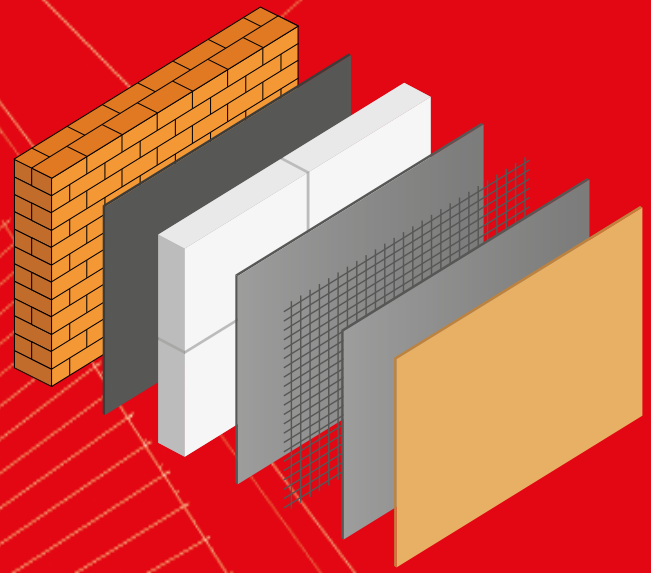
# Viero

VIEROCLIMA



## EXTERNAL THERMAL INSULATION COMPOSITE SYSTEM VIEROCLIMA P,PV, R, S
## ENVIRONMENTAL PRODUCT DECLARATION
IN ACCORDANCE WITH ISO 14025:2010 AND EN 15804:2012+A2: 2019

| Registration number | Date of publication | Valid until | Program | Program Operator |
|---|---|---|---|---|
| S-P-03041 | 2021/04/16 | 2026/03/17 | The International EPD® System www.environdec.com | EPD International AB |

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EPD®
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## **PROGRAMME EPD** GENERAL INFORMATION

| | |
|---|---|
| EPD Programme | The International EPD® System<br>www.environdec.com |
| EPD Program Operator | EPD International AB<br>Box 210 60, SE-100 31 Stockholm, Sweden. |
| Product Category Rules (PCR) | International EPD System - PCR 2019:14 - "Construction products" - Version 1.11 EN 15804:2012+A2:2019 - "Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products." |
| EPD Prepared by | S4 S.r.l. |
| Owner of the declaration | Dr. Marco Demi Cromology Italia S.p.A. |
| Verified by | Dr. Ugo Pretato (Studio Fieschi & Soci) |
| Geographical scope | Internazionale |
| EPD registration number | S-P-03093 |
| Approval date | xx-xx-2021 |
| Valid until | 17-03-2026 |
| Product description | External Thermal Insulation Composite System VIEROCLIMA. |
| Applications | Use in architecture and construction for cladding. |
| Scope of application of the LCA | The LCA (Life Cycle Assessment) was conducted according to the ISO 14025, ISO 14040, ISO 14044 and EN 15804 standards. Both process-specific data and data from the Ecoinvent 3.6 database were used.<br>The methods for calculating and assessing the impact were used as defined in EN 15804 2012+A2:2019.<br>The LCA study covers the production phases of raw materials and energy; transport of materials; production at the company's sites; and the end-of-life of the material.<br>The declared unit is the quantity of product needed for the thermal insulation of a 1 square metre area of VIERO brand ETICS certified kits:<br>• Thermophon P<br>• Thermophon PV<br>• Thermophon Mineral<br>• Thermophon Natural |

## ENVIRONMENTAL PRODUCT **DECLARATION**

EPD, the abbreviation of Environmental Product Declaration, is a document in which the environmental performance of a product is described in the form of standardised and objective data.
It makes it possible to analyse and quantify how much energy and natural resources are used by the production and distribution processes, how much CO2 is emitted into the atmosphere, what materials are used for the packaging, and how much waste is generated.


In the field of construction, the EPD is an essential basis for professionals such as architects and designers when it comes to the overall planning and evaluation of the operations to be carried out.
As the validation of the EPD must be done through recognised Certification Bodies, it represents an important act of transparency and accountability for the market.

**EPDs**, created on a voluntary basis, must be prepared with reference to the LCA - Life Cycle Assessment - which is an analytical and systematic methodology that assesses the environmental significance of a product or service throughout its entire life cycle.

**LCA** is the methodology that serves as the technical basis for a wide range of possible actions aimed at increasing the sustainability of products, as it helps to understand the impact generated towards the environment by products.
The PCR - Product Category Rules contain the regulations governing the conducting of the LCA, which must also comply with the international standard EN 15804 for construction products.

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LIFE CYCLE LCA

**The subject of this EPD is the VIERO VIEROCLIMA thermal insulation system in the variants P, PV, R and S.**

VIEROCLIMA

# **SUSTAINABILITY** FOR CROMOLOGY: A 360° VALUE

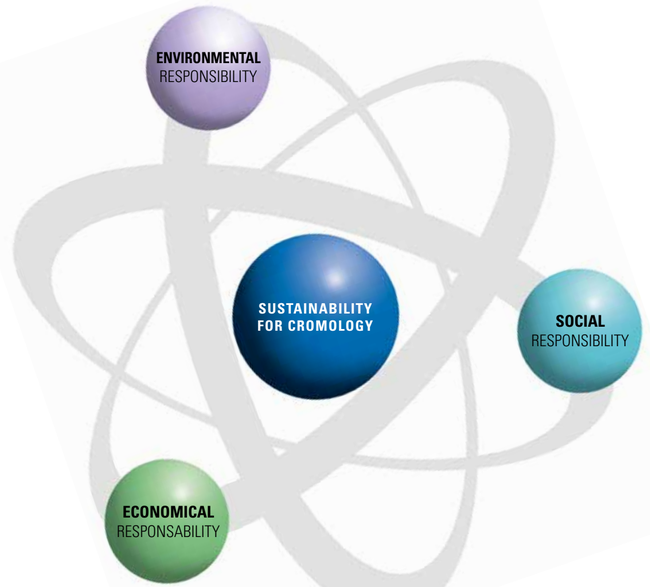
## A COMMITMENT IN EVERY OPERATIONAL PHASE

Sustainability is a fundamental value for Cromology.
The company constantly invests in the development of products with high technical performance, which are easy to use, environmentally friendly, and capable of increasing productivity and aesthetic performance as well as improving work conditions.

For Cromology, the culture of colour is rooted in respect for the environment and for people through:
- systematic analysis of the processes and products in order to find increasingly higher performance solutions with less environmental impact. In addition to the attention paid during the production phase, the products ensure protection of the environment and people's health.
  More than 90% of the product lines are water-based and consist of a wide range of products with low environmental impact and with VOC < 1g/litre.
- an industrial policy aimed at guaranteeing maximum safety at work, in the factory, and on the construction site. Safety is an absolute value, and the 'Zero Accidents' objective is pursued by implementing safety directives and providing training on safety issues and good practices for oneself and for others. In addition, every year, all the Cromology factories stop to celebrate "World Safety Day".
  The protection of employees has always been a core value and there is an ongoing commitment to supporting community initiatives.
- shared responsibility with customers and partners for generating value throughout the construction supply chain.

Cromology adopts voluntary certification standards for the management of the health and safety of employees and contractors, consumer protection, and environmental protection.

| | | |
|---|---|---|
| **PRODCUT SAFETY AND RESPONSABILITY** | E-TA | ETICS EUROPEAN TECHNICAL ASSESMENT |
| | A+ | INDOOR AIR QUALITY |
| | HACCP | HACCP - PROTOCOL OF PREVENTION OF HEALTH HYGIENIC TYPE |
| | | ISO 9001:2015 - QUALITY MANAGEMENT SYSTEM |
| | | ANTI MOLD EFFECTIVENESS |
| | | UNI EN 15458 - ANTI ALGAE EFFECTIVENESS |
| **ENVIRONMENTAL RESPONSABILITY** | | ISO 14001:2015 ENVIRONMENTAL PROTECTION IN INDUSTRIAL PRODUCTION PROCESSES |
| | EPD | ENVIRONMENTAL PRODUCT DECLARATION |
| | Ecolabel | ECOLABEL |
| **SOCIAL RESPONSABILITY** | | ISO 45001:2018 MANAGEMENT SYSTEM FOR HEALTH AND SAFETY AT WORK |
| | | DLGS 231/2001 ADMINISTRATIVE RESPONSIBILITY OF COMPANIES |




## A SHARED COMMITMENT

On the strength of its experience, Cromology works in synergy with the most important and influential trade associations in the building sector.

**CORTEXA** is the consortium set up in 2007 to bring together the main Italian manufacturers of quality thermal insulation systems. VIERO, one of the founding companies, aims to offer operators controlled and certified systems based on precise quality and regulatory requirements, in this way contributing to the dissemination of a culture of quality in both the design and installation of the system.

**ANIT** was founded in 1984. The Association aims to promote, spread, and develop thermal and acoustic insulation systems in the building industry as a means of safeguarding the environment and people's well-being.

**GBC** is a non-profit association of leading companies and professional associations operating in the sustainable building segment. GBC Italy is part of the World GBC, an international network present in more than 70 countries. GBC Italy encourages a process of transformation of the Italian building market via the promotion of the third-party certification system and its own certification protocols.

**ASSOVERNICI** is an industrial association founded in 2010 to represent paint products and a point of reference for the entire industry. It is the second largest association for importance in Europe, thus representing the reality of our country at a European level. Cromology actively contributed to the creation of this association in its role as founding member.

Since 2016, Cromology has also been actively involved in national regulatory workgroups as a member of **CTI**, an organisation federated with the UNI the purpose of which is to carry out regulatory and standardising activities in the thermotechnical sector through the drafting of standards and other documents (guidelines or recommendations), concerning the thermotechnical sector, the revision of already existing standards and documents(CTI and/or UNI-CTI) and participation in international standardisation works in the sector.

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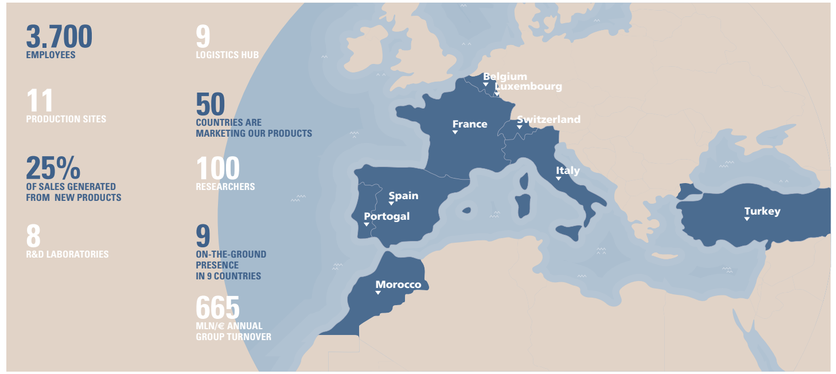
# THE STRENGTH OF A **LARGE GROUP**

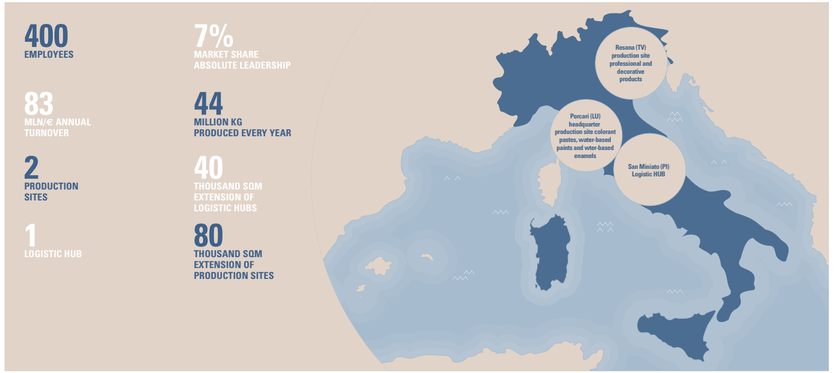
Cromology Group was founded in 2015, at the end of a decade-long reshaping process started in the late 90s, when Lafarge Peintures created the Specialty Materials division that subsequently became Materis Paints. The new company quickly turned into a global player extending its operations in emerging markets.
Cromology has carefully preserved the pioneering spirit of its Dutch origins of the 1700s. It has grown into a solid group with worldwide presence and a leading position in southern Europe, with influence in 50+ countries, and an annual global turnover of 665+mln/€. The real asset of the group are its 3700 employees - 100 of them being highly specialized researchers and technicians - with 11 production sites and 8 R&D laboratories. 25% of the turnover is generated by new products.

