUNCTIONAL UNIT
The functional unit is one (1) m^2 of VitexTherm – External Thermal Insulation Composite System (ETICS). An insulation board thickness of 7 cm has been used as reference.

SYSTEM BOUNDARIES
This LCA study follows a "cradle-to-grave and module D" approach. Therefore, the defined system boundaries include modules A1-A3, A4-A5, B, C and D.

REFERENCE PERIOD
January 2022 - December 2022

REFERENCE SERVICE LIFE
Based on relevant study from the *Technical and Test Institute for Construction Prague (TZUS)* a minimum Reference Service Life of 25 years is assumed.

GEOGRAPHICAL SCOPE
Europe

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				RESOURCE RECOVERY STAGE
	RAW MATERIAL	TRANSPORT	MANUFACTURING	TRANSPORT	CONSTRUCTION INSTALLATION	USE	MAINTENANCE	REPAIR	REPLACEMENT	REFURBISHMENT	OPERATIONAL ENERGY USE	OPERATIONAL WATER USE	DECONSTRUCTION, DEMOLITION	TRANSPORT	WASTE PROCESSING	DISPOSAL	REUSE, RECOVERY, RECYCLING POTENTIALS
MODULE	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MODULES DECLARED	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GEOGRAPHY	EU27		GR	EU27		EU27							EU27				EU27
SPECIFIC DATA USED	>80%			>80%		-	-	-	-	-	-	-	-	-	-	-	-
VARIATION - PRODUCTS	❄			-	-	-	-	-	-	-	-	-	-	-	-	-	-
VARIATION - SITES	NOT RELEVANT			-	-	-	-	-	-	-	-	-	-	-	-	-	-

EPD TYPE
MULTIPLE

SOFTWARE
GaBi TS VERSION

DATABASE
ECOINVENT 3.8.1 & PROFESSIONAL 2021

* The variations ranges correspond to the differences in GWP-GHG indicator results in A1-A3 between the reference thickness (7cm) and the minimum and maximum thickness for each insulation material (see table below).

	VITEXTHERM WITH EPS 80 & 100	VITEXTHERM WITH EPS 200	VITEXTHERM WITH MINERAL WOOL
MINIMUM	-29.15%	-37.89%	-41.23%
MAXIMUM	17.48%	22.72%	30.96%

DESCRIPTION OF EXAMINED MODULES

A1: RAW MATERIAL EXTRACTION/ PRODUCTION
Module A1 includes the production of all raw materials, and utilities required for the manufacturing process of Granikots, and the manufacturing of Components of the system that are produced by Vitex's partners (e.g., Fiber Glass Mesh, Anchors, Insulation Board).

A2: TRANSPORT TO VITEX'S FACILITIES
Module A2 includes the transportation to Vitex's manufacturing plant of all raw materials and components used for the formation of the system.

A3: MANUFACTURING
Module A3 depicts the environmental impact potentials attributed to all processes taking place at the manufacturing plant of Vitex.

A4: FINISHED PRODUCTS TRANSPORT
Module A4 includes the transportation of the system components to construction sites. Actual data of distances of sites locations have been considered.

C1: DECONSTRUCTION/DEMOLITION
Regarding deconstruction/demolition, a scenario has been developed since no actual data are available. More specifically, it has been considered that an excavator (diesel, 100kW) is used.

B1-B7: USE PHASE
VitexTherm System does not require maintenance, repair, replacement or refurbishment during use in standard conditions and in case that it is properly installed. No consumption of energy or water is taking place during use phase of building.

A5: CONSTRUCTION INSTALLATION
VitexTherm system is manually installed, and thus, no ancillary material, or energy resource is required for the installation. The wastage components during installation is assumed to be equal to zero. Water consumption and VOCs emissions are in accordance with the respective Technical Data Sheets (TDS).

C2: VITEXTHERM WASTE TRANSPORT
A nominal distance of 100 km is assumed for the transport of ETICS waste from building demolition to disposal facilities (Truck 12-14 tons).

C3: VITEXTHERM WASTE PROCESSING
All VitexTherm waste is disposed to dedicated landfill facilities, and thus, none of the resulting quantity is processed for recovery.

C4: DISPOSAL
The whole quantity of VitexTherm waste from building demolition is disposed.

D: REUSE, RECOVERY, RECYCLING POTENTIAL
Module D covers the net benefits arising from the substitution of primary raw materials (Plastic, Wood, Paper, Steel) with secondary, depicted as credits from waste recovery processes (sorting-shredding) in Modules A3 and A5.

LINEAR EQUATIONS - THICKNESS CONVERSION

It should be mentioned that the present EPD document represents multiple products based on the different insulation board types (EPS 80 White, EPS 80 Graphite PLUS, EPS 100 Graphite PLUS, EPS 200 White, Mineral Wool).

