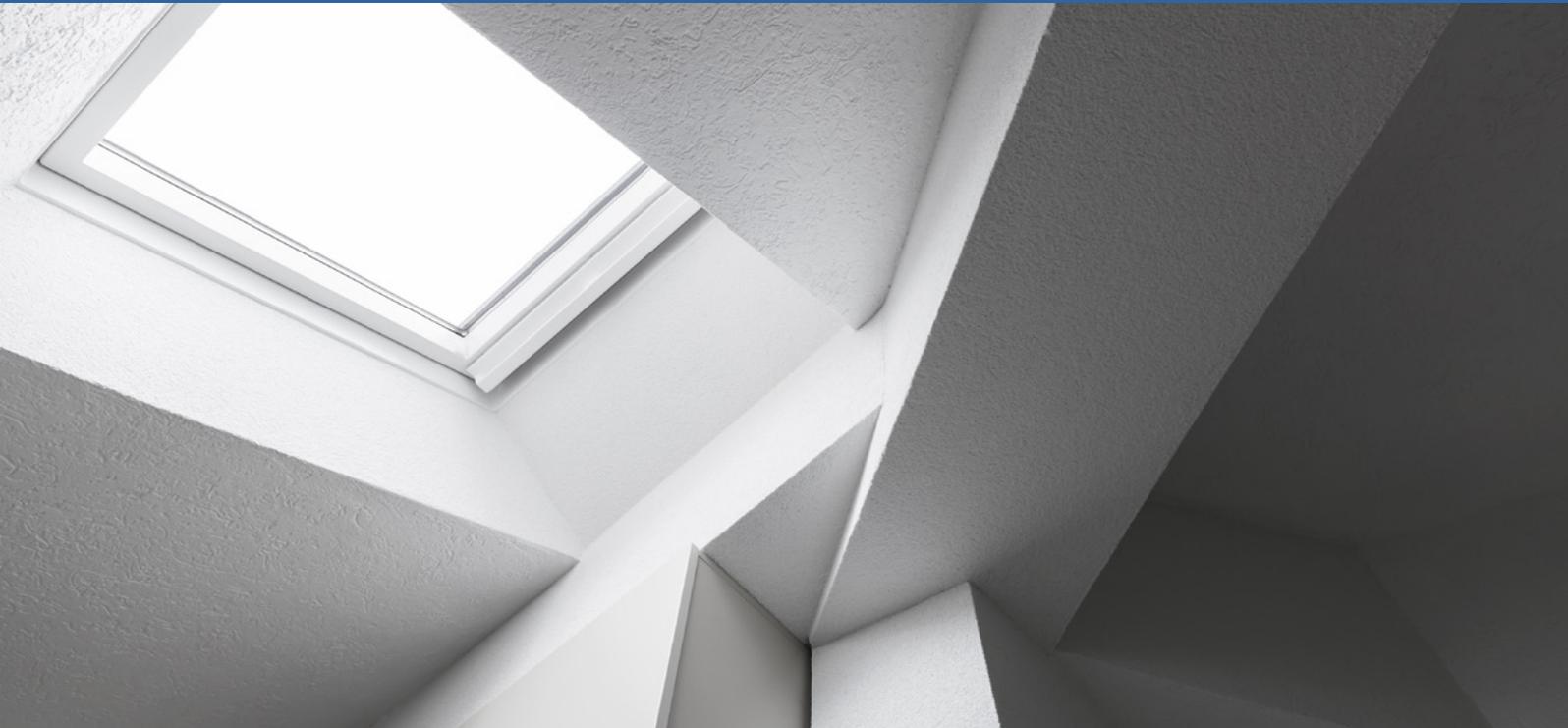




ATTIVA

INTERIOR PAINTS



EPD® ENVIRONMENTAL PRODUCT DECLARATION
In accordance with ISO 14025 and EN 15804

- **PCR 2019:14** - Construction products
- **CPC CODE:** 3511 - PAINTS AND VARNISHES AND RELATED PRODUCTS
- **PROGRAMME:** The International EPD® System - www.environdec.com
- **PROGRAMME OPERATOR:** EPD International AB
- **GEOGRAPHICAL SCOPE:** EUROPE
- **REGISTRATION N°:** S-P-02075
- **DATE OF PUBLICATION:** 24-09-2020
- **VALID UNTIL:** 07-01-2025



EPD®
THE INTERNATIONAL EPD® SYSTEM



www.attivacolori.it

ENVIRONMENTAL PRODUCT DECLARATION

For Attiva, the search for increasingly eco-friendly solutions, in line with recent Italian and European legislation, translates into **formulations characterised by advanced technology and minimum environmental impact and with important international certifications.**

The Environmental Product Declaration or EPD® is a document issued by an **independent entity** that, based on a **Life Cycle Assessment (LCA)** of the products, provides relevant, verified and comparable information about their environmental impact in accordance with **ISO 14025**.

This declaration is classified as **“type III labelling”** according to ISO series 14020. It allows products to be evaluated in the framework of both public tenders and building sustainability certification systems.

The **EPD®** is:

- ◆ **OBJECTIVE:** Environmental performance is calculated using the life cycle analysis methodology, based on the standards set out in ISO 14040.
- ◆ **COMPARABLE:** EPD®s in the same product category are comparable because they are developed on the basis of the same rules and requirements (Product Category Rules - PCR).
- ◆ **CREDIBLE:** The declaration is verified by a third-party auditor.