Cromology brands are in over 50 countries around the world, with a direct presence in 9 countries. In each market, Cromology's commercial brands are an expression of history, professionalism and capacity for innovation.
25% of the turnover is generated by new products.




Cromology Italia believes in a multi-channel strategy diversified by brand, service offer and type of customer: from the designer, to the professional applicator, to the private individual. With an offer of 7 specialized brands, Cromology holds 7% of the Italian market, a position of absolute leadership.The head office is in Porcari, in the province of Lucca, and the company has two cutting-edge production sites of 80,000 square meters, a hub logistics area of 45,000 square meters and the collaboration of 400 collaborators throughout the Italian territory, including staff on site and the sales network. With its own brand portfolio and a wide range of products and services, Cromology wants to be the trusted partner alongside of clients, professionals and individuals, to achieve professional excellence together.





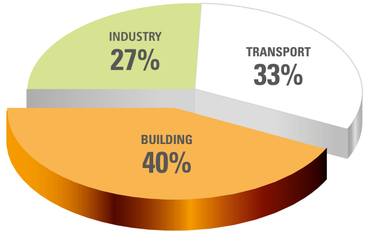

Viero **PROFESSIONAL SOLUTIONS** FOR FACADES

Viero is the specialist for the main facade solutions with a complete range of products and external coatings to meet every need. Innovative solutions, all certified in compliance with quality, environmental sustainability and energy efficiency regulations. Viero is definitely the ideal partner for designers and companies operating in the construction market, offering personalized advice and top-performing products. Over the years, Viero has studied and developed a line of decorative products for projects with a high aesthetic value exclusively devoted to foreign countries. The quality and exclusivity of the Viero Decorative line are synonymous with the beauty expressed by Made in Italy products.

# ADVANTAGES AND **BENEFITS** OF THERMAL INSULATION SYSTEMS

## ENVIRONMENTAL PROTECTION

A building needs energy to heat or cool it.
It is well known that buildings account for more than 40% of energy consumption, which results in the emission of carbon dioxide ($CO_2$) into the atmosphere.

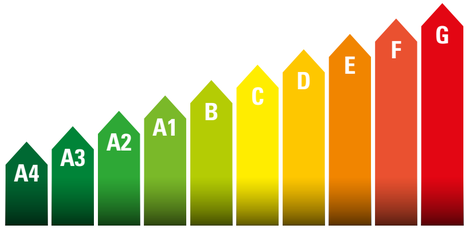



*In the graph: the percentages of energy consumption are broken down by macro-sectors, from which it is clear how much energy expenditure for heating or cooling (BUILDING) accounts for a large part of total pollution.*

Reducing energy consumption, therefore, means having a cleaner atmosphere and consequently:
this improves the quality of the air we breathe, both indoors and outdoors, and
• makes a significant contribution towards protecting the planet's natural heritage.

## ECONOMY AND SAVINGS
## QUALIFICATION OF THE BUILDING

The use of a VIEROCLIMA thermal insulation system brings numerous economic advantages.
• Savings in heating and cooling costs (air conditioning, ventilation, etc.).
• Enhancement of the building or housing unit. The thermal insulation system allows for obtaining a higher energy classification. This classification (G the lowest, A4 the best) affects both the market price of the house and possibly also the rent.



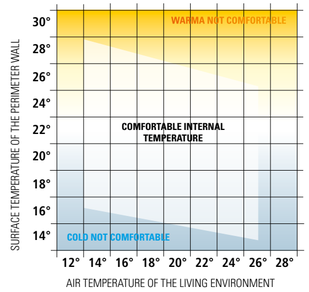

• Tax deductions. Tax deductions for energy requalification are established according to the budget law.

## QUALIFICATION OF THE BUILDING

In every building there are 'thermal bridges', i.e., parts of a building with a worse transmittance than the context in which they are located. Examples of thermal bridges can be a wall in contact with the roof, a windowsill, or a door frame.
At these points of contact it is easy to have water infiltration and create the conditions for the formation of mould and condensation, which leads to the deterioration of the structure, as well as a worsening of the indoor environment in which people live.
Thermal insulation, acting on thermal bridges, prevents this damage and brings a triple advantage: reduced risks for maintenance and repair work on the structure; more effective insulation and, once again, healthier environments.
In addition, by acting on the external structure, the thermal insulation system does not reduce the interior living space.

## COMFORT AND WELLBEING

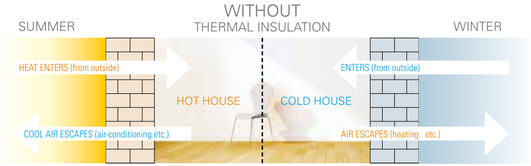
A thermally insulated environment ensures better liveability. The room temperature is more stable, so you do not experience the discomfort caused by heat or cold outside. A more stable indoor temperature also has a positive effect on health, reducing the risk of seasonal illnesses. The walls of a building that is protected from the outside and from temperature fluctuations are less prone to the formation of internal condensation and the proliferation of mould, thus making the environment healthier.




*In the graph: an indoor environment is comfortable if its temperature is more favourable than the outside temperature that is, if it is warmer in winter and cooler in summer, without being too extreme.*
*In addition, greater living comfort is perceived if there is a minimum difference between the internal air and that of the perimeter walls.*

## A BALANCED TEMPERATURE IN EVERY SEASON

The thermal insulation system, by insulating the perimeter walls, reduces the influence of the outside temperature on the inside temperature, and therefore the walls and interior environment are not as cold in winter and not as hot in summer.





Uninsulated perimeter walls are the main cause of heat loss in a building. For this reason, an external insulation system can significantly improve the energy performance of the building.

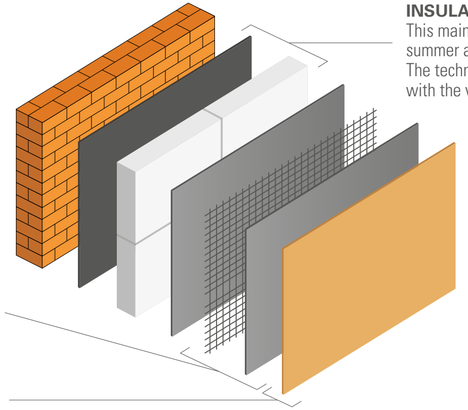
*Folder Vieroclima pag. 8-11*

# DESCRIPTION OF THE **VIEROCLIMA** SYSTEMS

The subject of this EPD is the VIEROCLIMA thermal insulation system, in the variants P (with an expanded polystyrene insulation panel and paste adhesive), PV (with an expanded polystyrene insulation panel and powder adhesive), R (with a rock wool insulation panel) and S (with a cork insulation panel).

The thermal insulation system (ETICS: acronym for External Thermal Insulation Composite System) is a work intervention carried out on the external walls, aimed at improving the energy performance of the building and the living comfort inside. It is defined as a system because it is composed of a plurality of products and accessories, which together are superimposed on the external masonry to form a basic structure as in the figure below. Each layer of the system has a specific function and only the correct design and installation will ensure its effectiveness and resistance over time. VIERO offers a wide range of VIEROCLIMA cladding systems, which, differing one from the other due to the type of products used, guarantee the best effectiveness and durability in any climatic/environmental condition.

**INSULATING MATERIAL**
This mainly carries out the function of summer and winter thermal insulation. The technical characteristics will vary with the varying of the materials used.



**REINFORCED BASE COAT**
Consisting of a levelling coat and reinforcing mesh, it gives protection to the underlying insulating material and mechanical resistance to the surface.

**FINISHING COAT**
This is the last layer, consisting of the finishing plaster. It provides the aesthetic component (colour, structure) and protection from the atmospheric agents (UV rays, rain, etc.).

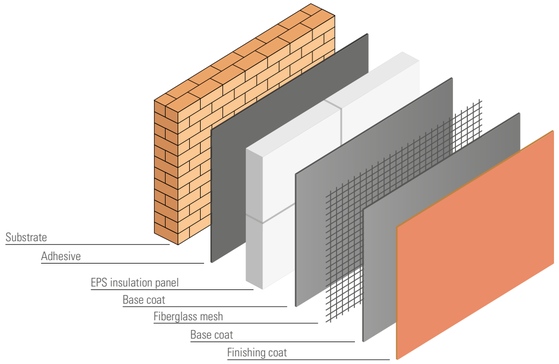
# DESCRIPTION OF THE SYSTEMS: **CONSTITUENT ELEMENTS**

## VIEROCLIMA **P**

**Thermal insulation system using EPS insulation panels with adhesive/base coat in a paste form.**

**Distinctive features**
- High thermal insulation
- Optimum adhesion even on difficult substrates
- Cost-effectiveness and speed of application
- Guaranteed quality and reliability
- Benefits from the European Technical Assessment - ETA No. 08/0332

*For further details, please refer to the technical data sheets and specifications available at www.vierocoatings.it*




| | | |
|---|---|---|
| FIXING | **ADESAN CPS B** | |
| | ANCHORS | |
| INSULATION PRODUCT | EPS White T 150 | |
| REINFORCED BASE COAT | **ADESAN CPS B** | |
| | MESH Viero | |
| | **ACRYLICS** | **SILOXANE** |
| PRYMER | **PRYMER PGM** | **VIEROGRIP PLUS** |
| FINISHING COAT | **VIEROACRYL RST 1,2** or **VISOLPAST RST 1,5** | **VIEROSILAX 1,2** |

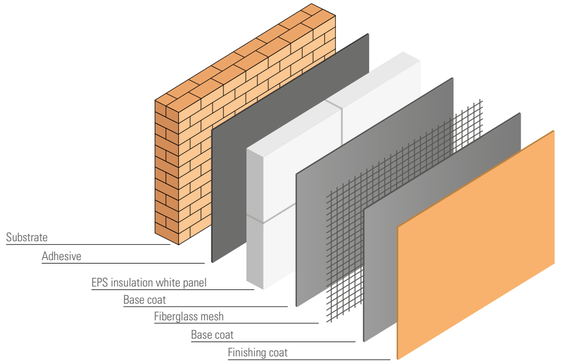


## VIEROCLIMA **PV**

**Thermal insulation system using EPS insulation panels with mineral adhesive/base coat in powder form.**

**Distinctive features**
- High thermal insulation
- Quick installation
- Excellent cost-performance ratio
- High reliability and durability
- Benefits from the European Technical Assessment - ETA No. 10/0369