The differences between the environmental indicators of the VitexTherm Systems with EPS 80 White, EPS 80 Graphite PLUS and EPS 100 Graphite PLUS boards are lower than ±10% -for the same board thickness-, and thus, they are presented in the same results table using the impacts of an environmentally representative product (see p. 8-10). Thus, the three VitexTherm System's examined are:

- **VITEXTHERM WITH EPS 80 (WHITE & GRAPHITE PLUS) AND EPS 100 (GRAPHITE PLUS)**
- **VITEXTHERM WITH EPS 200 WHITE**
- **VITEXTHERM WITH MINERAL WOOL**

A unique linear equation is derived for each performance indicator and can be used in order to compute the potential environmental impacts of any interested thickness of a specific Insulation Board type. The three linear relationships that are presented, can be used to account for the Global Warming Potential Total (GWP-total) of VitexTherm Systems of various thicknesses for the three system categories examined. For document's simplicity and ease of use, only the equations for GWP-total are presented. **The linear relationships are available for the rest of performance indicators and can be directly acquired from Vitex's personnel.**

VitexTherm with EPS 80 (White and Graphite PLUS) & EPS 100 (Graphite PLUS)
y=0.5067*x+5.1439

VitexTherm with EPS 200 White
y=0.8301*x+5.1440

VitexTherm with Mineral Wool
y=1.8980*x+5.1070

where:
"x" is the thickness of the insulation board in cm.

"y" is the Global Warming Potential - Total for the interested thickness

LIFE CYCLE ASSESSMENT INFORMATION

CUT-OFF CRITERIA

All major raw materials, elements and the essential energy required are included within the system boundaries. Data for elementary flows to and from the product system contributing to minimum of 99% of the declared environmental impacts are included in the study. The only flow that has been omitted from the modeling of the studied system is the production of certain raw materials that are used in Granikot Production due to absence of relevant datasets. The total quantity of these raw materials is negligible in relation to the total inflows of the system, since they depict less than 0,6%.

ALLOCATIONS, ASSUMPTIONS AND LIMITATIONS

- Vitex's production processes yield no commercial by-products, and thus, there is no need for by-product allocation in the manufacturing process.
- The electricity consumption for the manufacturing line of Granikots is allocated based on electricity energy meters.
- A default mean of road transportation "Truck Euro 6 – 9.3t payload, 12 – 14t gross weight" is assumed.
- A nominal distance of 100 km from Vitex's plant is considered in relation to the transportation of Manufacturing Waste (Module A3) occurring from the manufacturing process of Granikot range, to recovery and disposal facilities. The same assumption also applies for the transportation of Packaging Waste (Module A5) and VitexTherm Waste (Module C2).
- For some of the raw materials used for Granikot Primer and Granikot Acrylic/ Silicone/Linea production (e.g., Titanium Dioxide) a multimodal transport takes place (Ship & Truck). However, a worst-case-scenario of truck transportation is assumed for all raw materials for simplicity purpose. This approach is acceptable since transport by truck in general leads to higher potential environmental impacts on comparison to ship transportation.
- Packaging of adhesive and base coat adhesive is considered to consist of 100% kraft paper.
- Regarding the anchors that are used for mechanical fastening of the insulation panels, it is assumed that they are all represented by VitexTherm PL (plastic anchor and pin) since the specific anchor type corresponds to approximately 90% of the total anchors used.
- Since no precise value of the quantity of anchors packaging is available, it is assumed that it depicts the 5% of the anchors' total mass per functional unit.
- Regarding GNK 10G, GNK 10G Easy, GNK 20W GNK 20W Easy, and Granikot range disposal, a process of "limestone to landfill" has been considered since most of the specific waste stream is calcium carbonate.

BACKGROUND DATA AND DATA QUALITY

For all processes, primary data are collected and provided by Vitex. Data related to material and energy flows of the defined system, are acquired from the company developing the EPD and data related to life cycle impacts resulted from calculations based on widely used and trust-worthy databases.

Regarding electricity consumption, relevant Guarantees of Origin from Vitex's supplier are exploited.

Regarding modules C1-C4 and D no actual data were available and hence specific scenarios were developed based on bibliography and the most common industry practices. However, these scenarios are based on accurate and area representative datasets available either in Professional 2021 or Ecoinvent 3.8.1. Thus, these data are expected to be of high quality too.

The LCA software GaBi ts version 10.6.0.110 is used for inventory and impact assessment calculations.

COMPARABILITY

- 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.
- This EPD and PCR 2019:14 "Construction products" v.1.11 are available on the website of the International EPD® System **(www.environdec.com).**

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 80 (WHITE & GRAPHITE PLUS) AND EPS 100 (GRAPHITE PLUS)

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 80 & EPS 100, THICKNESS 7 cm