 **EPD®**
THE INTERNATIONAL EPD® SYSTEM

ATTIVA



ENAMEL PAINTS AND VARNISHES FOR PROFESSIONALS

The history of **Attiva** is one of ongoing research into **cutting-edge products and targeted solutions** for treating and decorating various interior and exterior substrates.

A strategic brand since 2001 for **Boero Group**, Italy's leading player in the industry, Attiva offers a **technical and functional range of specialist coating systems formulated for specific needs**, with the aim of facilitating and enhancing the work of **application professionals**.

GROUP SITES

The "**Federico Mario Boero**" **production facility** located in Rivalta Scrivia in the province of Alessandria in northern Italy, built using cutting-edge criteria and operating since 2009, covers 120,000 square meters, of which 18,000 under cover, with average annual production of 27,000,000 kg/year.

Technological development is performed at the "**Riccardo Cavalleroni**" **Research and Development Center** in bloc F at the Rivalta Scrivia Science and Technology Park (PST), where teams of highly qualified engineers work with the main goal of developing innovative product formulation technologies, involving ongoing assessment of latest generation raw materials and upgrading tinting systems.

The **registered office and sales organisation** are in Genoa, where the Group and brand began life.

THE GOAL OF THE STUDY

The goal of the study is to **assess environmental impact** in relation to the production of Boero Group water-based paints, using an approach based on life cycle analysis, in order to communicate the results obtained through an **Environmental Product Declaration (EPD®)** in the framework of the International EPD® System. The recipients of this document are end customers and all stakeholders affected by the environmental impact of the main **INTERIOR PAINTS** in the Attiva range.

PRODUCTS

The products studied are **water-based paints produced using different classes of raw materials**.

Water-based paints are suitable for masonry substrates, including plaster, plasterboard and similar, and consist of synthetic binders in water emulsion, pigments, selected aggregates including carbonates and talcs, etc., and functional additives like thickeners, anti-sediment agents and preservatives.

Depending on the ratio between binder, fillers and pigments, water-based paints for interiors can be categorised into several families of water-based paints defined as washable, breathable and super-washable, for decorating target areas according to technical and aesthetic requirements.



PRODUCT COMPOSITION:

COMPONENTS	PERCENTAGES (%)
WATER	< 35%
FILLERS AND PIGMENTS	< 60%
EMULSION AND RESINS	< 15%
ADDITIVES	< 5%

TABLE 1 - Average content declaration for the main components in the water-based paints line.

 **EPD**®

THE INTERNATIONAL EPD® SYSTEM

AEROXY 100

COD.712168

Hypoallergenic washable paint

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **ECO-FRIENDLY FORMULA WITH V.O.C. ≈ 0**
- ◆ **EXCELLENT WASHABILITY AND WHITENESS**
- ◆ **LOW DIRT PICK-UP**

Washable paint for interiors with no added Volatile Organic Compounds (VOCs), biocides, caulescents, plasticizers or preservatives. Formaldehyde free*. The use of eco-friendly raw materials makes it ideal for areas where sensitive subjects spend time, including children, the elderly and people with allergy problems. As it is odourless, painted areas can be used again soon after application. Excellent resistance to washing (> 1,000 Gardner cycles, in accordance with UNI 10795 - UNI 10560). Tested for hypo-allergenicity at the San Martino Hospital Dermatological Clinic. "A+" IAQ (Internal Air Quality) certification. *Formaldehyde content below instrument detection limit and not intentionally added.

LAVABILE

COD.716016

Washable paint with **Ecolabel** (EU Ecolabel Nr. IT/044/006)

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **EXCELLENT WASHABILITY**
- ◆ **LOW DIRT PICK-UP**
- ◆ **MINIMUM ENVIRONMENTAL IMPACT (ECOLABEL CERTIFICATION)**

Washable paint for interiors with excellent hiding power and whiteness, high resistance to washing and low dirt pick-up. Suitable for use in all household environments, workplaces, offices, etc. The eco-friendly criteria set out in the Ecolabel protocol guarantee high quality performance and low environmental impact throughout the product's entire life cycle, from choice of raw materials and production processes to final disposal. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

TRASPIRANTE

COD.716017

Breathable paint with **Ecolabel** (EU Ecolabel Nr. IT/044/006)

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **EXCELLENT BREATHABILITY**
- ◆ **HIGH HIDING POWER**
- ◆ **MINIMUM ENVIRONMENTAL IMPACT (ECOLABEL CERTIFICATION)**

Paint for interiors with excellent breathability, hiding power and whiteness. Suitable for use in environments where condensation forms, including bathrooms, kitchens and attics. The eco-friendly criteria set out in the Ecolabel protocol guarantee high quality performance and low environmental impact throughout the product's entire life cycle, from choice of raw materials and production processes to final disposal. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

MURISAN ORO

COD.712120

Super-washable paint with absolute hiding power

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

Civil plaster, plasterboard, fibre cement, skim-coated walls, etc., suitably prepared



- ◆ **SINGLE COAT EVEN ON COMPLEX SURFACES**
- ◆ **EXCELLENT OPACITY AND WHITENESS**
- ◆ **MASKING AND FILLING ACTION**

Super-washable paint with outstanding hiding power even when wet (Class 1 at 9m² based on UNI EN 13300). Excellent opacity and whiteness make it possible to cover even complex surfaces already painted in dark or bright colours with a single coat. On substrates in good condition, the use of insulating primers and fixatives may not be necessary. Formaldehyde Free* and with "A+" IAQ (Indoor Air Quality) certification.
*Formaldehyde content below instrument detection limit and not intentionally added.