*For further details, please refer to the technical data sheets and specifications available at www.vierocoatings.it*




| | | | |
|---|---|---|---|
| FIXING | **ADESAN G5 GREY,** or **ADESAN G7 GREY - ADESAN G10F GREY** | | |
| | ANCHORS | | |
| INSULATION PRODUCT | EPS White T 100 - EPS White T 150 - EPS Grey T 100 | | |
| REINFORCED BASE COAT | **ADESAN G5 GRIGIO,** or **ADESAN G7 GRIGIO - ADESAN G10F GRIGIO** | | |
| | MESH Viero | | |
| | **ACRYLICS** | **SILOXANE** | **SILICATE** |
| PRYMER | **PRYMER PGM** | **PRYMER PGM** | **VIEROGRIP PLUS** |
| FINISHING COAT | **VIEROACRYL RST 1,2** | **VIEROSIL ASX 1,2** or **VIEROSIL ASX 1,5** | **VISOLSILICA RS 1,5** |

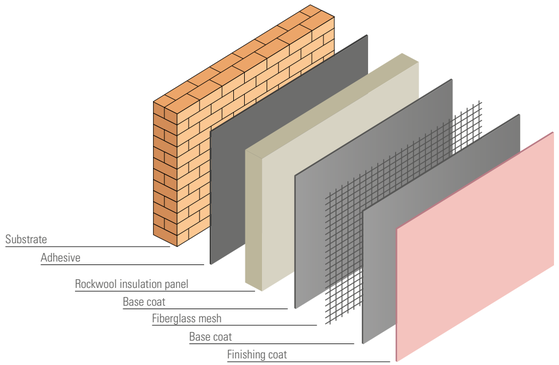
# DESCRIPTION OF THE SYSTEMS: **CONSTITUENT ELEMENTS**

## VIEROCLIMA **R**

**Thermal and acoustic insulation system with rock wool insulation panels.**

**Distinctive features**
- High sound absorption and insulation
- High thermal insulation
- Fire retardant - non-combustible
- High vapour permeability
- Benefits from the European Technical Assessment - ETA No. 12/0217

*For further details, please refer to the technical data sheets and specifications available at www.vierocoatings.it*




| | | |
|---|---|---|
| FIXING | **ADESAN G5 GREY,** or **ADESAN G7 GREY - ADESAN G10F GREY** | |
| | ANCHORS | |
| INSULATION PRODUCT | ROCKWOOL | |
| REINFORCED BASE COAT | **ADESAN G5 GREY,** or **ADESAN G7 GREY - ADESAN G10F GREY** | |
| | MESH Viero | |
| | **SILOXANE** | **SILICATE** |
| PRYMER | **PRYMER PGM** | **VIEROGRIP PLUS** |
| FINISHING COAT | **VIEROSIL ASX 1,5** | **VISOLSILICA RS 1,5** |

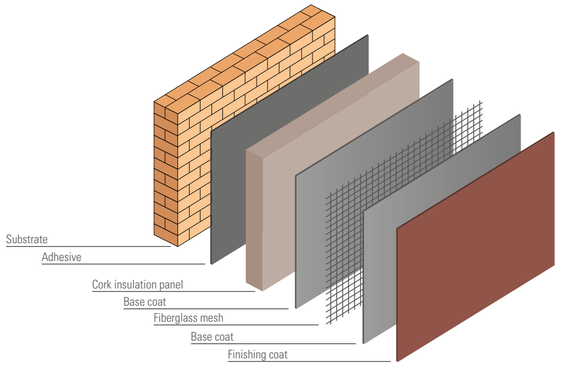


## VIEROCLIMA **S**

**Thermal insulation system with cork insulation panels.**

**Distinctive features**
- High mechanical resistance
- Natural and ecological system
- High thermal insulation in summer
- Good thermal insulation in winter
- High vapour permeability
- Benefits from the European Technical Assessment - ETA No. 12/0216

*For further details, please refer to the technical data sheets and specifications available at www.vierocoatings.it*




| | | |
|---|---|---|
| FIXING | **ADESAN CPV 22 GREY** | |
| | ANCHORS | |
| INSULATION PRODUCT | CORK INSULATION PANEL | |
| REINFORCED BASE COAT | **ADESAN CPV 22 GREY** | |
| | MESH Viero | |
| | **SILOXANE** | **SILICATE** |
| PRYMER | **PRYMER PGM** | **VIEROGRIP PLUS** |
| FINISHING COAT | **VIEROSILAX 1,5** | **VISOLSILICA RS 1,5** |

# DESCRIPTION OF THE SYSTEMS: **COMPONENTS AND WEIGHTS**

The main components and auxiliary materials of the systems studied are shown in the tables below. The decision to consider a 10-cm thick insulating panel stems from the need to effectively synthesise the current demand on the Italian market.
The weight values shown in the tables refer to the declared unit of 1 m$^2$. In the VIERO range, EPS with tensile strengths of from 100 to 150 are available.

## VIEROCLIMA **P - EPS**

| | | HP 1 - VISOLPLAST RST 1,5 | | HP 2 - VIEROSILAX 1,2 / VIEROACRYL RST 1,2 | |
|---|---|---|---|---|---|
| **System components** | | **Weight (kg)** | **Percentage** | **Weight (kg)** | **Percentage** |
| Adhesive | Adesan CPS B | 4,25 | 31% | 4,25 | 32% |
| Insulation products | EPS - 10 cm | 1,65 | 12% | 1,65 | 13% |
| Anchors | STR U 2G - 13,5 cm | 0,26 | 2% | 0,26 | 2% |
| Base coat | ADESAN CPS B | 4,5 | 33% | 4,50 | 34% |
| Mesh | Mesh Viero | 0,16 | 1% | 0,16 | 1% |
| Prymer | Prymer PGM | 0,16 | 1% | 0,16 | 1% |
| Finishing coat | HP 1 Visolplast RST 1,5 | 2,75 | 20% | | |
| | HP 2 Vierosilax 1,2 Vieroacryl RST 1,2 | | | 2,20 | 17% |
| | **TOTAL** | **13,73** | **100%** | **13,43** | **100%** |

## VIEROCLIMA **PV - EPS**

| | | HP 1 - VISOLPLAST RST 1,5 VISOLSILICA RS 1,5 VIEROSIL ASX 1,5 | | HP 2- VIEROSIL ASX 1,2 VIEROACRYL RST 1,2 | |
|---|---|---|---|---|---|
| **System components** | | **Weight (kg)** | **Percentage** | **Weight (kg)** | **Percentage** |
| Adhesive | Adesan G5, G7, G1F Grigio | 4,25 | 31% | 4,25 | 32% |
| Insulation products | EPS - 10 cm | 1,65 | 12% | 1,65 | 13% |
| Anchors | STR U 2G - 13,5 cm | 0,26 | 2% | 0,26 | 2% |
| Base coat | Adesan G5, G7, G1F Grigio | 4,50 | 33% | 4,50 | 34% |
| Mesh | Mesh Viero | 0,16 | 1% | 0,16 | 1% |
| Prymer | Prymer PGM Viergrip Plus | 0,16 | 1% | 0,16 | 1% |
| Finishing coat | HP 1 Visolplast RST 1,5 Visolsilica RS 1.5 Vierosil ASX 1,5 | 2,75 | 20% | | |
| | HP 2Vierosil ASX 1,2 Vieroacyl RST 1,2 | | | 2,20 | 17% |
| | **TOTAL** | **13,73** | **100%** | **13,18** | **100%** |

## Primary Packaging

| | ETICS with finishing coat 1.2mm 2.20 kg/m$^2$ | ETICS with finishing coat 1.5mm 2.75 kg/m$^2$ |
|---|---|---|
| Polypropylene (kg) | 0.281 | 0.293 |
| Iron (kg) | 0.016 | 0.017 |
| Paper (kg) | 0.009 | 0.009 |



## VIEROCLIMA **R**

| System components | | Weight (kg) | Percentage |
|---|---|---|---|
| Adhesive | Adesan G5, G7, G1F Grigio | 4,25 | 21% |
| Insulation products | Front Rock Max Plus - 10 cm | 7,80 | 39% |
| Anchors | STR U 2G - 13,5 cm | 0,26 | 1% |
| Base coat | Adesan G5, G7, G1F Grigio | 4,50 | 23% |
| Mesh | Mesh Viero | 0,16 | 1% |
| Prymer | Prymer PGM Vierogrip Plus | 0,16 | 1% |
| Finishing coat | Vierosil ASX 1,5 Visolsilica RS 1,5 | 2,75 | 14% |
| | **TOTAL** | **19,88** | **100%** |

## VIEROCLIMA **S**

| System components | | Weight (kg) | Percentage |
|---|---|---|---|
| Adhesive | Adesan CPV 22 Grigio | 4,25 | 18% |
| Insulation products | Corkpan - 10 cm | 11,00 | 48% |
| Anchors | STR U 2G - 13,5 cm | 0,26 | 1% |
| Base coat | Adesan CPV 22 Grigio | 4,50 | 19% |
| Mesh | Mesh Viero | 0,16 | 1% |
| Prymer | Vierogrip Plus | 0,16 | 1% |
| Finishing coat | Vierosilax 1,5 Visolsilica RS 1,5 | 2,75 | 12% |
| | **TOTAL** | **23,08** | **100%** |

# TECHNICAL DATA

The products being studied are intended for the external cladding of architectural works and buildings:

| TECHNICAL FEATURES | | Unit reference | VIEROCLIMA P | VIEROCLIMA PV | VIEROCLIMA R | VIEROCLIMA S |
|---|---|---|---|---|---|---|
| Insulating thicknesses available | | mm | 30 - 200 | 30 - 200 (White) 60 -200 (Grigio) | 50 - 200 | 30 - 200 |
| Thermal conductivity (insulation product) (λ) | | W/mK | EPS White T150 0,035 | EPS White T150 0,035<br>EPS White T100 0,036<br>EPS Grey T100 0,031 | ≤ 0,035<br>≤ 0,036<br>- | 0,039 |
| Thermal resistance | | m$^2$K/W | $R_{ETICS} = R_{INSULATION} + R_{RENDERING}$ | $R_{ETICS} = R_{INSULATION} + R_{RENDERING}$ | $R_{ETICS} = R_{INSULATION} + R_{RENDERING}$ | $R_{ETICS} = R_{INSULATION} + R_{RENDERING}$ |
| Reaction to fire (euroclass) | | Euroclass | NPD | B - s1, d0 (with finishing coat Visolsilica RS 1,5) / B - s2, d0 (with finishing coat Vierosil ASX 1,5) | B – s1, d0 with all finishing coat | NPD |
| Water absorption | | kg/m$^2$ | < 0.5 kg/m$^2$ after 24h | < 0.5 kg/m$^2$ after 24h<br>With all finishes except Visolsilica RS 1.5 (≥ 0.5 kg/m$^2$) | < 0.5 kg/m$^2$ after 24h<br>With all finishes except Visolsilica RS 1.5 (≥ 0.5 kg/m$^2$) | < 0.5 kg/m$^2$ after 24h |
| Impact resistance | | Category | Category II | Category II | Category II | Category II |
| Water vapour permeability | | m | $S_d \leq 2$ | $S_d \leq 2$ | $S_d \leq 2$ | $S_d \leq 2$ |
| Resistance to water vapour diffusion | Strato di base e Isolante | MPa | ≥ 0.08 | ≥ 0.08 | ≥ 0.08 | ≥ 0.08 |
| | Adesivo e Supporto | MPa | ≥ 0.25 | ≥ 0.25 | ≥ 0.25 | ≥ 0.25 |
| | Adesivo e Isolante | MPa | ≥ 0.08 | ≥ 0.08 | ≥ 0.08 | ≥ 0.08 |

Their classification according to the UN CPC code provides multiple identification codes. None of the products in the study contain any substances classified by the European Chemicals Agency (ECHA) list as Substances of Very High Concern (SVHC) in quantities of 0.1% or more by weight.