CORE ENVIRONMENTAL IMPACT INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
GLOBAL WARMING POTENTIAL – TOTAL	GWP-total	kg CO_2 eq.	8.023E+00	2.478E-01	9.595E-03	0.000E+00	7.623E-03	1.501E-01	0.000E+00	2.530E-01	-2.278E-01
GLOBAL WARMING POTENTIAL – FOSSIL	GWP-fossil	kg CO_2 eq.	7.963E+00	2.461E-01	9.156E-03	0.000E+00	7.907E-03	1.490E-01	0.000E+00	2.527E-01	-1.887E-01
GLOBAL WARMING POTENTIAL – BIOGENIC	GWP-biogenic	kg CO_2 eq.	2.946E-02	-3.130E-04	3.961E-04	0.000E+00	-3.464E-04	-1.903E-04	0.000E+00	2.088E-04	-3.901E-02
GLOBAL WARMING POTENTIAL – LAND USE AND LAND USE CHANGE	GWP-luluc	kg CO_2 eq.	3.100E-02	2.019E-03	4.378E-05	0.000E+00	6.238E-05	1.222E-03	0.000E+00	8.325E-05	-1.625E-04
GLOBAL WARMING POTENTIAL[1]	GWP-GHG	kg CO_2 eq.	7.994E+00	2.481E-01	9.199E-03	0.000E+00	7.969E-03	1.503E-01	0.000E+00	2.528E-01	-1.888E-01
OZONE DEPLETION POTENTIAL	ODP	kg CFC 11 eq.	1.216E-07	3.149E-17	7.816E-10	0.000E+00	9.732E-19	1.907E-17	0.000E+00	2.697E-08	-6.121E-10
ACIDIFICATION POTENTIAL	AP	Mole of H+ eq.	2.104E-02	3.215E-04	3.849E-05	0.000E+00	3.756E-05	1.459E-04	0.000E+00	6.892E-04	-2.938E-04
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg P eq.	4.620E-04	7.318E-07	1.337E-06	0.000E+00	2.261E-08	4.431E-07	0.000E+00	8.546E-06	-6.648E-06
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg $PO4^{-3}$ eq.	1.418E-03	2.246E-06	4.104E-06	0.000E+00	6.942E-08	1.360E-06	0.000E+00	2.624E-05	-2.041E-05
EUTROPHICATION POTENTIAL – MARINE	EP-marine	kg N eq.	4.820E-03	1.175E-04	1.265E-05	0.000E+00	1.766E-05	4.553E-05	0.000E+00	1.032E-03	-8.406E-05
EUTROPHICATION POTENTIAL – TERRESTRIAL	EP-terrestrial	mol N eq.	5.518E-02	1.370E-03	1.329E-04	0.000E+00	1.955E-04	5.494E-04	0.000E+00	2.562E-03	-8.778E-04
PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL	POCP	kg NMVOC eq.	4.709E-02	3.304E-04	5.114E-02	0.000E+00	4.966E-05	1.251E-04	0.000E+00	7.839E-04	-3.016E-04
ABIOTIC DEPLETION POTENTIAL – ELEMENTS[2]	ADPe	kg Sb eq.	1.421E-05	1.877E-08	1.738E-08	0.000E+00	5.799E-10	1.136E-08	0.000E+00	1.738E-07	-5.911E-08
ABIOTIC DEPLETION POTENTIAL. FOSSIL RESOURCES[2]	ADPf	MJ net calorific value	1.782E+02	3.281E+00	1.418E-01	0.000E+00	1.014E-01	1.987E+00	0.000E+00	2.056E+00	-6.890E+00
WATER DEPRIVATION POTENTIAL[2]	WDP	m^3 world eq. deprived	2.119E+00	2.141E-03	9.059E-02	0.000E+00	6.615E-05	1.296E-03	0.000E+00	8.723E-02	-3.740E-03

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 80 (WHITE & GRAPHITE PLUS) AND EPS 100 (GRAPHITE PLUS)

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 80 & EPS 100, THICKNESS 7 cm

RESOURCE USE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
USE OF RENEWABLE PRIMARY ENERGY EXCLUDING RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERE	MJ. net calorific value	9.502E+00	1.831E-01	1.883E-02	0.000E+00	5.659E-03	1.109E-01	0.000E+00	3.228E-02	-5.953E-01
USE OF RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF RENEWABLE PRIMARY ENERGY RESOURCES	PERT	MJ. net calorific value	9.502E+00	1.831E-01	1.883E-02	0.000E+00	5.659E-03	1.109E-01	0.000E+00	3.228E-02	-5.953E-01
USE OF NON-RENEWABLE PRIMARY ENERGY EXCLUDING NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRE	MJ. net calorific value	1.783E+02	3.286E+00	1.418E-01	0.000E+00	1.015E-01	1.989E+00	0.000E+00	2.056E+00	-6.891E+00
USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES	PENRT	MJ. net calorific value	1.785E+02	3.286E+00	1.420E-01	0.000E+00	1.015E-01	1.989E+00	0.000E+00	2.057E+00	-6.891E+00
USE OF SECONDARY MATERIAL	SM	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF RENEWABLE SECONDARY FUELS	RSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NON-RENEWABLE SECONDARY FUELS	NRSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NET FRESH WATER	FW	m^3	5.180E-02	2.096E-04	2.118E-03	0.000E+00	6.478E-06	1.269E-04	0.000E+00	2.036E-03	-8.347E-04

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 80 (WHITE & GRAPHITE PLUS) AND EPS 100 (GRAPHITE PLUS)

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 80 & EPS 100, THICKNESS 7 cm