LAX SATINATO

COD.777232

Satin enamel paint with excellent stain removal properties

S-P-02075 **EPD**[®]
environdec.com

INTERIORS AND EXTERIORS ◇

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **REMARKABLE HIDING POWER**
- ◆ **OUTSTANDING ADHESION**
- ◆ **ANTI-DUST EFFECT**

High performance acrylic enamel paint with stain removal and anti-dust properties. Most stains caused by substances typically found in household environments (e.g. coffee, oil, tomato, etc.) can be removed immediately without leaving a trace. Remarkable hiding power and adhesion even on difficult substrates. Excellent washability. Suitable for application in areas containing food products in compliance with standard UNI 11021-2002 on the HACCP methodology and Formaldehyde Free*

*Formaldehyde content below instrument detection limit and not intentionally added.

◇ For interiors and sheltered exteriors with moderate exposure to weathering.

LAX OPACO

COD.711660

Paint with excellent stain removal properties

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **REMARKABLE HIDING POWER**
- ◆ **OUTSTANDING ADHESION**
- ◆ **ANTI-DUST EFFECT**

Matt acrylic paint with stain removal and anti-dust properties, featuring remarkable hiding power and adhesion even on difficult substrates. Excellent washability and durability. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

XMURO LUCIDO

COD.712550

Water-based **gloss** wall enamel

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **EXCELLENT STAIN REMOVAL PROPERTIES**
- ◆ **LOW DIRT PICK-UP**
- ◆ **IDEAL FOR PUBLIC AREAS**

Water-based gloss wall enamel with excellent stain removal properties. Particularly suitable for high-traffic areas most subject to deterioration and wear, including schools, waiting rooms, hospitals, bars, restaurants, offices, etc. The product features excellent washability and low dirt pick-up combined with excellent cleanability. Optimum resistance and hiding power. Suitable for application in areas containing food products in compliance with standard UNI 11021-2002 on the HACCP methodology and Formaldehyde Free*
 *Formaldehyde content below instrument detection limit and not intentionally added.

XMURO SATINATO

COD.712570

Water-based **satin** wall enamel

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **EXCELLENT STAIN REMOVAL PROPERTIES**
- ◆ **LOW DIRT PICK-UP**
- ◆ **IDEAL FOR PUBLIC AREAS**

Water-based satin wall enamel with excellent stain removal properties. Particularly suitable for high-traffic areas most subject to deterioration and wear, including schools, waiting rooms, hospitals, bars, restaurants, offices, etc. The product features excellent washability and low dirt pick-up combined with excellent cleanability. Optimum resistance and hiding power. Suitable for application in areas containing food products in compliance with standard UNI 11021-2002 on the HACCP methodology and Formaldehyde Free*
 *Formaldehyde content below instrument detection limit and not intentionally added.

XMURO OPACO

COD.712560

Water-based **matt** wall enamel

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **EXCELLENT STAIN REMOVAL PROPERTIES**
- ◆ **LOW DIRT PICK-UP**
- ◆ **IDEAL FOR PUBLIC AREAS**

Water-based matt wall enamel with excellent stain removal properties. Particularly suitable for high-traffic areas most subject to deterioration and wear, including schools, waiting rooms, hospitals, bars, restaurants, offices, etc. The product features excellent washability and low dirt pick-up combined with excellent cleanability. Optimum resistance and hiding power. Suitable for application in areas containing food products in compliance with standard UNI 11021-2002 on the HACCP methodology and Formaldehyde Free*
 *Formaldehyde content below instrument detection limit and not intentionally added.

ISOLA E COPRE

COD.711183

Two-in-one insulating and finishing paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

Civil plaster, scagliola and plasterboard



- ◆ **EXCELLENT HIDING AND FILLING POWER**
- ◆ **IDEAL AS PRIMER FOR STRONG COLOURS**
- ◆ **NO FIXATIVE NECESSARY**

Dual function primer and finish with high hiding, filling and equalising power. Masks surface defects in the substrate and, when used as coloured primer for the application of paints produced from neutral and intermediate bases (strong colours), enhances the hiding power of subsequent finish coats, making it easy to obtain uniform surfaces. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

CURA DEL MURO AD ACQUA

COD.711101

Anti-stain insulating paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

Masonry surfaces already coated with old, well-adhering paint, wood (as primer coat)



- ◆ **HIGH COVERING POWER**
- ◆ **FILLING POWER**
- ◆ **EASY APPLICATION**

Matt, odourless insulating paint specifically for treating masonry surfaces stained by smoke, nicotine, soot, damp, etc. Excellent hiding power, filling power and substrate adhesion. With its special binders, it is also suitable for use as a wood primer, as it insulates against stains caused by the exudation of the tannin contained, in particular, in resinous and tropical wood. Easy to apply. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

MURISAN FASCIA AZZURRA

COD.777231

Super-washable paint with outstanding whiteness

S-P-02075 **EPD**[®]
environdec.com

INTERIORS AND EXTERIORS ◊

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **SUPER HIDING POWER**
- ◆ **HIGH OPACITY**
- ◆ **ANTI-DRIP FORMULA**

Super-washable paint with excellent hiding power, whiteness and opacity. Remarkable flowability and high resistance to dripping, even during roller application. Excellent resistance to washing and Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

◊ For interiors and sheltered exteriors with moderate exposure to weathering.