# DESCRIPTION OF THE SYSTEMS: **THE INSULATING PRODUCTS**

## PANELS

### VIEROCLIMA BIANCO 036 T100

**Insulating panel in white sintered expanded polystyrene cut from a block with a straight edge specifically for thermal insulation in the building industry.**

Approved by ETICS according to EAD040083-00-0404 and in compliance with standards UNI EN 13163 and UNI EN 13499.

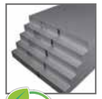
*Also available in the MEC version.*

### VIEROCLIMA BIANCO 035 T150

**Insulating panel in white sintered expanded polystyrene cut from a block with a straight edge specifically for thermal insulation in the building industry.**

Approved by ETICS according to EAD040083-00-0404 and in compliance with standards UNI EN 13163 and UNI EN 13499.

*Also available in the MEC version.*

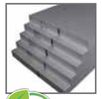


### VIEROCLIMA GRIGIO 031 T100

**Insulating panel in grey sintered expanded polystyrene cut from a block with a straight edge specifically for thermal insulation in the building industry.**

Approved by ETICS according to EAD040083-00-0404 and in compliance with standards UNI EN 13163 and UNI EN 13499.

*Also available in the MEC version.*



### VIEROCLIMA GRIGIO 030 T150

**Insulating panel in grey sintered expanded polystyrene cut from a block with a straight edge specifically for thermal insulation in the building industry.**

Approved by ETICS according to EAD040083-00-0404 and in compliance with standards UNI EN 13163 and UNI EN 13499.

*Also available in the MEC version.*

### FRONT ROCK MAX PLUS

**Rock wool insulation panel. Approved by ETICS according to EAD040083-00-0404.**

Complies with the MEC requirements (Minimum Environmental Criteria).

### CORKPAN

**Brown cork insulation panel. ETICS approved according to EAD040083-00-0404.**

Complies with the MEC requirements (Minimum Environmental Criteria).



## ADHESIVES AND BASE COAT COMPOUNDS

### ADESAN CPS B

**Grey paste adhesive for thermal insulation and universal base coat compound.**

THEORETICAL CONSUMPTION PER COAT
4,5 kg/m² (per cappotto)
DILUTION 1:1 with Portland cement CEM II/A-L 32.5

### ADESAN G5

**Powder adhesive for thermal insulation and universal base coat compound with a grain size of 0.5 mm.**

THEORETICAL CONSUMPTION PER COAT
3 - 4 kg/m² (as a levelling coat); 8 - 9 kg/m² (for insulation)
DILUTION: Up to 22% with water

### ADESAN G7

**Powder adhesive for thermal insulation and universal base coat compound with a grain size of 0.7 mm.**

THEORETICAL CONSUMPTION PER COAT
3 - 4 kg/m² (as a levelling coat); 8 - 9 kg/m² (for insulation)
DILUTION: Up to 23% with water

### ADESAN G10 F

**Powder adhesive for thermal insulation and universal base coat compound with a grain size of 1 mm.**

THEORETICAL CONSUMPTION PER COAT
3 - 4 kg/m² (as a levelling coat); 8 - 9 kg/m² (for insulation)
DILUTION: Up to 21% with water

## PRYMERS

### PRYMER PGM

**Universal pigmented primer with filling effect.**

- RESISTANCE TO ALKALIS AND ATMOSPHERIC AGENTS
- HIGH FILLING AND MASKING POWER

THEORETICAL YIELD PER COAT:
12 - 15 m²/Litre
DILUTION: Up to 10% with water

### VIEROGRIP PLUS

**Mineral primer, filling and levelling based on potassium silicate in aqueous phase.**

- HIGH FILLING POWER
- HIGH BREATHABILITY
- EXCELLENT SILICATE-BASED BONDING PRIMER FOR SILOXANE AND ACRYLIC PRODUCTS

THEORETICAL CONSUMPTION PER COAT:
5 - 6,5 m²/L
DILUIZIONE: 15% con acqua

## FINISHING COAT

### VIEROACRYL RST 1,2

**Acrylic protective coating with a fine compacted levelling appearance.**

- OUTSTANDING APPLICABILITY, ELASTICITY AND ADHERENCE
- PREVENTIVE PROTECTION AGAINST THE FORMATION OF ALGAE AND FUNGUS

THEORETICAL CONSUMPTION PER COAT:
1.2 mm 2.0 - 2.4 kg/m²

### VISOLSILICA RS 1,5

**Fibre-reinforced silicate coating with a compact rustic smooth appearance.**

- HIGH BREATHABILITY
- COMPLIES WITH DIN 18363
- EXCELLENT WORKABILITY
- EXCELLENT ADHESION ON ALL TYPES OF MINERAL SUBSTRATES

THEORETICAL CONSUMPTION PER COAT:
1.5 mm 2.5 - 3.0 kg/m²

### VISOLPLAST RST 1,5

**Acrylic protective coating with a rustic medium smooth appearance.**

- EXCELLENT WORKABILITY AND ADHESION
- PREVENTIVE PROTECTION AGAINST THE FORMATION OF ALGAE AND FUNGUS

THEORETICAL CONSUMPTION PER COAT:
1.5 mm 2.5 - 3.0 kg/m²

### VIEROSIL ASX

**Acryl-siloxane coating with a compact appearance. Available in 1.2-mm and 1.5-mm grain sizes.**

- HIGH ADHESION
- EASE OF APPLICATION
- PREVENTIVE PROTECTION AGAINST THE FORMATION OF ALGAE AND FUNGUS
- HIGH RESISTANCE TO ALKALIS AND ATMOSPHERIC AGENTS
- FIBRE-REINFORCED STRUCTURE

THEORETICAL CONSUMPTION PER COAT:
1.2 mm 2.0 - 2.4 kg/m² 1.5 mm 2.5 - 3.0 kg/m²

# **ENVIRONMENTAL IMPACT** DECLARATION

## DECLARED UNIT

For this EPD, in accordance with the reference standards, the concept of "declared unit" is used instead of "functional unit".
The declared unit is the quantity of product needed for the thermal insulation of a 1-square-metre area of the VIERO brand ETICS-certified kits:

- Vieroclima **P**
- Vieroclima **PV**
- Vieroclima **R**
- Vieroclima **S**

## REFERENCE YEAR

The data used are for the calendar year 2019. Study carried out in the year 2020/2021.

## SYSTEM BOUNDARIES

This EPD is of the "cradle to gate with options" type and includes modules A1 (Raw materials), A2 (Transport), A3 (Manufacturing), C1 (Deconstruction - Demolition), C2 (Transport to waste processing), C3 (Waste processing), C4 (Disposal) and D (Reuse - Recovery - Recycling potential).

| | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport of raw materials | Manufacturing | Transport to customer | Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/demolition | Transport to waste processing | Waste processing | Disposal | Reuse – recovery - recycling potential |
| **Form** | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| **Form declared** | X | X | X | ND | ND | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| **Geography** | EU | I | I | - | - | - | - | - | - | - | - | - | EU | EU | EU | EU | EU |
| **Specific data** | > 90% | > 90% | > 90% | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Variation products** | Less than ±10% for each product group | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Variation sites** | Not relevant | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

# **ENVIRONMENTAL IMPACT** DECLARATION

## PRODUCTION (A1 - A3)


**A1**
Withdrawal and processing of the raw materials entering the system.

**A2**
Transport of raw materials from the supplier to the production site and transport of processed products to the sorting hub.

**A3**
Material processing carried out within the Cromology Italia S.p.A. production site:

- Product mixing
- Packaging and wrapping
- Transport to warehouse and storage

The processing cycle involves the addition of all the raw materials required for the production (resins, fillers, additives) by means of hoppers or tanks in which they are dosed and then loaded into the machine.
The working cycle for the production of thick coatings and levelling adhesives for thermal coatings generally foresees the following phases:
1. Withdrawal of the raw materials from storage and conveying to the mixers (automatically if possible).
2. Dispersal of raw materials by means of the mixers.
3. Checking and testing of the mixture for the physical and chemical characteristics.
4. Packaging via use of packaging machines.
5. Shipping c/o the Logistics Hub

The energy emission factor of the mix used (GWP-GHG) is 0,734 Kg $CO_2$ e/KWh

## END OF LIFE (C1-C2-C3-C4)


The product end-of-life scenario foresees the following:

**C1**
The impact associated with the demolition phase is considered negligible. Demolition of the thermal insulation is largely carried out manually, without the use of energy or materials.

**C2**
The transport of the end-of-life product to the waste disposal site is by truck for an estimated distance of 50 km.

**C3**
The product is not recovered after the demolition activities.

**C4**
Disposal in a landfill of 100% of the end-of-life product.

**D**
Not relevant.

The RSL (Reference Service Life), given the nature of the product and its intended use, is estimated to be equal to the lifetime of the installation building, namely, 50 years.

## CUT-OFF

The environmental impact related to personnel, infrastructures, and the production of materials not directly consumed in the production process has not been included in the study.
All process inputs and outputs for which data are available have been included in the calculation. Less than 1% of the total inputs/outputs of the System have been cut off.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA P

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPS B | Prymer PGM | Visolplast RST | P 1 |
| | | Vieroacryl RST 1,2 | |
| | | Vierosilax 1,2 AG | |

| INDICATORS EN 15804+A2 | | AVERAGE P 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.91E+02 | ±3.4% | 0.00E+00 | 9.45E-01 | 0.00E+00 | 1.96E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 2.65E-06 | ±2.6% | 0.00E+00 | 4.43E-10 | 0.00E+00 | 7.12E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 8.99E-02 | ±2.3% | 0.00E+00 | 4.24E-04 | 0.00E+00 | 6.67E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.18E-03 | ±1.7% | 0.00E+00 | 3.98E-06 | 0.00E+00 | 6.60E-06 | 0.00E+00 |
| EP Marine | kg N eq | 9.15E-04 | ±4.9% | 0.00E+00 | 3.78E-07 | 0.00E+00 | 6.14E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.87E-01 | ±1.6% | 0.00E+00 | 1.84E-03 | 0.00E+00 | 2.56E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 6.44E-03 | ±1.2% | 0.00E+00 | 1.69E-05 | 0.00E+00 | 1.90E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.51E+01 | ±2.8% | 0.00E+00 | 6.11E-02 | 0.00E+00 | 7.00E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.51E+01 | ±2.8% | 0.00E+00 | 6.12E-02 | 0.00E+00 | 7.00E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 1.88E-06 | ±4.6% | 0.00E+00 | 1.15E-08 | 0.00E+00 | 2.30E-08 | 0.00E+00 |
| POCP | kg NMVOC | 7.22E-02 | ±1.8% | 0.00E+00 | 5.18E-04 | 0.00E+00 | 7.39E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 5.08E+00 | ±3.2% | 0.00E+00 | 2.10E-03 | 0.00E+00 | 3.79E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE P 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.39E+01 | ±1.1% | 0.00E+00 | 1.14E-02 | 0.00E+00 | 1.56E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.39E+01 | ±1.1% | 0.00E+00 | 1.14E-02 | 0.00E+00 | 1.56E-02 | 0.00E+00 |
| PENRT | MJ | 4.20E+02 | ±3.2% | 0.00E+00 | 9.65E-01 | 0.00E+00 | 1.98E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 3.54E+02 | ±3.8% | 0.00E+00 | 9.65E-01 | 0.00E+00 | 1.98E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.82E-01 | ±3.7% | 0.00E+00 | 1.21E-04 | 0.00E+00 | 2.15E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE P 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 3.91E+02 | ±2.2% | 0.00E+00 | 2.33E-06 | 0.00E+00 | 2.92E-06 | 0.00E+00 |
| NHWD | kg | 2.65E-06 | ±0.3% | 0.00E+00 | 1.28E-01 | 0.00E+00 | 1.35E+01 | 0.00E+00 |
| RWD | kg | 8.99E-02 | ±0.9% | 0.00E+00 | 6.61E-06 | 0.00E+00 | 1.30E-05 | 0.00E+00 |
| CRU | kg | 3.18E-03 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 9.15E-04 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 1.87E-01 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 6.44E-03 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE P 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.40E+01 | ±2.7% | 0.00E+00 | 6.08E-02 | 0.00E+00 | 6.92E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The products of the PV line have been divided into 5 uniform sub-groups as regards the primer and the finish used. The reported results are the average of the product results marketed as VIEROCLIMA PV. All indicators are within ± 10%.