WASTE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
HAZARDOUS WASTE DISPOSED	HWD	kg	9.783E-09	1.656E-10	1.046E-11	0.000E+00	5.116E-12	1.002E-10	0.000E+00	2.348E-11	-9.878E-10
NON-HAZARDOUS WASTE DISPOSED	NHWD	kg	9.517E-02	4.881E-04	1.395E-04	0.000E+00	1.508E-05	2.955E-04	0.000E+00	2.808E-01	-1.834E-03
RADIOACTIVE WASTE DISPOSED	RWD	kg	1.271E-03	3.975E-06	3.271E-06	0.000E+00	1.228E-07	2.406E-06	0.000E+00	1.644E-06	-5.153E-05
OUTPUT FLOWS		**UNIT**									
COMPONENTS FOR RE-USE	CRU	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIAL FOR RECYCLING	MFR	kg	1.851E-02	0.000E+00	1.193E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIALS FOR ENERGY RECOVERY	MER	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EXPORTED ENERGY	EE	MJ	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS		**UNIT**									
PARTICULATE MATTER EMISSIONS	PM	Disease incidence	2.400E-07	4.236E-09	4.938E-10	0.000E+00	4.251E-10	8.740E-10	0.000E+00	1.309E-08	-2.681E-09
IONIZING RADIATION HUMAN[3]	IRP	kBq U235 eq.	3.408E-01	5.690E-04	1.056E-03	0.000E+00	1.758E-05	3.445E-04	0.000E+00	8.746E-03	-5.484E-03
ECO-TOXICITY. FRESHWATER[2]	ETP-fw	CTUe	1.164E+02	2.371E+00	5.862E-01	0.000E+00	7.329E-02	1.436E+00	0.000E+00	1.541E+00	-3.547E+00
HUMAN TOXICITY. CANCER EFFECTS[2]	HTP-c	CTUh	1.806E-08	4.786E-11	4.802E-12	0.000E+00	1.479E-12	2.898E-11	0.000E+00	4.348E-11	-1.559E-10
HUMAN TOXICITY. NON-CANCER EFFECTS[2]	HTP-nc	CTUh	1.339E-07	2.506E-09	3.328E-09	0.000E+00	8.893E-11	1.499E-09	0.000E+00	1.592E-09	-4.402E-09
LAND USE RELATED IMPACTS/SOIL QUALITY[2]	SQP	dimensionless	2.499E+01	1.127E+00	7.297E-02	0.000E+00	3.482E-02	6.823E-01	0.000E+00	4.072E+00	-7.276E-01

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 200 WHITE

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 200, THICKNESS 7 cm

CORE ENVIRONMENTAL IMPACT INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
GLOBAL WARMING POTENTIAL – TOTAL	GWP-total	kg CO_2 eq.	1.014E+01	2.631E-01	9.595E-03	0.000E+00	8.098E-03	1.594E-01	0.000E+00	3.730E-01	-2.278E-01
GLOBAL WARMING POTENTIAL – FOSSIL	GWP-fossil	kg CO_2 eq.	1.007E+01	2.613E-01	9.156E-03	0.000E+00	8.400E-03	1.583E-01	0.000E+00	3.726E-01	-1.887E-01
GLOBAL WARMING POTENTIAL – BIOGENIC	GWP-biogenic	kg CO_2 eq.	3.764E-02	-3.323E-04	3.961E-04	0.000E+00	-3.681E-04	-2.023E-04	0.000E+00	3.143E-04	-3.901E-02
GLOBAL WARMING POTENTIAL – LAND USE AND LAND USE CHANGE	GWP-luluc	kg CO_2 eq.	3.137E-02	2.143E-03	4.378E-05	0.000E+00	6.627E-05	1.299E-03	0.000E+00	9.232E-05	-1.625E-04
GLOBAL WARMING POTENTIAL[1]	GWP-GHG	kg CO_2 eq.	1.010E+01	2.634E-01	9.199E-03	0.000E+00	8.467E-03	1.596E-01	0.000E+00	3.727E-01	-1.888E-01
OZONE DEPLETION POTENTIAL	ODP	kg CFC 11 eq.	1.216E-07	3.344E-17	7.816E-10	0.000E+00	1.034E-18	2.026E-17	0.000E+00	2.944E-08	-6.121E-10
ACIDIFICATION POTENTIAL	AP	Mole of H+ eq.	2.426E-02	3.414E-04	3.849E-05	0.000E+00	3.990E-05	1.550E-04	0.000E+00	7.602E-04	-2.938E-04
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg P eq.	4.644E-04	7.770E-07	1.337E-06	0.000E+00	2.402E-08	4.707E-07	0.000E+00	9.784E-06	-6.648E-06
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg $PO4^{-3}$ eq.	1.426E-03	2.385E-06	4.104E-06	0.000E+00	7.375E-08	1.445E-06	0.000E+00	3.004E-05	-2.041E-05
EUTROPHICATION POTENTIAL – MARINE	EP-marine	kg N eq.	5.648E-03	1.248E-04	1.265E-05	0.000E+00	1.876E-05	4.838E-05	0.000E+00	1.572E-03	-8.406E-05
EUTROPHICATION POTENTIAL – TERRESTRIAL	EP-terrestrial	mol N eq.	6.421E-02	1.455E-03	1.329E-04	0.000E+00	2.077E-04	5.837E-04	0.000E+00	2.823E-03	-8.778E-04
PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL	POCP	kg NMVOC eq.	7.018E-02	3.508E-04	5.114E-02	0.000E+00	5.276E-05	1.329E-04	0.000E+00	8.853E-04	-3.016E-04
ABIOTIC DEPLETION POTENTIAL – ELEMENTS[2]	ADPe	kg Sb eq.	1.441E-05	1.993E-08	1.738E-08	0.000E+00	6.161E-10	1.207E-08	0.000E+00	2.013E-07	-5.911E-08
ABIOTIC DEPLETION POTENTIAL. FOSSIL RESOURCES[2]	ADPf	MJ net calorific value	2.437E+02	3.484E+00	1.418E-01	0.000E+00	1.077E-01	2.111E+00	0.000E+00	2.255E+00	-6.890E+00
WATER DEPRIVATION POTENTIAL[2]	WDP	m^3 world eq. deprived	2.516E+00	2.273E-03	9.059E-02	0.000E+00	7.028E-05	1.377E-03	0.000E+00	9.595E-02	-3.740E-03