MURISAN FASCIA GIALLA

COD.777221/712305300

Superior quality **super-washable** paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS AND EXTERIORS ◊

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **VELVET FINISH**
- ◆ **HIGH HIDING POWER**
- ◆ **EXCELLENT RESISTANCE TO WASHING**

Super-washable paint with excellent hiding power, whiteness and opacity. Remarkable flowability and high resistance to dripping, even during roller application. Excellent resistance to washing and Formaldehyde Free*.
*Formaldehyde content below instrument detection limit and not intentionally added.
◊ For interiors and sheltered exteriors with moderate exposure to weathering.

BIG BEN

COD.777211/711693030

Breathable washable paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS AND EXTERIORS ◊

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **HIGH HIDING POWER AND WHITENESS**
- ◆ **EXCELLENT BRUSHABILITY**
- ◆ **VERY MATT FINISH**

Breathable washable paint with very matt finish (< 4 at 85° in accordance with ISO 2813). Extremely versatile, with excellent hiding power and whiteness, easy application on all wall substrates and excellent brushability. In interiors, can be applied directly on firm paint in good condition, without the use of fixative. Formaldehyde Free*.
*Formaldehyde content below instrument detection limit and not intentionally added.
◊ For interiors and sheltered exteriors with moderate exposure to weathering.

KELLERMUR

COD.771410

Anti-drip **breathable washable** paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

All types of plaster, masonite, plasterboard and wallpaper, suitably prepared



- ◆ **HIGH BREATHABILITY**
- ◆ **EXCELLENT OPACITY**
- ◆ **EASY TO APPLY**

Breathable washable paint with easy anti-drip application and excellent opacity and hiding power. The open-pore breathable film balances humidity between walls and the interior, ensuring high vapour permeability (Class 1 > 150 g/(m² × d) in accordance with ISO 7783-2). Ideal for bathrooms and kitchens. Formaldehyde Free*
*Formaldehyde content below instrument detection limit and not intentionally added.

MURISANI ANTICONDENSA

COD.712132

Anti-condensation and anti-mould paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

New civil plaster or old paint affected by mould, suitably prepared



- ◆ **HEAT-INSULATING POWER**
- ◆ **PREVENTS THE FORMATION OF MOULD**
- ◆ **HIGH BREATHABILITY**

Anti-condensation paint with high anti-mould power, containing hollow glass micro-spheres that produce a heat-insulating and sound-absorbing effect with high breathability. The product's heat-insulating power gives treated substrates low thermal conductivity, providing a definitive solution to the formation of condensation on cold walls and ceilings. Its anti-mould power resulting from specific broad-spectrum fungicides prevents mould formation and growth. In compliance with standard EN 15457 (resistance to fungi) and Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

MURISANI

COD.712134

Super-washable anti-mould paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

New civil plaster or old paint affected by mould, suitably prepared



- ◆ **EXCELLENT HIDING POWER**
- ◆ **PREVENTS THE FORMATION OF MOULD**
- ◆ **MATT FINISH**

Super-washable paint with excellent hiding power and flow, ideal for preventing and combating mould formation on the paint film, even in damp or poorly ventilated areas. In compliance with standard EN 15457 (resistance to fungi) and Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

RESPIRA

COD.787879

Anti-mould **breathable** paint

S-P-02075 **EPD**[®]
environdec.com

INTERIORS

New civil plaster or old paint affected by mould, suitably prepared



- ◆ **HIGH WHITENESS**
- ◆ **PREVENTS THE FORMATION OF MOULD**
- ◆ **IDEAL FOR BATHROOMS AND KITCHENS**

Breathable open-pore anti-mould paint, ideal for areas with high humidity and condensation, including bathrooms, kitchens, rustic settings, cellars, etc. High hiding power and whiteness.

In compliance with standard EN 15457 (resistance to fungi) and Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

COPERTURA UNIFORME

COD. 777215

Macro-coverage **breathable** paint

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

New or previously painted plaster



- ◆ **EXCELLENT HIDING POWER AND FLOW**
- ◆ **HIGH BREATHABILITY**
- ◆ **EXTRA MATT FINISH**

Extra matt breathable paint with excellent hiding power and flow. The open-pore film balances humidity between walls and the interior, ensuring high vapour permeability (Class 1 (High) > 150g/(m²x d) in accordance with ISO 7783-2). Formaldehyde Free*.

*Formaldeide inferiore ai limiti di soglia di rilevazione strumentale e non intenzionalmente aggiunta.