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA PV

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | PV 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | PV 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,2 | PV 3 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan CPV 22 Grigio | Prymer PGM | Visolplast RST | PV 4 |
| Adesan G5 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G7 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G10 Grigio F | Prymer PGM | Visolplast RST | |
| Adesan CPV 22 Grigio | Prymer PGM | Vieroacryl RST 1,2 | PV 5 |
| Adesan G5 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vieroacryl RST 1,2 | |

### PV 1

| INDICATORS EN 15804+A2 | | AVERAGE PV 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.12E+02 | ±2.9% | 0.00E+00 | 9.65E-01 | 0.00E+00 | 2.00E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.22E-06 | ±4.2% | 0.00E+00 | 4.52E-10 | 0.00E+00 | 7.27E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 7.80E-02 | ±3.5% | 0.00E+00 | 4.32E-04 | 0.00E+00 | 6.80E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.55E-03 | ±9.4% | 0.00E+00 | 4.06E-06 | 0.00E+00 | 6.73E-06 | 0.00E+00 |
| EP Marine | kg N eq | 7.65E-04 | ±4.6% | 0.00E+00 | 3.85E-07 | 0.00E+00 | 6.27E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.75E-01 | ±3.0% | 0.00E+00 | 1.87E-03 | 0.00E+00 | 2.61E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 8.98E-03 | ±7.2% | 0.00E+00 | 1.72E-05 | 0.00E+00 | 1.94E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.34E+01 | ±5.5% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.34E+01 | ±5.5% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 4.31E-05 | ±0.2% | 0.00E+00 | 1.18E-08 | 0.00E+00 | 2.35E-08 | 0.00E+00 |
| POCP | kg NMVOC | 6.23E-02 | ±2.6% | 0.00E+00 | 5.29E-04 | 0.00E+00 | 7.54E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 4.29E+00 | ±3.6% | 0.00E+00 | 2.14E-03 | 0.00E+00 | 3.87E-02 | 0.00E+00 |



### RESOURCE CONSUMPTION

| | | AVERAGE PV 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.54E+01 | ±5.5% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.54E+01 | ±5.5% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PENRT | MJ | 3.42E+02 | ±3.5% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.76E+02 | ±4.3% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.29E-01 | ±3.5% | 0.00E+00 | 1.24E-04 | 0.00E+00 | 2.20E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE PV 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 4.60E-04 | ±2.2% | 0.00E+00 | 2.38E-06 | 0.00E+00 | 2.98E-06 | 0.00E+00 |
| NHWD | kg | 1.29E+01 | ±8.4% | 0.00E+00 | 1.30E-01 | 0.00E+00 | 1.38E+01 | 0.00E+00 |
| RWD | kg | 6.80E-04 | ±8.8% | 0.00E+00 | 6.75E-06 | 0.00E+00 | 1.33E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE PV 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.25E+01 | ±5.6% | 0.00E+00 | 6.20E-02 | 0.00E+00 | 7.06E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA PV

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | PV 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | PV 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,2 | PV 3 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan CPV 22 Grigio | Prymer PGM | Visolplast RST | PV 4 |
| Adesan G5 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G7 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G10 Grigio F | Prymer PGM | Visolplast RST | |
| Adesan CPV 22 Grigio | Prymer PGM | Vieroacryl RST 1,2 | PV 5 |
| Adesan G5 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vieroacryl RST 1,2 | |

### PV 2

| INDICATORS EN 15804+A2 | | AVERAGE PV 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.04E+02 | ±3.0% | 0.00E+00 | 9.65E-01 | 0.00E+00 | 2.00E+00 | 0.00E+00 |
| ADP ((minerals & metals) | kg Sb eq | 1.13E-06 | ±4.5% | 0.00E+00 | 4.52E-10 | 0.00E+00 | 7.27E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 7.87E-02 | ±3.4% | 0.00E+00 | 4.32E-04 | 0.00E+00 | 6.80E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.67E-03 | ±9.1% | 0.00E+00 | 4.06E-06 | 0.00E+00 | 6.73E-06 | 0.00E+00 |
| EP Marine | kg N eq | 7.95E-04 | ±4.4% | 0.00E+00 | 3.85E-07 | 0.00E+00 | 6.27E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.76E-01 | ±3.0% | 0.00E+00 | 1.87E-03 | 0.00E+00 | 2.61E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 7.94E-03 | ±8.2% | 0.00E+00 | 1.72E-05 | 0.00E+00 | 1.94E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.34E+01 | ±5.5% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.34E+01 | ±5.5% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 1.78E-06 | ±4.0% | 0.00E+00 | 1.18E-08 | 0.00E+00 | 2.35E-08 | 0.00E+00 |
| POCP | kg NMVOC | 6.25E-02 | ±2.6% | 0.00E+00 | 5.29E-04 | 0.00E+00 | 7.54E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 4.06E+00 | ±3.8% | 0.00E+00 | 2.14E-03 | 0.00E+00 | 3.87E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE PV 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.53E+01 | ±5.6% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.53E+01 | ±5.6% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PENRT | MJ | 3.34E+02 | ±3.5% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.68E+02 | ±4.4% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.23E-01 | ±3.6% | 0.00E+00 | 1.24E-04 | 0.00E+00 | 2.20E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE PV 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 4.70E-04 | ±2.1% | 0.00E+00 | 2.38E-06 | 0.00E+00 | 2.98E-06 | 0.00E+00 |
| NHWD | kg | 1.22E+01 | ±8.8% | 0.00E+00 | 1.30E-01 | 0.00E+00 | 1.38E+01 | 0.00E+00 |
| RWD | kg | 6.95E-04 | ±9.4% | 0.00E+00 | 6.75E-06 | 0.00E+00 | 1.33E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE PV 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.26E+01 | ±5.6% | 0.00E+00 | 6.20E-02 | 0.00E+00 | 7.06E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA PV

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | PV 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | PV 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,2 | PV 3 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan CPV 22 Grigio | Prymer PGM | Visolplast RST | PV 4 |
| Adesan G5 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G7 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G10 Grigio F | Prymer PGM | Visolplast RST | |
| Adesan CPV 22 Grigio | Prymer PGM | Vieroacryl RST 1,2 | PV 5 |
| Adesan G5 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vieroacryl RST 1,2 | |

### PV 3

| INDICATORS EN 15804+A2 | | AVERAGE PV 3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 2.93E+02 | ±3.1% | 0.00E+00 | 9.26E-01 | 0.00E+00 | 1.92E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.10E-06 | ±4.6% | 0.00E+00 | 4.33E-10 | 0.00E+00 | 6.98E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 7.48E-02 | ±3.6% | 0.00E+00 | 4.15E-04 | 0.00E+00 | 6.53E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.42E-03 | ±9.6% | 0.00E+00 | 3.90E-06 | 0.00E+00 | 6.46E-06 | 0.00E+00 |
| EP Marine | kg N eq | 7.50E-04 | ±5.3% | 0.00E+00 | 3.70E-07 | 0.00E+00 | 6.02E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.67E-01 | ±3.1% | 0.00E+00 | 1.80E-03 | 0.00E+00 | 2.50E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 7.30E-03 | ±9.0% | 0.00E+00 | 1.65E-05 | 0.00E+00 | 1.86E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.24E+01 | ±5.8% | 0.00E+00 | 5.99E-02 | 0.00E+00 | 6.85E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.24E+01 | ±5.8% | 0.00E+00 | 5.99E-02 | 0.00E+00 | 6.86E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 1.61E-06 | ±4.4% | 0.00E+00 | 1.13E-08 | 0.00E+00 | 2.25E-08 | 0.00E+00 |
| POCP | kg NMVOC | 5.98E-02 | ±2.8% | 0.00E+00 | 5.07E-04 | 0.00E+00 | 7.24E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 3.95E+00 | ±3.9% | 0.00E+00 | 2.06E-03 | 0.00E+00 | | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE PV 3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.40E+01 | ±5.9% | 0.00E+00 | 1.12E-02 | 0.00E+00 | 1.53E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.40E+01 | ±5.9% | 0.00E+00 | 1.12E-02 | 0.00E+00 | 1.53E-02 | 0.00E+00 |
| PENRT | MJ | 3.22E+02 | ±3.7% | 0.00E+00 | 9.45E-01 | 0.00E+00 | 1.94E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.56E+02 | ±4.6% | 0.00E+00 | 9.45E-01 | 0.00E+00 | 1.94E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.17E-01 | ±3.7% | 0.00E+00 | 1.19E-04 | 0.00E+00 | 2.11E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE PV 3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 4.45E-04 | ±3.4% | 0.00E+00 | 2.28E-06 | 0.00E+00 | 2.86E-06 | 0.00E+00 |
| NHWD | kg | 1.15E+01 | ±9.4% | 0.00E+00 | 1.25E-01 | 0.00E+00 | 1.33E+01 | 0.00E+00 |
| RWD | kg | 6.60E-04 | ±9.1% | 0.00E+00 | 6.48E-06 | 0.00E+00 | 1.27E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE PV 3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.15E+01 | ±5.8% | 0.00E+00 | 5.96E-02 | 0.00E+00 | 6.77E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA PV

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | PV 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | PV 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,2 | PV 3 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan CPV 22 Grigio | Prymer PGM | Visolplast RST | PV 4 |
| Adesan G5 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G7 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G10 Grigio F | Prymer PGM | Visolplast RST | |
| Adesan CPV 22 Grigio | Prymer PGM | Vieroacryl RST 1,2 | PV 5 |
| Adesan G5 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vieroacryl RST 1,2 | |