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 200 WHITE

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 200, THICKNESS 7 cm											
RESOURCE USE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
USE OF RENEWABLE PRIMARY ENERGY EXCLUDING RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERE	MJ. net calorific value	1.070E+01	1.945E-01	1.883E-02	0.000E+00	6.012E-03	1.178E-01	0.000E+00	3.593E-02	-5.953E-01
USE OF RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF RENEWABLE PRIMARY ENERGY RESOURCES	PERT	MJ. net calorific value	1.070E+01	1.945E-01	1.883E-02	0.000E+00	6.012E-03	1.178E-01	0.000E+00	3.593E-02	-5.953E-01
USE OF NON-RENEWABLE PRIMARY ENERGY EXCLUDING NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRE	MJ. net calorific value	2.439E+02	3.489E+00	1.418E-01	0.000E+00	1.079E-01	2.114E+00	0.000E+00	2.255E+00	-6.891E+00
USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES	PENRT	MJ. net calorific value	2.441E+02	3.489E+00	1.420E-01	0.000E+00	1.079E-01	2.114E+00	0.000E+00	2.255E+00	-6.891E+00
USE OF SECONDARY MATERIAL	SM	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF RENEWABLE SECONDARY FUELS	RSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NON-RENEWABLE SECONDARY FUELS	NRSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NET FRESH WATER	FW	m^3	6.174E-02	2.226E-04	2.118E-03	0.000E+00	6.882E-06	1.348E-04	0.000E+00	2.239E-03	-8.347E-04

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH EPS 200 WHITE

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH EPS 200, THICKNESS 7 cm

WASTE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
HAZARDOUS WASTE DISPOSED	HWD	kg	1.384E-08	1.758E-10	1.046E-11	0.000E+00	5.436E-12	1.065E-10	0.000E+00	2.348E-11	-9.878E-10
NON-HAZARDOUS WASTE DISPOSED	NHWD	kg	1.253E-01	5.183E-04	1.395E-04	0.000E+00	1.603E-05	3.140E-04	0.000E+00	2.808E-01	-1.834E-03
RADIOACTIVE WASTE DISPOSED	RWD	kg	1.633E-03	4.220E-06	3.271E-06	0.000E+00	1.305E-07	2.557E-06	0.000E+00	1.644E-06	-5.153E-05
OUTPUT FLOWS		**UNIT**									
COMPONENTS FOR RE-USE	CRU	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIAL FOR RECYCLING	MFR	kg	1.851E-02	0.000E+00	1.193E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIALS FOR ENERGY RECOVERY	MER	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EXPORTED ENERGY	EE	MJ	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS		**UNIT**									
PARTICULATE MATTER EMISSIONS	PM	Disease incidence	2.625E-07	4.498E-09	4.938E-10	0.000E+00	4.516E-10	9.285E-10	0.000E+00	1.444E-08	-2.681E-09
IONIZING RADIATION HUMAN[3]	IRP	kBq U235 eq.	3.986E-01	6.041E-04	1.056E-03	0.000E+00	1.868E-05	3.660E-04	0.000E+00	9.669E-03	-5.484E-03
ECO-TOXICITY. FRESHWATER[2]	ETP-fw	CTUe	1.551E+02	2.518E+00	5.862E-01	0.000E+00	7.786E-02	1.525E+00	0.000E+00	1.801E+00	-3.547E+00
HUMAN TOXICITY. CANCER EFFECTS[2]	HTP-c	CTUh	1.885E-08	5.081E-11	4.802E-12	0.000E+00	1.571E-12	3.078E-11	0.000E+00	5.005E-11	-1.559E-10
HUMAN TOXICITY. NON-CANCER EFFECTS[2]	HTP-nc	CTUh	1.664E-07	2.661E-09	3.328E-09	0.000E+00	9.449E-11	1.592E-09	0.000E+00	1.731E-09	-4.402E-09
LAND USE RELATED IMPACTS/SOIL QUALITY[2]	SQP	dimensionless	2.587E+01	1.197E+00	7.297E-02	0.000E+00	3.700E-02	7.249E-01	0.000E+00	4.529E+00	-7.276E-01