GRANDI SUPERFICI

COD.711696

Breathable acrylic paint

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

New or previously painted plaster



- ◆ **IDEAL FOR LARGE SURFACES**
- ◆ **HIGHT VAPOUR PERMEABILITY**
- ◆ **EXCELLENT BRUSHABILITY**

Water-based acrylic wall paint with high breathability. Excellent brushability and hiding power. Recommended for areas with high levels of humidity and ideal for painting large surfaces. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

MUR.AT

COD.711685

Breathable matt paint

S-P-02075 **EPD**[®]
 environdec.com

INTERIORS

New or previously painted plaster



- ◆ **MASKING POWER**
- ◆ **HIGH OPACITY**
- ◆ **EASY TO APPLY**

Breathable wall paint for professional use, recommended for areas with high levels of humidity and also suitable on plasterboard. The matt finish and selected particle-size mask any imperfections in the substrate, obtaining a film with a uniform appearance. Easy to apply. Formaldehyde Free*.

*Formaldehyde content below instrument detection limit and not intentionally added.

METHODOLOGY USED

The environmental performance of products is calculated in accordance with the requirements of the **International EPD® System** and the Product Category Rules (PCR) 2019:14 Version 1.0 - Construction Products.

The methodology used to quantify environmental performance is **Life Cycle Assessment (LCA)**, as regulated by **ISO 14040-14044**.

The goal of the LCA study is to assess environmental impact in relation to the production of the Boero Group water-based paints examined.

To this end, specific data has been collected for the **Rivalta Scrivia production facility** and refers to 2018. Proxy data (i.e. generic data based on estimates and average values) represents less than 10% of the total.

The stated unit is 1 kg of product (including packaging).

As the products have different industrial formulas, the environmental performance declaration reports an **average value weighted for production by product class**. In accordance with the applicable PCR and EN 15804, the variation for the potential greenhouse effect is given below.

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SYSTEM BOUNDARIES

In accordance with the applicable PCR and standard EN 15804, the system boundaries refer to the following **three stages in the product life cycle**:

◆ **UPSTREAM PROCESSES**

(“from cradle-to-gate”) – Module **A1**

Processes relating to the procurement of raw materials and energy.

◆ **CORE PROCESSES, MANUFACTURING PROCESSES**

(“from gate-to-gate”) – Modules **A2+A3**

Processes involved in raw materials transport from suppliers to the factory (and any internal transport) and in the production of the product.

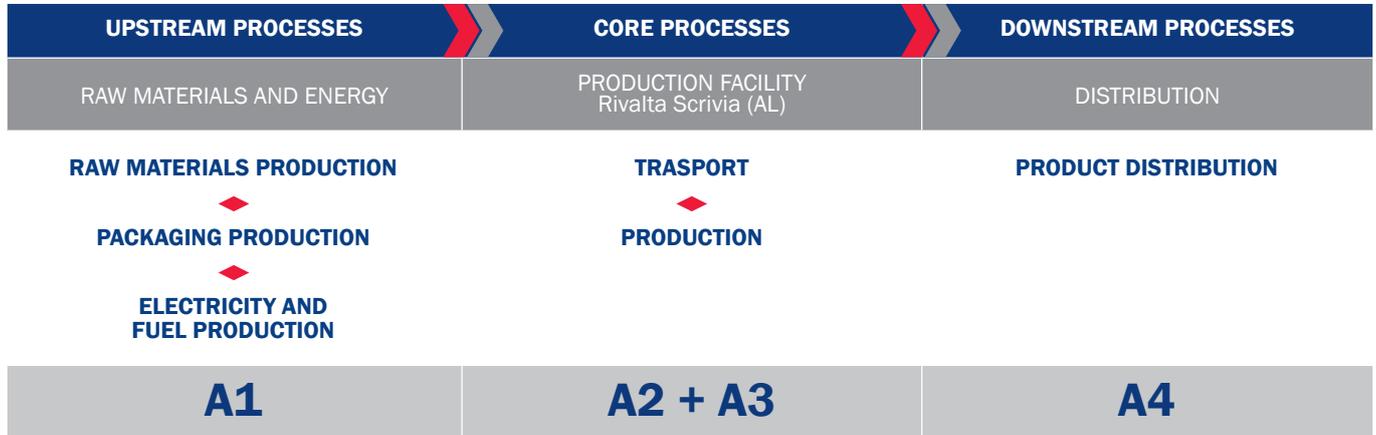
◆ **DOWNSTREAM PROCESSES**

(“from gate-to-grave”) – Modules from **A4 to D**

Processes relating to the storage, transport, use and disposal/recycling of the product.

The approach used for this study is of the “**cradle-to-gate with options**” type. Modules from A1 to A3 are included, plus optional module A4 (Figure 1 and Table 2).