### PV 4

| INDICATORS EN 15804+A2 | | AVERAGE PV 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.22E+02 | ±2.8% | 0.00E+00 | 9.65E-01 | 0.00E+00 | 2.00E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.25E-06 | ±4.1% | 0.00E+00 | 4.52E-10 | 0.00E+00 | 7.27E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 8.01E-02 | ±3.4% | 0.00E+00 | 4.32E-04 | 0.00E+00 | 6.80E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.56E-03 | ±9.3% | 0.00E+00 | 4.06E-06 | 0.00E+00 | 6.73E-06 | 0.00E+00 |
| EP Marine | kg N eq | 8.60E-04 | ±4.7% | 0.00E+00 | 3.85E-07 | 0.00E+00 | 6.27E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.74E-01 | ±3.0% | 0.00E+00 | 1.87E-03 | 0.00E+00 | 2.61E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 7.43E-03 | ±8.7% | 0.00E+00 | 1.72E-05 | 0.00E+00 | 1.94E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.39E+01 | ±5.4% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.39E+01 | ±5.4% | 0.00E+00 | 6.24E-02 | 0.00E+00 | 7.14E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 1.97E-06 | ±3.6% | 0.00E+00 | 1.18E-08 | 0.00E+00 | 2.35E-08 | 0.00E+00 |
| POCP | kg NMVOC | 6.31E-02 | ±2.6% | 0.00E+00 | 5.29E-04 | 0.00E+00 | 7.54E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 4.28E+00 | ±3.6% | 0.00E+00 | 2.14E-03 | 0.00E+00 | 3.87E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE PV 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.46E+01 | ±5.7% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.46E+01 | ±5.7% | 0.00E+00 | 1.17E-02 | 0.00E+00 | 1.59E-02 | 0.00E+00 |
| PENRT | MJ | 3.52E+02 | ±3.4% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.86E+02 | ±4.1% | 0.00E+00 | 9.84E-01 | 0.00E+00 | 2.02E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.38E-01 | ±3.4% | 0.00E+00 | 1.24E-04 | 0.00E+00 | 2.20E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE PV 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 4.65E-04 | ±3.2% | 0.00E+00 | 2.38E-06 | 0.00E+00 | 2.98E-06 | 0.00E+00 |
| NHWD | kg | 1.17E+01 | ±9.2% | 0.00E+00 | 1.30E-01 | 0.00E+00 | 1.38E+01 | 0.00E+00 |
| RWD | kg | 6.70E-04 | ±9.0% | 0.00E+00 | 6.75E-06 | 0.00E+00 | 1.33E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE PV 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.30E+01 | ±5.5% | 0.00E+00 | 6.20E-02 | 0.00E+00 | 7.06E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA PV

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | PV 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | PV 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,2 | PV 3 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,2 | |
| Adesan CPV 22 Grigio | Prymer PGM | Visolplast RST | PV 4 |
| Adesan G5 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G7 Grigio | Prymer PGM | Visolplast RST | |
| Adesan G10 Grigio F | Prymer PGM | Visolplast RST | |
| Adesan CPV 22 Grigio | Prymer PGM | Vieroacryl RST 1,2 | PV 5 |
| Adesan G5 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G7 Grigio | Prymer PGM | Vieroacryl RST 1,2 | |
| Adesan G10 Grigio F | Prymer PGM | Vieroacryl RST 1,2 | |

### PV 5

| INDICATORS EN 15804+A2 | | AVERAGE PV 5 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 2.96E+02 | ±3.1% | 0.00E+00 | 9.26E-01 | 0.00E+00 | 1.92E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.11E-06 | ±4.6% | 0.00E+00 | 4.33E-10 | 0.00E+00 | 6.98E-10 | 0.00E+00 |
| AP | Mole H+ eq. | 7.60E-02 | ±3.6% | 0.00E+00 | 4.15E-04 | 0.00E+00 | 6.53E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 3.45E-03 | ±9.6% | 0.00E+00 | 3.90E-06 | 0.00E+00 | 6.46E-06 | 0.00E+00 |
| EP Marine | kg N eq | 7.70E-04 | ±5.2% | 0.00E+00 | 3.70E-07 | 0.00E+00 | 6.02E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.68E-01 | ±3.1% | 0.00E+00 | 1.80E-03 | 0.00E+00 | 2.50E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 7.37E-03 | ±8.8% | 0.00E+00 | 1.65E-05 | 0.00E+00 | 1.86E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.25E+01 | ±5.8% | 0.00E+00 | 5.99E-02 | 0.00E+00 | 6.85E-02 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.25E+01 | ±5.8% | 0.00E+00 | 5.99E-02 | 0.00E+00 | 6.86E-02 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 1.80E-06 | ±3.9% | 0.00E+00 | 1.13E-08 | 0.00E+00 | 2.25E-08 | 0.00E+00 |
| POCP | kg NMVOC | 6.05E-02 | ±2.7% | 0.00E+00 | 5.07E-04 | 0.00E+00 | 7.24E-04 | 0.00E+00 |
| WDP | $m^3$eq. | 3.96E+00 | ±3.9% | 0.00E+00 | 2.06E-03 | 0.00E+00 | 3.72E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE PV 5 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 2.41E+01 | ±5.8% | 0.00E+00 | 1.12E-02 | 0.00E+00 | 1.53E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.41E+01 | ±5.8% | 0.00E+00 | 1.12E-02 | 0.00E+00 | 1.53E-02 | 0.00E+00 |
| PENRT | MJ | 3.25E+02 | ±3.6% | 0.00E+00 | 9.45E-01 | 0.00E+00 | 1.94E+00 | 0.00E+00 |
| PENRM | MJ | 6.60E+01 | ±0.0% | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.59E+02 | ±4.6% | 0.00E+00 | 9.45E-01 | 0.00E+00 | 1.94E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.18E-01 | ±3.7% | 0.00E+00 | 1.19E-04 | 0.00E+00 | 2.11E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE PV 5 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 4.50E-04 | ±2.2% | 0.00E+00 | 2.28E-06 | 0.00E+00 | 2.86E-06 | 0.00E+00 |
| NHWD | kg | 1.16E+01 | ±9.3% | 0.00E+00 | 1.25E-01 | 0.00E+00 | 1.33E+01 | 0.00E+00 |
| RWD | kg | 6.70E-04 | ±9.0% | 0.00E+00 | 6.48E-06 | 0.00E+00 | 1.27E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE PV 5 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.16E+01 | ±5.8% | 0.00E+00 | 5.96E-02 | 0.00E+00 | 6.77E-02 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA R

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | R 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | R 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |

### R 1

| INDICATORS EN 15804+A2 | | AVERAGE R 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.02E+02 | ±3.0% | 0.00E+00 | 1.40E+00 | 0.00E+00 | 2.89E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.46E-06 | ±3.5% | 0.00E+00 | 6.54E-10 | 0.00E+00 | 1.05E-09 | 0.00E+00 |
| AP | Mole H+ eq. | 1.48E-01 | ±1.8% | 0.00E+00 | 6.26E-04 | 0.00E+00 | 9.85E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 6.67E-03 | ±5.0% | 0.00E+00 | 5.88E-06 | 0.00E+00 | 9.75E-06 | 0.00E+00 |
| EP Marine | kg N eq | 1.05E-03 | ±3.8% | 0.00E+00 | 5.58E-07 | 0.00E+00 | 9.08E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 2.96E-01 | ±1.8% | 0.00E+00 | 2.71E-03 | 0.00E+00 | 3.78E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 1.42E-02 | ±4.6% | 0.00E+00 | 2.49E-05 | 0.00E+00 | 2.81E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.78E+01 | ±4.7% | 0.00E+00 | 9.03E-02 | 0.00E+00 | 1.03E-01 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.78E+01 | ±4.7% | 0.00E+00 | 9.04E-02 | 0.00E+00 | 1.03E-01 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 4.35E-05 | ±0.2% | 0.00E+00 | 1.70E-08 | 0.00E+00 | 3.40E-08 | 0.00E+00 |
| POCP | kg NMVOC | 9.08E-02 | ±1.8% | 0.00E+00 | 7.65E-04 | 0.00E+00 | 1.09E-03 | 0.00E+00 |
| WDP | $m^3$eq. | 4.06E+00 | ±3.8% | 0.00E+00 | 3.10E-03 | 0.00E+00 | 5.61E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE R 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 3.41E+01 | ±4.1% | 0.00E+00 | 1.69E-02 | 0.00E+00 | 2.31E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 3.41E+01 | ±4.1% | 0.00E+00 | 1.69E-02 | 0.00E+00 | 2.31E-02 | 0.00E+00 |
| PENRT | MJ | 3.31E+02 | ±3.6% | 0.00E+00 | 1.43E+00 | 0.00E+00 | 2.92E+00 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 3.31E+02 | ±3.6% | 0.00E+00 | 1.43E+00 | 0.00E+00 | 2.92E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 1.93E-01 | ±4.2% | 0.00E+00 | 1.79E-04 | 0.00E+00 | 3.18E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE R 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 5.40E-04 | ±1.9% | 0.00E+00 | 3.44E-06 | 0.00E+00 | 4.31E-06 | 0.00E+00 |
| NHWD | kg | 2.04E+01 | ±5.3% | 0.00E+00 | 1.88E-01 | 0.00E+00 | 2.00E+01 | 0.00E+00 |
| RWD | kg | 7.70E-04 | ±7.8% | 0.00E+00 | 9.77E-06 | 0.00E+00 | 1.92E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE R 1 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.71E+01 | ±4.6% | 0.00E+00 | 8.98E-02 | 0.00E+00 | 1.02E-01 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA R

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | R 1 |
| Adesan G5 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G7 Grigio | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan G10 Grigio F | Vierogrip Plus | Visolsilica RS 1,5 | |
| Adesan CPV 22 Grigio | Prymer PGM | Vierosil ASX 1,5 | R 2 |
| Adesan G5 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G7 Grigio | Prymer PGM | Vierosil ASX 1,5 | |
| Adesan G10 Grigio F | Prymer PGM | Vierosil ASX 1,5 | |

### R 2

| INDICATORS EN 15804+A2 | | AVERAGE R 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 2.95E+02 | ±3.1% | 0.00E+00 | 1.40E+00 | 0.00E+00 | 2.89E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.37E-06 | ±3.7% | 0.00E+00 | 6.54E-10 | 0.00E+00 | 1.05E-09 | 0.00E+00 |
| AP | Mole H+ eq. | 1.49E-01 | ±1.8% | 0.00E+00 | 6.26E-04 | 0.00E+00 | 9.85E-04 | 0.00E+00 |
| EP Freshwater | kg P eq* | 6.78E-03 | ±4.9% | 0.00E+00 | 5.88E-06 | 0.00E+00 | 9.75E-06 | 0.00E+00 |
| EP Marine | kg N eq | 1.08E-03 | ±3.7% | 0.00E+00 | 5.58E-07 | 0.00E+00 | 9.08E-07 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 2.97E-01 | ±1.8% | 0.00E+00 | 2.71E-03 | 0.00E+00 | 3.78E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 1.31E-02 | ±5.0% | 0.00E+00 | 2.49E-05 | 0.00E+00 | 2.81E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.78E+01 | ±4.7% | 0.00E+00 | 9.03E-02 | 0.00E+00 | 1.03E-01 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.78E+01 | ±4.7% | 0.00E+00 | 9.04E-02 | 0.00E+00 | 1.03E-01 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 2.17E-06 | ±3.3% | 0.00E+00 | 1.70E-08 | 0.00E+00 | 3.40E-08 | 0.00E+00 |
| POCP | kg NMVOC | 9.10E-02 | ±1.8% | 0.00E+00 | 7.65E-04 | 0.00E+00 | 1.09E-03 | 0.00E+00 |
| WDP | $m^3$eq. | 3.83E+00 | ±4.0% | 0.00E+00 | 3.10E-03 | 0.00E+00 | 5.61E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE R 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 3.40E+01 | ±4.1% | 0.00E+00 | 1.69E-02 | 0.00E+00 | 2.31E-02 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 3.40E+01 | ±4.1% | 0.00E+00 | 1.69E-02 | 0.00E+00 | 2.31E-02 | 0.00E+00 |
| PENRT | MJ | 3.23E+02 | ±3.7% | 0.00E+00 | 1.43E+00 | 0.00E+00 | 2.92E+00 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 3.23E+02 | ±3.7% | 0.00E+00 | 1.43E+00 | 0.00E+00 | 2.92E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 1.87E-01 | ±4.3% | 0.00E+00 | 1.79E-04 | 0.00E+00 | 3.18E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE R 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| HWD | kg | 5.55E-04 | ±2.7% | 0.00E+00 | 3.44E-06 | 0.00E+00 | 4.31E-06 | 0.00E+00 |
| NHWD | kg | 1.98E+01 | ±5.4% | 0.00E+00 | 1.88E-01 | 0.00E+00 | 2.00E+01 | 0.00E+00 |
| RWD | kg | 7.85E-04 | ±8.3% | 0.00E+00 | 9.77E-06 | 0.00E+00 | 1.92E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | n.d. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE R 2 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | Δ min-max | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.71E+01 | ±4.6% | 0.00E+00 | 8.98E-02 | 0.00E+00 | 1.02E-01 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA S