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH MINERAL WOOL

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH MINERAL WOOL, THICKNESS 7 cm											
CORE ENVIRONMENTAL IMPACT INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
GLOBAL WARMING POTENTIAL – TOTAL	GWP-total	kg CO_2 eq.	1.760E+01	4.054E-01	1.040E-02	0.000E+00	1.251E-02	2.497E-01	0.000E+00	1.156E-01	-2.534E-01
GLOBAL WARMING POTENTIAL – FOSSIL	GWP-fossil	kg CO_2 eq.	1.745E+01	4.026E-01	9.921E-03	0.000E+00	1.298E-02	2.480E-01	0.000E+00	1.153E-01	-2.140E-01
GLOBAL WARMING POTENTIAL – BIOGENIC	GWP-biogenic	kg CO_2 eq.	1.002E-01	-5.120E-04	4.296E-04	0.000E+00	-5.686E-04	-3.130E-04	0.000E+00	2.147E-04	-3.925E-02
GLOBAL WARMING POTENTIAL – LAND USE AND LAND USE CHANGE	GWP-luluc	kg CO_2 eq.	4.100E-02	3.303E-03	4.824E-05	0.000E+00	1.024E-04	2.006E-03	0.000E+00	1.154E-04	-1.822E-04
GLOBAL WARMING POTENTIAL [1]	GWP-GHG	kg CO_2 eq.	1.750E+01	4.059E-01	9.968E-03	0.000E+00	1.308E-02	2.500E-01	0.000E+00	1.154E-01	-2.141E-01
OZONE DEPLETION POTENTIAL	ODP	kg CFC 11 eq.	1.216E-07	5.153E-17	8.694E-10	0.000E+00	1.597E-18	3.130E-17	0.000E+00	4.253E-08	-6.121E-10
ACIDIFICATION POTENTIAL	AP	Mole of H+ eq.	1.019E-01	5.261E-04	4.219E-05	0.000E+00	6.164E-05	2.310E-04	0.000E+00	1.030E-03	-3.293E-04
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg P eq.	4.719E-04	1.197E-06	1.476E-06	0.000E+00	3.711E-08	7.272E-07	0.000E+00	1.102E-05	-6.693E-06
EUTROPHICATION POTENTIAL – FRESHWATER	EP-freshwater	kg $PO4^{-3}$ eq.	1.449E-03	3.676E-06	4.530E-06	0.000E+00	1.139E-07	2.232E-06	0.000E+00	3.383E-05	-2.055E-05
EUTROPHICATION POTENTIAL – MARINE	EP-marine	kg N eq.	1.315E-02	1.923E-04	1.384E-05	0.000E+00	2.898E-05	7.032E-05	0.000E+00	3.541E-04	-9.452E-05
EUTROPHICATION POTENTIAL – TERRESTRIAL	EP-terrestrial	mol N eq.	3.246E-01	2.242E-03	1.456E-04	0.000E+00	3.208E-04	8.533E-04	0.000E+00	3.873E-03	-9.870E-04
PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL	POCP	kg NMVOC eq.	4.017E-02	5.405E-04	5.115E-02	0.000E+00	8.151E-05	2.053E-04	0.000E+00	1.126E-03	-3.358E-04
ABIOTIC DEPLETION POTENTIAL – ELEMENTS [2]	ADPe	kg Sb eq.	1.614E-05	3.071E-08	1.926E-08	0.000E+00	9.518E-10	1.865E-08	0.000E+00	2.406E-07	-6.497E-08
ABIOTIC DEPLETION POTENTIAL. FOSSIL RESOURCES [2]	ADPf	MJ net calorific value	2.387E+02	5.369E+00	1.533E-01	0.000E+00	1.664E-01	3.261E+00	0.000E+00	3.094E+00	-7.856E+00
WATER DEPRIVATION POTENTIAL [2]	WDP	m^3 world eq. deprived	2.500E+00	3.503E-03	9.068E-02	0.000E+00	1.086E-04	2.127E-03	0.000E+00	1.354E-01	-3.777E-03