SYSTEM BOUNDARIES - FIGURE 1



DECRPTION OF THE PROCESSES

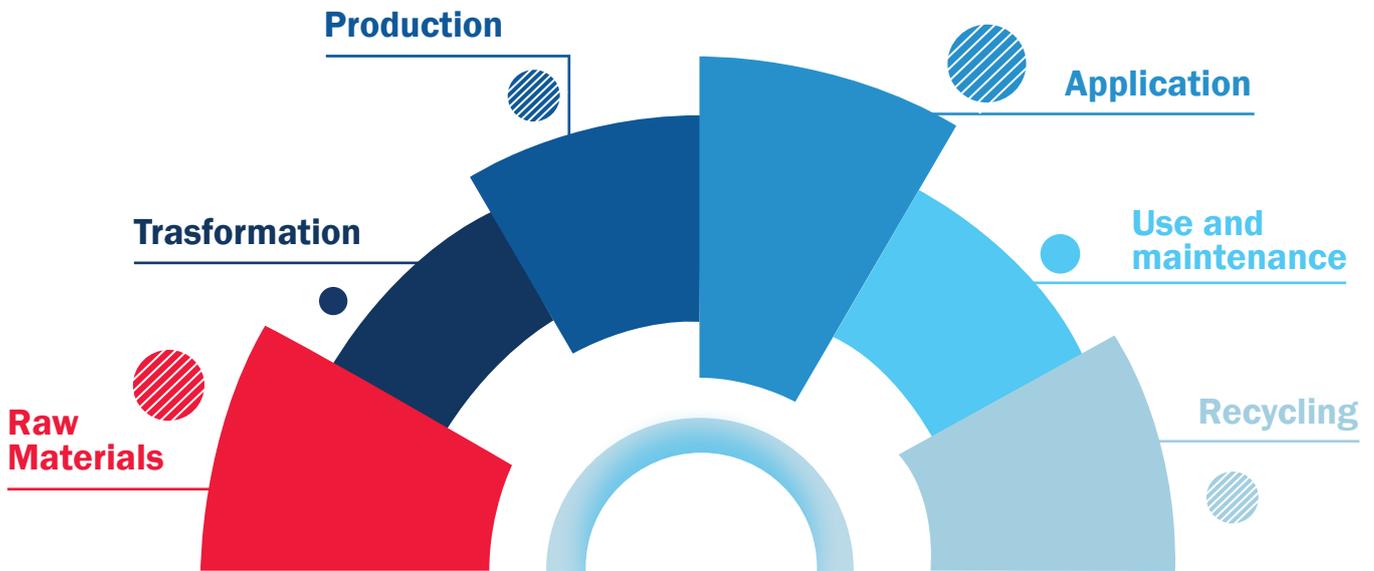
The production process starts with **the production and transport of all raw materials** used to manufacture the product (**Upstream processes**), including its components and materials needed for the production processes (e.g. energy). In more detail, products generally consist of a series of powders, resins, pigments and additives of various types.

The **product stages (Core processes)** are performed at the **Rivalta Scrivia production facility**: they include mixing the “ingredients” to produce the water-based paint and its primary and secondary/tertiary packaging (e.g. stretch film for bundling and wood pallets).

After packaging, the product begins the distribution stage (which forms part of the **Downstream processes**).

The distribution stage involves:

- ◆ **storage** in the Boero Group’s Rivalta Scrivia distribution centre;
- ◆ **transport** of the product to points of sale.



SYSTEM BOUNDARIES - TABLE 2*

	PRODUCT STAGE		CONSTRUCTION PROCESS STAGE					USE STAGE					END OF LIFE STAGE			RESOURCE RECOVERY STAGE		
	UP STREAM	CORE	DOWNSTREAM													DOWNSTREAM		
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition (total/partial)	Transport (disposal /recycling centre)	Waste processing	Disposal	Reuse-Recovery- Recycling potential	
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Modules declared	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geography	EU 27	EU 27	EU 27	EU 27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific data	>90%					-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - Products	91,2%-132,5%					-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - Sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-	-

*(X = included in the study | - = module not declared)



USE OF RESOURCES - TABLE 3*

PARAMETER		UNIT	A1	A2	A3	A4	TOTAL
Primary energy resources Renewable	Use as energy carrier	MJ, net calorific value	3,508	0,012	0,006	0,015	3,541
	Use as raw materials	MJ, net calorific value	1,457	0,003	0,003	0,004	1,467
	TOTAL	MJ, net calorific value	4,965	0,015	0,010	0,019	5,008
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	23,037	0,893	0,081	1,455	25,466
	Use as raw materials	MJ, net calorific value	1,633	0,002	0,001	0,004	1,640
	TOTAL	MJ, net calorific value	24,670	0,895	0,082	1,459	27,106
Secondary materials	kg	-	-	-	-	-	
Renewable secondary fuels	MJ	-	-	-	-	-	
Non-renewable secondary fuels	MJ	-	-	-	-	-	
Net use of fresh water	M ³	0,000	0,000	0,029	0,000	0,029	

*(the data refer to the stated unit)

POLLUTANT EMISSIONS - TABLE 4*

PARAMETER		UNIT	A1	A2	A3	A4	TOTAL
Global Warming Potential (GWP)	Fossil	kg CO ₂ eq	1,567	0,055	0,061	0,089	1,773
	Biogenic	kg CO ₂ eq	0,141	0,000	0,000	0,000	0,142
	Land use	kg CO ₂ eq	0,001	0,000	0,000	0,000	0,002
	TOTAL	kg CO₂ eq	1,710	0,055	0,062	0,090	1,916
Total GWP (without biogenic CO ₂)		kg CO₂ eq	1,571	0,055	0,061	0,089	1,777
GWP-GHG		kg CO₂ eq	1,571	0,055	0,061	0,089	1,777
Acidification Potential (AP)		kg SO ₂ eq	0,014	0,000	0,000	0,000	0,015
Acidification Potential (AP)		mol H ⁺ eq	0,014	0,000	0,000	0,000	0,015
Eutrophication aquatic freshwater (EP-freshwater)		kg PO ₄ -eq	0,003	0,000	0,000	0,000	0,003
Eutrophication aquatic marine (EP-marine)		kg N eq	0,002	0,000	0,000	0,000	0,002
Eutrophication terrestrial (EP)		mol N eq	0,015	0,001	0,000	0,002	0,018
Ozone depletion (ODP)		kg CFC-11 eq	1,55 • 10 ⁻⁷	1,00 • 10 ⁻⁸	7,30 • 10 ⁻¹⁰	1,65 • 10 ⁻⁸	1,82 • 10⁻⁷
Photochemical oxidant formation (POFP)		kg NMVOC eq	0,005	0,000	0,000	0,000	0,006
Abiotic depletion potential - Elements		kg Sb eq	9,79 • 10 ⁻⁶	1,50 • 10 ⁻⁷	1,51 • 10 ⁻⁸	2,50 • 10 ⁻⁷	1,02 • 10⁻⁵
Abiotic depletion potential - Fossil fuels		MJ, net calorific value	19,827	0,823	0,075	1,351	22,076
Water scarcity potential (WSI)		m ³ eq	0,898	0,005	0,003	0,007	0,912