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Adesan CPV 22 Grigio | Prymer PGM | Vierosilax 1,5 AG | S 1 |
| Adesan CPV 22 Grigio | Vierogrip Plus | Visolsilica OT Medio | S 2 |

| Contenuto di carbonio biogenico | KG DI C |
|---|---|
| Carbonio biogenico nel prodotto | 5.5 |
| Carbonio biogenico nel packaging | < 5% |

### S 1

| INDICATORS EN 15804+A2 | | AVERAGE S 1 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.62E+02 | 0.00E+00 | 1.62E+00 | 0.00E+00 | 3.35E+00 | 3.35E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.83E-06 | 0.00E+00 | 7.59E-10 | 0.00E+00 | 1.22E-09 | 1.22E-09 |
| AP | Mole H+ eq. | 1.25E-01 | 0.00E+00 | 7.27E-04 | 0.00E+00 | 1.14E-03 | 1.14E-03 |
| EP Freshwater | kg P eq* | 9.38E-03 | 0.00E+00 | 6.82E-06 | 0.00E+00 | 1.13E-05 | 1.13E-05 |
| EP Marine | kg N eq | 1.65E-03 | 0.00E+00 | 6.48E-07 | 0.00E+00 | 1.05E-06 | 1.05E-06 |
| EP Terrestrial | Mole N eq. | 3.07E-01 | 0.00E+00 | 3.15E-03 | 0.00E+00 | 4.39E-03 | 4.39E-03 |
| GWP Biogenic | kg CO2 eq | 4.36E-02 | 0.00E+00 | 2.89E-05 | 0.00E+00 | 3.27E-05 | 3.27E-05 |
| GWP Fossil | kg CO2 eq | 2.86E+01 | 0.00E+00 | 1.05E-01 | 0.00E+00 | 1.20E-01 | 1.20E-01 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.86E+01 | 0.00E+00 | 1.05E-01 | 0.00E+00 | 1.20E-01 | 1.20E-01 |
| ODP | kg CFC-11 eq. | 2.50E-06 | 0.00E+00 | 1.98E-08 | 0.00E+00 | 3.95E-08 | 3.95E-08 |
| POCP | kg NMVOC | 9.48E-02 | 0.00E+00 | 8.89E-04 | 0.00E+00 | 1.27E-03 | 1.27E-03 |
| WDP | $m^3$eq. | 9.51E+00 | 0.00E+00 | 3.60E-03 | 0.00E+00 | 6.51E-02 | 6.51E-02 |

### RESOURCE CONSUMPTION

| | | AVERAGE S 1 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 1.56E+03 | 0.00E+00 | 1.96E-02 | 0.00E+00 | 2.68E-02 | 0.00E+00 |
| PERM | MJ | 1.87E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 1.37E+03 | 0.00E+00 | 1.96E-02 | 0.00E+00 | 2.68E-02 | 0.00E+00 |
| PENRT | MJ | 4.31E+02 | 0.00E+00 | 1.65E+00 | 0.00E+00 | 3.39E+00 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 4.31E+02 | 0.00E+00 | 1.65E+00 | 0.00E+00 | 3.39E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 4.12E-01 | 0.00E+00 | 2.08E-04 | 0.00E+00 | 3.69E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE S 1 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| HWD | kg | 6.50E-04 | 0.00E+00 | 4.00E-06 | 0.00E+00 | 5.01E-06 | 0.00E+00 |
| NHWD | kg | 2.34E+01 | 0.00E+00 | 2.19E-01 | 0.00E+00 | 2.32E+01 | 0.00E+00 |
| RWD | kg | 1.48E-03 | 0.00E+00 | 1.13E-05 | 0.00E+00 | 2.23E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE S 1 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 2.78E+01 | 0.00E+00 | 1.04E-01 | 0.00E+00 | 1.19E-01 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

The values refer to the declared unit, i.e., the quantity of product required to insulate 1 $m^2$ with an insulation thickness of 100 mm.

## VIEROCLIMA S

| ADHESIVE BASE COAT | PRYMER | FINISHING COAT | AVERAGE PRODUCT |
|---|---|---|---|
| Bonding Grigio | Fondfix Plus | Silacryl G | S 1 |
| Bonding Grigio | Silisettef Grip | Silisettef OT Medio | S 2 |

| Contenuto di carbonio biogenico | KG DI C |
|---|---|
| Carbonio biogenico nel prodotto | 5.5 |
| Carbonio biogenico nel packaging | < 5% |

### S 2

| INDICATORS EN 15804+A2 | | AVERAGE S 2 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 3.55E+02 | 0.00E+00 | 1.62E+00 | 0.00E+00 | 3.35E+00 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 1.80E-06 | 0.00E+00 | 7.59E-10 | 0.00E+00 | 1.22E-09 | 0.00E+00 |
| AP | Mole H+ eq. | 1.22E-01 | 0.00E+00 | 7.27E-04 | 0.00E+00 | 1.14E-03 | 0.00E+00 |
| EP Freshwater | kg P eq* | 9.28E-03 | 0.00E+00 | 6.82E-06 | 0.00E+00 | 1.13E-05 | 0.00E+00 |
| EP Marine | kg N eq | 1.56E-03 | 0.00E+00 | 6.48E-07 | 0.00E+00 | 1.05E-06 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 3.05E-01 | 0.00E+00 | 3.15E-03 | 0.00E+00 | 4.39E-03 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 4.47E-02 | 0.00E+00 | 2.89E-05 | 0.00E+00 | 3.27E-05 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 2.82E+01 | 0.00E+00 | 1.05E-01 | 0.00E+00 | 1.20E-01 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 2.82E+01 | 0.00E+00 | 1.05E-01 | 0.00E+00 | 1.20E-01 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 3.11E-06 | 0.00E+00 | 1.98E-08 | 0.00E+00 | 3.95E-08 | 0.00E+00 |
| POCP | kg NMVOC | 9.38E-02 | 0.00E+00 | 8.89E-04 | 0.00E+00 | 1.27E-03 | 0.00E+00 |
| WDP | $m^3$eq. | 9.50E+00 | 0.00E+00 | 3.60E-03 | 0.00E+00 | 6.51E-02 | 0.00E+00 |

### RESOURCE CONSUMPTION

| | | AVERAGE S 2 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 1.56E+03 | 0.00E+00 | 1.96E-02 | 0.00E+00 | 2.68E-02 | 0.00E+00 |
| PERM | MJ | 1.87E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 1.37E+03 | 0.00E+00 | 1.96E-02 | 0.00E+00 | 2.68E-02 | 0.00E+00 |
| PENRT | MJ | 4.24E+02 | 0.00E+00 | 1.65E+00 | 0.00E+00 | 3.39E+00 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 4.24E+02 | 0.00E+00 | 1.65E+00 | 0.00E+00 | 3.39E+00 | 0.00E+00 |
| SM | kg | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 4.05E-01 | 0.00E+00 | 2.08E-04 | 0.00E+00 | 3.69E-03 | 0.00E+00 |

### WASTE

| | | AVERAGE S 2 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| HWD | kg | 6.40E-04 | 0.00E+00 | 4.00E-06 | 0.00E+00 | 5.01E-06 | 0.00E+00 |
| NHWD | kg | 2.39E+01 | 0.00E+00 | 2.19E-01 | 0.00E+00 | 2.32E+01 | 0.00E+00 |
| RWD | kg | 1.47E-03 | 0.00E+00 | 1.13E-05 | 0.00E+00 | 2.23E-05 | 0.00E+00 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | AVERAGE S 2 | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | |
| GWP-GHG | kg CO2 eq | 2.74E+01 | 0.00E+00 | 1.04E-01 | 0.00E+00 | 1.19E-01 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

## ENVIRONMENTAL CALCULATION SIMULATION

The ETICS product range includes various insulation thicknesses for different materials. To calculate the impact of a kit with an insulation thickness differing from 100mm, the impact of just the insulation material in more or less (EPS Tables, Rock Wool, Cork) multiplied by the conversion factor indicated in the table must be added to the values indicated above.

EXAMPLE VIEROCLIMA P with 130-mm thick EPS insulation, calculation of GWP total of phase A1-A3:

From the product specification table (P1) there is a GWP in phase A1-A3 of 25.1 kg $CO_2$e.

The conversion factor for EPS T100 with a thickness of 130 mm is 0.50 (Conversion factor table).

The impact related to EPS insulation at stage A1-A3 for GWP total is 3.85 kg $CO_2$e (Table EPS).
The total GWP of the kit will therefore be: 25.1 + (3.85 * 0.50) = 27,025 kg $CO_2$e.

| | CONVERSIONE FACTORS | | | |
|---|---|---|---|---|
| Thickness (mm) | EPS T100 | EPS T150 | Lana di roccia | Sughero |
| 30 | -1.16 | -1.08 | -7.70 | -7.70 |
| 40 | -0.99 | -0.89 | -6.60 | -6.60 |
| 50 | -0.83 | -0.70 | -5.50 | -5.50 |
| 60 | -0.66 | -0.51 | -4.40 | -4.40 |
| 70 | -0.50 | -0.32 | -3.30 | -3.30 |
| 80 | -0.33 | -0.13 | -2.20 | -2.20 |
| 90 | -0.17 | 0.06 | -1.10 | -1.10 |
| **100** | **0.00** | **0.25** | **0.00** | **0.00** |
| 110 | 0.17 | 0.44 | 1.10 | 1.10 |
| 120 | 0.33 | 0.63 | 2.20 | 2.20 |
| 130 | 0.50 | 0.82 | 3.30 | 3.30 |
| 140 | 0.66 | 1.01 | 4.40 | 4.40 |
| 150 | 0.83 | 1.20 | 5.50 | 5.50 |
| 160 | 0.99 | 1.39 | 6.60 | 6.60 |
| 170 | 1.16 | 1.58 | 7.70 | 7.70 |
| 180 | 1.32 | 1.77 | 8.80 | 8.80 |
| 190 | 1.49 | 1.96 | 9.90 | 9.90 |
| 200 | 1.65 | 2.15 | 11.00 | 11.00 |

# **ENVIRONMENTAL** PERFORMANCE

## ENVIRONMENTAL CALCULATION SIMULATION

## EPS

| INDICATORS EN 15804+A2 | | EPS | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| ADP (fossil) | MJ | 7.81E+01 | 0.00E+00 | 7.03E-02 | 0.00E+00 | 1.45E-01 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 6.54E-08 | 0.00E+00 | 3.29E-11 | 0.00E+00 | 5.29E-11 | 0.00E+00 |
| AP | Mole H+ eq. | 1.38E-02 | 0.00E+00 | 3.16E-05 | 0.00E+00 | 4.95E-05 | 0.00E+00 |
| EP Freshwater | kg P eq* | 2.20E-04 | 0.00E+00 | 2.96E-07 | 0.00E+00 | 4.90E-07 | 0.00E+00 |
| EP Marine | kg N eq | 2.51E-05 | 0.00E+00 | 2.81E-08 | 0.00E+00 | 4.57E-08 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 2.59E-02 | 0.00E+00 | 1.40E-04 | 0.00E+00 | 1.90E-04 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 3.30E-04 | 0.00E+00 | 1.25E-06 | 0.00E+00 | 1.41E-06 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 3.85E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 3.85E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 9.65E-08 | 0.00E+00 | 8.56E-10 | 0.00E+00 | 1.71E-09 | 0.00E+00 |
| POCP | kg NMVOC | 1.28E-02 | 0.00E+00 | 3.84E-05 | 0.00E+00 | 5.49E-05 | 0.00E+00 |
| WDP | $m^3$eq. | 1.17E+00 | 0.00E+00 | 1.60E-04 | 0.00E+00 | 2.82E-03 | 0.00E+00 |