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH MINERAL WOOL

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH MINERAL WOOL, THICKNESS 7 cm											
RESOURCE USE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
USE OF RENEWABLE PRIMARY ENERGY EXCLUDING RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERE	MJ. net calorific value	2.758E+01	2.996E-01	1.942E-02	0.000E+00	9.288E-03	1.820E-01	0.000E+00	3.828E-02	-6.548E-01
USE OF RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PERM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF RENEWABLE PRIMARY ENERGY RESOURCES	PERT	MJ. net calorific value	2.758E+01	2.996E-01	1.942E-02	0.000E+00	9.288E-03	1.820E-01	0.000E+00	3.828E-02	-6.548E-01
USE OF NON-RENEWABLE PRIMARY ENERGY EXCLUDING NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRE	MJ. net calorific value	2.388E+02	5.376E+00	1.533E-01	0.000E+00	1.666E-01	3.265E+00	0.000E+00	3.094E+00	-7.973E+00
USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS	PENRM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES	PENRT	MJ. net calorific value	2.390E+02	5.376E+00	1.535E-01	0.000E+00	1.666E-01	3.265E+00	0.000E+00	3.094E+00	-7.973E+00
USE OF SECONDARY MATERIAL	SM	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF RENEWABLE SECONDARY FUELS	RSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NON-RENEWABLE SECONDARY FUELS	NRSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
USE OF NET FRESH WATER	FW	m^3	7.316E-02	3.430E-04	2.120E-03	0.000E+00	1.063E-05	2.083E-04	0.000E+00	3.157E-03	-9.429E-04

ENVIRONMENTAL PERFORMANCE INDICATORS

VITEXTHERM WITH MINERAL WOOL

POTENTIAL ENVIRONMENTAL IMPACTS/1 m^2 OF VITEXTHERM WITH MINERAL WOOL, THICKNESS 7 cm

WASTE INDICATORS		UNIT	A1-A3	A4	A5	B1- B7	C1	C2	C3	C4	D
HAZARDOUS WASTE DISPOSED	HWD	kg	2.743E-08	2.709E-10	1.057E-11	0.000E+00	8.397E-12	1.645E-10	0.000E+00	2.348E-11	-1.130E-09
NON-HAZARDOUS WASTE DISPOSED	NHWD	kg	2.506E+00	7.986E-04	1.398E-04	0.000E+00	2.476E-05	4.850E-04	0.000E+00	2.808E-01	-2.098E-03
RADIOACTIVE WASTE DISPOSED	RWD	kg	5.456E-03	6.503E-06	3.274E-06	0.000E+00	2.016E-07	3.950E-06	0.000E+00	1.644E-06	-5.894E-05
OUTPUT FLOWS		**UNIT**									
COMPONENTS FOR RE-USE	CRU	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIAL FOR RECYCLING	MFR	kg	1.851E-02	0.000E+00	1.326E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MATERIALS FOR ENERGY RECOVERY	MER	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EXPORTED ENERGY	EE	MJ	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS		**UNIT**									
PARTICULATE MATTER EMISSIONS	PM	Disease incidence	8.581E-07	6.931E-09	5.417E-10	0.000E+00	6.976E-10	1.416E-09	0.000E+00	1.982E-08	-2.953E-09
IONIZING RADIATION HUMAN[3]	IRP	kBq U235 eq.	1.008E+00	9.309E-04	1.120E-03	0.000E+00	2.886E-05	5.654E-04	0.000E+00	1.326E-02	-6.166E-03
ECO-TOXICITY. FRESHWATER[2]	ETP-fw	CTUe	1.800E+02	3.880E+00	5.974E-01	0.000E+00	1.203E-01	2.356E+00	0.000E+00	1.989E+00	-4.007E+00
HUMAN TOXICITY. CANCER EFFECTS[2]	HTP-c	CTUh	5.443E-08	7.830E-11	5.239E-12	0.000E+00	2.427E-12	4.756E-11	0.000E+00	5.482E-11	-1.677E-10
HUMAN TOXICITY. NON-CANCER EFFECTS[2]	HTP-nc	CTUh	3.035E-06	4.100E-09	3.337E-09	0.000E+00	1.460E-10	2.460E-09	0.000E+00	1.929E-09	-4.994E-09
LAND USE RELATED IMPACTS/SOIL QUALITY[2]	SQP	dimensionless	7.729E+01	1.844E+00	7.997E-02	0.000E+00	5.715E-02	1.120E+00	0.000E+00	6.174E+00	-7.745E-01