*(the data refer to the stated unit. See glossary on page 20)

WASTE PRODUCTION AND OTHER INDICATORS - TABLE 5*

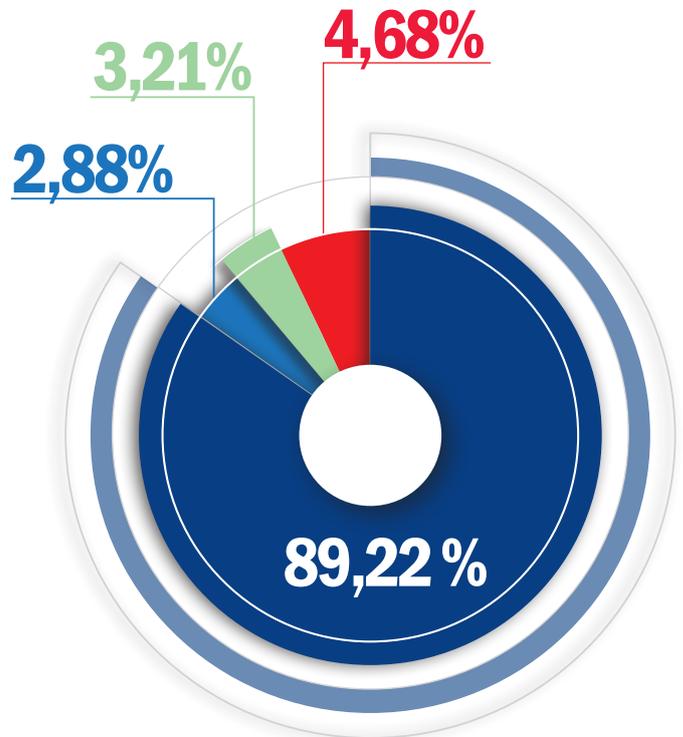
PARAMETER	UNIT	A1	A2	A3	A4	TOTAL
Hazardous waste disposed	kg	0,008	0,000	0,008	0,000	0,016
Non-hazardous waste disposed	kg	0,596	0,039	0,016	0,065	0,716
Radioactive waste disposed	kg	7,70 • 10 ⁻⁶	5,70 • 10 ⁻⁶	3,23 • 10 ⁻⁷	9,31 • 10 ⁻⁶	9,23 • 10⁻⁵

*(the data refer to average results per stated unit)

INTERPRETATION OF RESULTS

By way of example, **the contribution of the various life cycle stages to Global Warming Potential (GWP)** is reported in the figure.

As can be seen, the most significant stage (over 89%) consists of the **Upstream processes (A1)**, i.e. procurement processes for raw materials (product components or materials needed for production processes) performed upstream of manufacturing processes in the factory.



◆ A1 ◆ A2 ◆ A3 ◆ A4

FIG.2: Global Warming Potential (GWP)



EN 15804 STANDARD USED AS CORE PCR

PCR:	PCR 2019:14 Version 1.0 Construction products
PCR review by:	International EPD® System Technical Committee. Contact details: info@environdec.com.
Independent verification of the declaration and data performed in accordance with ISO 14025:	EPD® verification
Third-party auditor:	Guido Croce Approved by: The International EPD® System Technical Committee, supported by the Secretariat
The data follow-up procedure during the period of validity of the EPD® involves verification by a third party:	Yes

CERTIFICATION ENTITY

This EPD® has been approved by an independent auditor in accordance with the rules and regulations published by the **International EPD® System** (General Programme Instructions for the International EPD® System) and with **PCR 2019:14 Version 1.0, Construction Products**.

EPD® valid until **02-12-2024**

NOTES

- ◆ EPD®s developed in accordance with different programmes may not be comparable.
- ◆ EPD®s for construction products may not be comparable if they are not in compliance with standard EN 15804.

All stages in the life cycle have been analysed and accounted for in the study.

This EPD® and additional information about it are available on the International EPD® System website:

www.environdec.com

REFERENCES

General Programme Instructions for the International EPD® System, v.3.0.