### RESOURCE CONSUMPTION

| | | EPS | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| PERT | MJ | 2.18E+00 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 2.18E+00 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PENRT | MJ | 8.35E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| PENRM | MJ | 4.00E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 4.35E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| SM | kg | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 6.64E-02 | 0.00E+00 | 8.92E-06 | 0.00E+00 | 1.60E-04 | 0.00E+00 |

### WASTE

| | | EPS | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| HWD | kg | 1.64E-05 | 0.00E+00 | 1.73E-07 | 0.00E+00 | 2.17E-07 | 0.00E+00 |
| NHWD | kg | 6.23E-01 | 0.00E+00 | 9.48E-03 | 0.00E+00 | 1.01E+00 | 0.00E+00 |
| RWD | kg | 4.86E-05 | 0.00E+00 | 4.91E-07 | 0.00E+00 | 9.67E-07 | 0.00E+00 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | EPS | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-GHG | kg CO2 eq | 3.60E+00 | 0.00E+00 | 4.52E-03 | 0.00E+00 | 5.14E-03 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

## ENVIRONMENTAL CALCULATION SIMULATION

## ROCK WOOL

| INDICATORS EN 15804+A2 | | ROCK WOOL | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| ADP (fossil) | MJ | 1.53E+01 | 0.00E+00 | 7.03E-02 | 0.00E+00 | 1.45E-01 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 4.42E-08 | 0.00E+00 | 3.29E-11 | 0.00E+00 | 5.29E-11 | 0.00E+00 |
| AP | Mole H+ eq. | 1.19E-02 | 0.00E+00 | 3.16E-05 | 0.00E+00 | 4.95E-05 | 0.00E+00 |
| EP Freshwater | kg P eq* | 4.50E-04 | 0.00E+00 | 2.96E-07 | 0.00E+00 | 4.90E-07 | 0.00E+00 |
| EP Marine | kg N eq | 4.20E-05 | 0.00E+00 | 2.81E-08 | 0.00E+00 | 4.57E-08 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 2.11E-02 | 0.00E+00 | 1.40E-04 | 0.00E+00 | 1.90E-04 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 7.40E-04 | 0.00E+00 | 1.25E-06 | 0.00E+00 | 1.41E-06 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 1.38E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 1.38E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 7.14E-08 | 0.00E+00 | 8.56E-10 | 0.00E+00 | 1.71E-09 | 0.00E+00 |
| POCP | kg NMVOC | 6.36E-03 | 0.00E+00 | 3.84E-05 | 0.00E+00 | 5.49E-05 | 0.00E+00 |
| WDP | $m^3$eq. | 2.18E-01 | 0.00E+00 | 1.60E-04 | 0.00E+00 | 2.82E-03 | 0.00E+00 |



### RESOURCE CONSUMPTION

| | | ROCK WOOL | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| PERT | MJ | 1.57E+00 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 1.57E+00 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PENRT | MJ | 1.62E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 1.62E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| SM | kg | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 9.46E-03 | 0.00E+00 | 8.92E-06 | 0.00E+00 | 1.60E-04 | 0.00E+00 |

### WASTE

| | | ROCK WOOL | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| HWD | kg | 1.45E-05 | 0.00E+00 | 1.73E-07 | 0.00E+00 | 2.17E-07 | 0.00E+00 |
| NHWD | kg | 1.10E+00 | 0.00E+00 | 9.48E-03 | 0.00E+00 | 1.01E+00 | 0.00E+00 |
| RWD | kg | 2.19E-05 | 0.00E+00 | 4.91E-07 | 0.00E+00 | 9.67E-07 | 0.00E+00 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | ROCK WOOL | | | | | |
|---|---|---|---|---|---|---|---|
| Impact category | Unit | A1 - A3 | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq | 1.34E+00 | 0.00E+00 | 4.52E-03 | 0.00E+00 | 5.14E-03 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# **ENVIRONMENTAL** PERFORMANCE

## ENVIRONMENTAL CALCULATION SIMULATION

## CORK

| INDICATORS EN 15804+A2 | | CORK | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| ADP (fossil) | MJ | 1.60E+01 | 0.00E+00 | 7.03E-02 | 0.00E+00 | 1.45E-01 | 0.00E+00 |
| ADP (minerals & metals) | kg Sb eq | 6.70E-08 | 0.00E+00 | 3.29E-11 | 0.00E+00 | 5.29E-11 | 0.00E+00 |
| AP | Mole H+ eq. | 6.28E-03 | 0.00E+00 | 3.16E-05 | 0.00E+00 | 4.95E-05 | 0.00E+00 |
| EP Freshwater | kg P eq* | 5.80E-04 | 0.00E+00 | 2.96E-07 | 0.00E+00 | 4.90E-07 | 0.00E+00 |
| EP Marine | kg N eq | 8.06E-05 | 0.00E+00 | 2.81E-08 | 0.00E+00 | 4.57E-08 | 0.00E+00 |
| EP Terrestrial | Mole N eq. | 1.60E-02 | 0.00E+00 | 1.40E-04 | 0.00E+00 | 1.90E-04 | 0.00E+00 |
| GWP Biogenic | kg CO2 eq | 3.33E-03 | 0.00E+00 | 1.25E-06 | 0.00E+00 | 1.41E-06 | 0.00E+00 |
| GWP Fossil | kg CO2 eq | 1.04E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| GWP Luluc | kg CO2 eq | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GWP Total | kg CO2 eq | 1.04E+00 | 0.00E+00 | 4.54E-03 | 0.00E+00 | 5.20E-03 | 0.00E+00 |
| ODP | kg CFC-11 eq. | 8.16E-08 | 0.00E+00 | 8.56E-10 | 0.00E+00 | 1.71E-09 | 0.00E+00 |
| POCP | kg NMVOC | 4.86E-03 | 0.00E+00 | 3.84E-05 | 0.00E+00 | 5.49E-05 | 0.00E+00 |
| WDP | $m^3$eq. | 6.63E-01 | 0.00E+00 | 1.60E-04 | 0.00E+00 | 2.82E-03 | 0.00E+00 |



### RESOURCE CONSUMPTION

| | | CORK | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| PERT | MJ | 1.40E+02 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PERM | MJ | 1.70E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERE | MJ | 1.23E+02 | 0.00E+00 | 8.50E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |
| PENRT | MJ | 2.06E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRE | MJ | 2.06E+01 | 0.00E+00 | 7.17E-02 | 0.00E+00 | 1.47E-01 | 0.00E+00 |
| SM | kg | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FWT | $m^3$ | 2.66E-02 | 0.00E+00 | 8.92E-06 | 0.00E+00 | 1.60E-04 | 0.00E+00 |

### WASTE

| | | CORK | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| HWD | kg | 1.91E-05 | 0.00E+00 | 1.73E-07 | 0.00E+00 | 2.17E-07 | 0.00E+00 |
| NHWD | kg | 1.21E+00 | 0.00E+00 | 9.48E-03 | 0.00E+00 | 1.01E+00 | 0.00E+00 |
| RWD | kg | 8.37E-05 | 0.00E+00 | 4.91E-07 | 0.00E+00 | 9.67E-07 | 0.00E+00 |
| CRU | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| ADDITIONAL INDICATORS | | CORK | | | | | |
|---|---|---|---|---|---|---|---|
| **Impact category** | **Unit** | **A1 - A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-GHG | kg CO2 eq | 1.01E+00 | 0.00E+00 | 4.52E-03 | 0.00E+00 | 5.14E-03 | 0.00E+00 |

* Results in kg $PO_4$ eq. can be obtained by multiplying the results in kg P eq. by a conversion factor of 3.07.

# ADDITIONAL INFORMATION

The VIERO insulation range includes panels which comply with what is described in Paragraph 2.4.2.9 of the Building MEC (Ministerial Decree dated 11 October 2017 More specifically, they comply with the following criteria:

- they must not be manufactured using flame retardants that are subject to restrictions or prohibitions under applicable national or Community legislation;
- they must not be produced using expanding agents with an ozone depletion potential greater than zero.
- they must not be produced or formulated using lead catalysts when sprayed or in the course of plastic foam formation;
- if produced from an expandable polystyrene resin, the blowing agents must be less than 6% by weight of the finished product;
- if made from mineral wools, they must comply with note Q or note R of Regulation (EC) No 1272/2008 (CLP) as amended and integrated;
- If the finished product contains one or more of the components listed in the following table, they must be made of recycled and/or recovered material according to the minimum quantities indicated, measured against the weight of the finished product.

| | Isolante in forma di pannello |
|---|---|
| Cellulosa | - |
| Lana di vetro | 60% |
| Lana di roccia | 15% |
| Perlite espansa | 30% |
| Fibre in poliestere | 60 - 80% |
| Poliestere espanso | dal 10 al 60% in funzione della tecnologia adottata per la produzione. |
| Poliestere estruso | dal 5 al 45% in funzione della tipologia del prodotto e della tecnologia adottata per la produzione. |
| Poliestere espanso | 1 - 10% in funzione della tipologia del prodotto e della tecnologia adottata per la produzione. |
| Agglomerato di Poliuretano | 70% |
| Agglomerato di gomma | 60% |
| Isolante riflettente in alluminio | - |



# ACRONYMS

**ENVIRONMENTAL IMPACTS:**
**ADP** = Abiotic Depletion Potential (elements);
**AP** = Acidification Potential;
**EP** = Eutrophication Potential;
**GWP** = Global Warming Potential;
**ODP** = Ozone Depletion Potential;
**POCP** = Photochemical Ozone Creation Potential;
**WDP** = Water Deprivation Potential.

**RESOURCE CONSUMPTION:**
**PERT** = Total use of renewable primary energy resources;
**PERM** = Use of renewable primary energy resources used as raw materials;
**PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials;
**PENRT** = Total use of non-renewable primary energy resources;
**PENRM** = Use of non-renewable primary energy resources used as raw materials;
**PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
**SM** = Use of secondary material;
**RSF** = Use of renewable secondary fuels;
**NRSF** = Use of non-renewable secondary fuels;
**FWT** = Total use of net fresh water.

**WASTE PRODUCTION:**
**HWD** = Hazardous waste disposed;
**NHWD** = Non-hazardous waste disposed;
**RWD** = Radioactive waste disposed;
**CRU** = Components for reuse; MFR = Materials for recycling;
**MER** = Materials for energy recovery; EE = Exported energy.

# VERIFICATION AND REGISTRATION

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)

Product Category Rules (PCR):
PCR 2019:14 Construction products, version 1.11

(PCR) review was conducted by:
The Technical Commitee of the International EPD® System.
See www.environdec.com/TC for a list of members.
Review chair: Claudia A. Peña, University of Concepción, Chile.
The review panel may be contacted via the Secretarian www.environdec.com/contact

Indipendent third-party verification of th declaration and data, according to ISO 14025:2006:
☒ External ☐ Internal
covering
☐ EPD process certification ☒ EPD verification

Third-party verifer:
Ugo Pretato (Studio Fieschi & Soci)

Procedure for follow-up during EPD validity involves third party verifier.
☐ Yes ☒ No

The owner of the EPD has ownership and responsibility for the declaration.

CODICE CPC: OTHERS

# CONTACT INFO

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Viero

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