Disclaimer 1 ➠ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

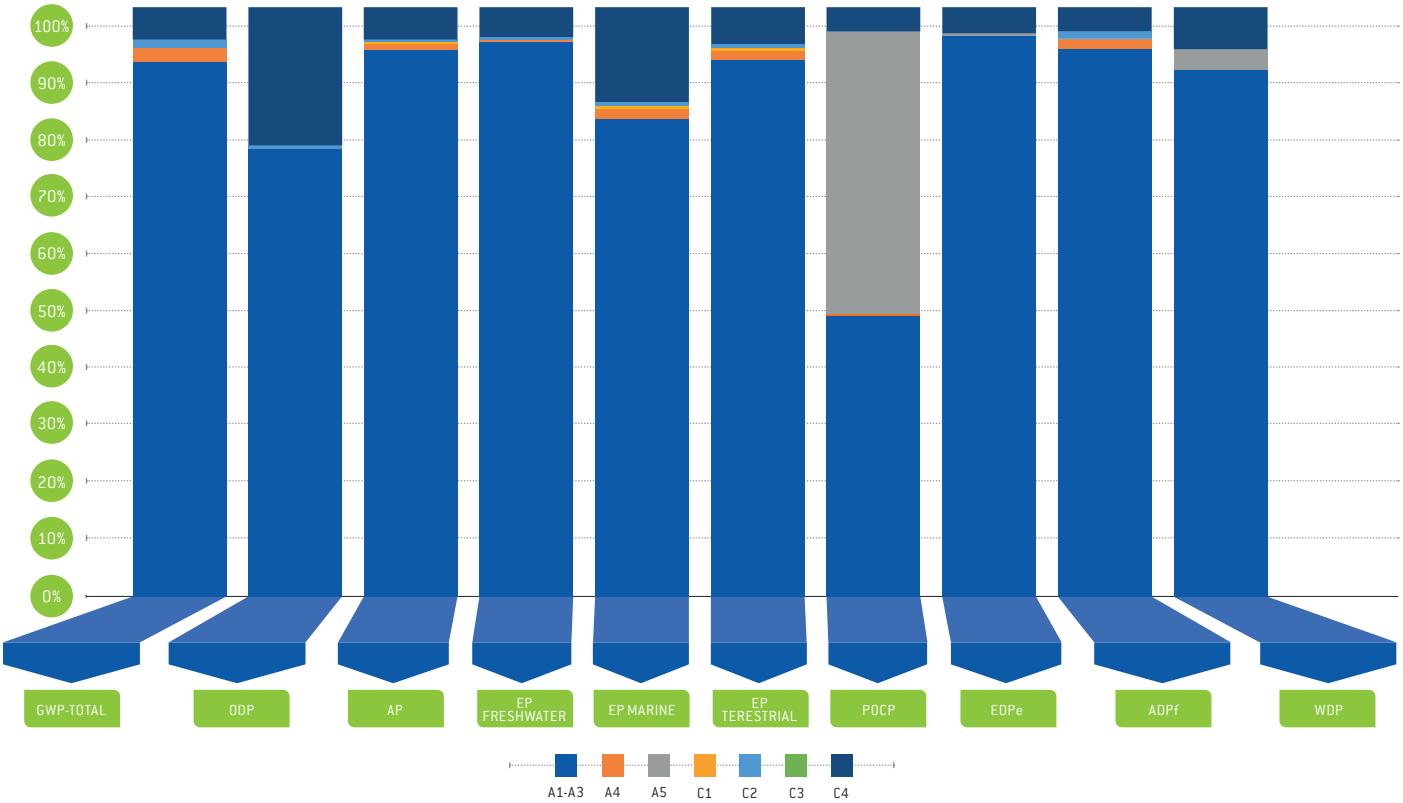
Disclaimer 2 ➠ The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Disclaimer 3 ➠ This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

INTERPRETATION

The following figure represents the contribution of each examined module (A1-A5 & C1-C4) on the core environmental impact indicators formation using the average results of the three systems modeled. Interpretation of the results was carried out in the form of a dominance analysis on the core environmental impacts. It can be clearly depicted that the majority of the analyzed impact categories are mainly influenced by modules A1-A3.
Regarding Global Warming Potential – total, modules A1-A3 are the dominant phases of the life cycle (93.53% average value for the three systems) followed by Modules A4, C4, and C2 (2.49%, 2.32% and 1.51% respectively). The greatest proportion of the GWP – total is attributed to the extraction and production of raw materials, and specifically to the production of insulation board which accounts for 37.5%, 49.0% and 66.3% of the total emissions for each of the systems modeled (VitexTherm with EPS 80 & 100, VitexTherm with EPS 200, VitexTherm with Mineral Wool). Electricity consumption holds a negligible proportion (<1%) of the Global Warming Potential – total indicator due to the exclusive use of renewable electricity through the purchased Guarantees of Origin (GOs).
Modules A1 – A3 impacts account for at least 73% (Ozone Depletion Potential for VitexTherm with Mineral Wool) of the total impacts for all core environmental impact indicators, apart from Photochemical Ozone Formation, in which the impacts are shared between module A1 and A5 (mainly attributed to VOCs emissions during installation).

% LIFE CYCLE MODULES CONTRIBUTION



REFERENCES

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- International EPD® System, PCR 2019:14 Construction Products, version 1.11 (EN 15804:A2)
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- International EPD® System, General Program Instructions for the International EPD System, version 3.01
- ISO 14025:2006 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 14040:2006 - Environmental management - Life Cycle assessment - Principles and framework
- ISO 14044:2006 - Environmental management - Life Cycle assessment - Requirements and guidelines
- The International EPD® System - The International EPD System is a programme for type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs and PCRs in accordance with ISO 14025. **www.environdec.com**
- ISO 14020:2000 - Environmental Labels and Declarations - General Principles
- Reference Service Life - **www.vitextherm.gr/en/company-profile/**
- ISO 9001:2015 - Quality management systems - Requirements
- ISO 14001:2015 - Environmental management systems - Requirements with guidance for use
- EMAS - EU Eco-Management and Audit Scheme
- ISO 45001:2018 - Occupational health and safety management systems - Requirements with guidance for use
- EAD 040083-00-0404 - External thermal insulation composite systems (ETICS) with renderings