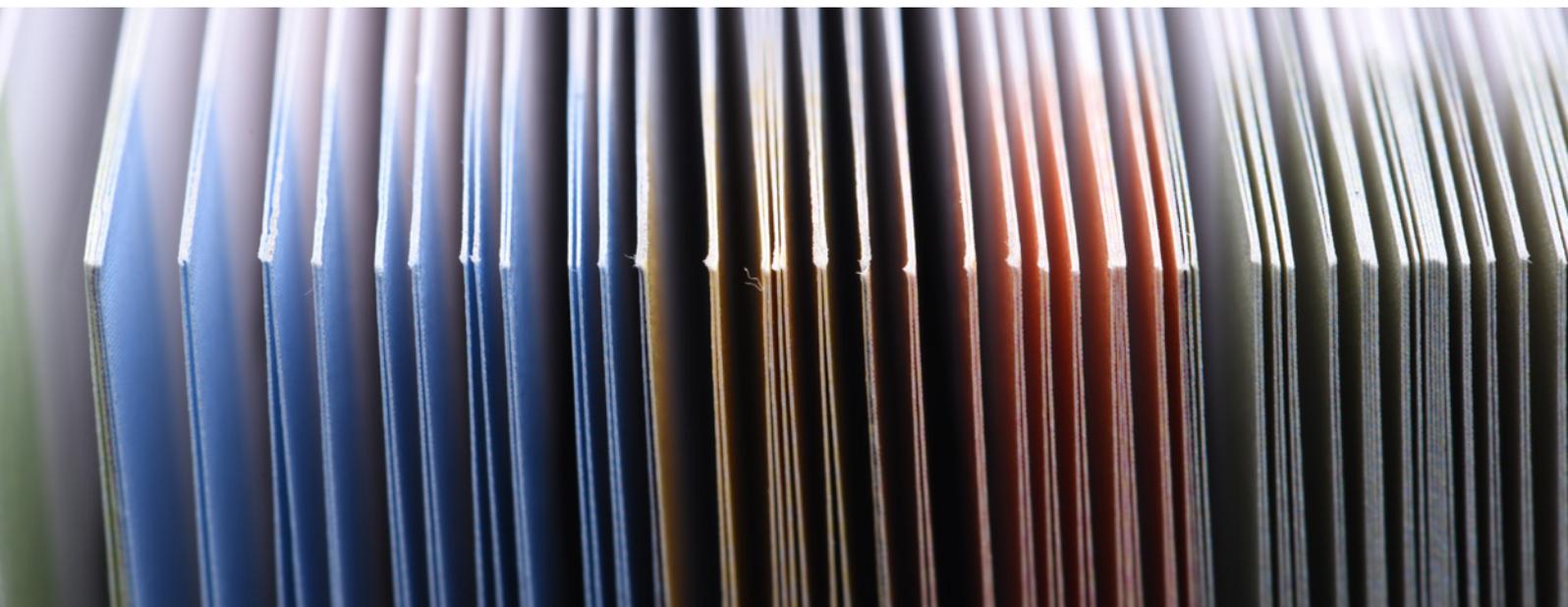
PCR 2019:14 Version 1.0 Construction Products EN 15804:2012+A2:2019

ISO 21930 Environmental Declaration of Building Products. Database Ecoinvent v.3.5 (www.ecoinvent.org).

LCA study “Water-based, Quartz and Enamel Paints” Rev.0 - BOERO BARTOLOMEO S.P.A.

GLOSSARY

- ◆ **LIFE CYCLE ASSESSMENT (LCA):** this is a technique regulated by standard ISO 14040 to quantify the energetic and environmental load of a product system's life cycle by quantifying the energy and materials used and the air, liquid and solid emissions released into the environment, from raw material extraction to disposal of final waste.
- ◆ **PRODUCT CATEGORY RULES (PCR):** Specific product requirements.
- ◆ **GLOBAL WARMING POTENTIAL (GWP):** Global warming due to the emission into the atmosphere of greenhouse gases (GHG) such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), etc.
- ◆ **OZONE DEPLETION POTENTIAL (ODP):** Degradation and reduction, caused by chlorofluorocarbons (CFC) or chlorofluoromethanes (CFM), of the ozone layer in the stratosphere, which filters the ultraviolet component of the sun's rays thanks to its particularly reactive compounds.
- ◆ **ACIDIFICATION POTENTIAL (AP):** Ozone formation on the earth's surface due to the emission of unburnt hydrocarbons and nitrogen oxides into the atmosphere in the presence of solar radiation. This phenomenon is harmful to living organisms and is often present in large urban centres. The indicator is expressed in kg NMVOC eq (Non-Methane Volatile Organic Compounds).
- ◆ **EUTROPHICATION POTENTIAL (EP):** Reduction in dissolved oxygen levels in water media, with the collapse of fish and other aquatic species due to excess addition of large quantities of mineral nutrients such as nitrogen and phosphorous and subsequent dramatic increase in flora that feed on these nutrients. The indicator is expressed in kg PO₄-eq (phosphate), kg N eq (nitrogen) and mol N eq (moles of nitrogen).
- ◆ **PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL (POFP):** Ozone formation on the earth's surface due to the emission of unburnt hydrocarbons and nitrogen oxides into the atmosphere in the presence of solar radiation. This phenomenon is harmful to living organisms and is often present in large urban centres. The indicator is expressed in kg NMVOC eq (Non-Methane Volatile Organic Compounds).
- ◆ **WATER SCARCITY INDEX (WSI):** Indicator that represents the equivalent volume of water consumed proportionate to the water availability of single countries.



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