



ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025:2010
and EN 15804:2012

**ATLAS
MINERAL THIN-COAT RENDERS**



 [®] quality in construction
Building Research Institute



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ATLAS MINERAL THIN-COAT RENDERS

Issuance date: 10.03.2014

Validity date: 10.03.2019

EPD PROGRAM OPERATOR

BUILDING RESEARCH INSTITUTE

00-611 Warsaw, ul. Filtrowa 1

www.itb.pl

MANUFACTURER:

ATLAS spółka z o.o.

91-222 Łódź, ul. Św. Teresy 105,

Poland

atlas@atlas.com.pl www.atlas.com.pl

Manufacturing sites information

Zakład Produkcyjny PIOTRKÓW TRYBUNALSKI,

97-300 Piotrków Trybunalski, ul. Wronia 61/63,

Poland

Zakład Produkcyjny BYDGOSZCZ,

85-758 Bydgoszcz, ul. Przemysłowa 32,,

Poland

Zakład Produkcyjny DĄBROWA GÓRNICZA,

41-306 Dąbrowa Górnicza, ul. Roździeńskiego 2,

Poland

Zakład Produkcyjny SUWAŁKI,

16-400 Suwałki, Dubowo II nr 33,

Poland

Wytwórnia Klejów i Zapraw Budowlanych S.A.

95-100 Zgierz, ul. Szczawińska 52A,

Poland

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1. BASIC INFORMATION

This declaration is the type III Environmental Product Declaration (EPD) based on EN 15804:2012 and verified according to ISO 14025. It contains information about the impact of declared construction materials on environment and their aspects verified by the independent Advisory Board according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804:2012 (see point 5.3 of the norm) and the building context.

Issuance date: 10.03.2014
Validation date: 01.03.2014
Validity date: 10.03.2019
Declared durability: 50 years

2. LIFE CYCLE ASSESSMENT (LCA)

Declared unit

The declaration refers to 1 kg.

System limits

The life cycle analysis of the examined products covers A1-A3 modules (Cradle to Gate) in accordance with EN 15804:2012. It includes production, including raw materials extraction and energy provision up to the finished, packed product at the factory gate. Processes whose total contribution to the final result, according to mass looked at, is less than 0.5 % was ignored.

Data collection period

The data for manufacture of the examined products refer to the year 2012. The life cycle assessments were prepared for Poland as reference area.

Data quality

The values determined to calculate the LCA originate from verified Atlas inventory data.

Assumptions and estimates

The impacts of the representative ATLAS products were aggregated using weighted average. Impacts for each product and factory were inventoried and calculated separately.

Databases

The data for the processes come from the following databases: Ecoinvent, EMPA, Ullmann's, Plastic-Europe, ITB-Data, SPC.

3. PRODUCT INFORMATION

This environmental product declaration covers factory manufactured mineral renders according to EN 998-1:2012 called ATLAS CERMIT (mineral). This environmental product declaration is valid for the mineral render ATLAS CERMIT and for key coat ATLAS CERPLAST.

4. PRODUCT DESCRIPTION

ATLAS CERMIT products are the factory-manufactured mineral thin-coat renders, based on white cement, quartz sand, limestone and additives. Renders are manufactured in the form of dry mix that requires only mixing with a quantity of

water before use. They enable the execution of decorative surface with spotted or rustic texture and different thickness options – depending on the type of render. For indoor and outdoor applications. They are recommended to use as façade renders with the application of EPS boards, XPS boards or MW boards (façade and lamella).

ATLAS CERPLAST is factory-manufactured, ready-to-use mix, based on binder, limestone powder, water and additives.

Use

Thin-coat renders can be applied directly on base coat of thermal insulation systems, but they can be applied also on traditional plaster (cementitious and cementitious-lime) and concrete on façade or internal walls. The outer layer of the system may be a thin-coat render solely or a thin-coat render coated with a façade paint (optionally). Priming is necessary before applying the renders independently of the base coat.

Function

The function of thin-coat textured renders is first of all to protect the external wall against the adverse effects of atmospheric conditions and also to decorate the façades.

Application of key coats before application of renders have three functions: to make renders application easier, to improve its adhesion to the substrate and to constitute a chemical barrier between the substrate and the render, limiting their interaction – it limits colour penetration from the substrate and occurrence of stains on the surface of the render.

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5. PRODUCT TECHNICAL DATA

Mineral render ATLAS CERMIT

Trade name	ATLAS CERMIT
Description	dry mortar, powder blended at the factory that requires only mixing with a quantity of water
Components	white cement, quartz sand, limestone and additives
Color	41 colours *) (see the ATLAS COLOUR PALETTE)
Thickness options, up to	1.0; 1.5; 2.0; 2.5; 3.0 mm
Density	1.8 kg/dm ³ (dry)
Reaction to fire - class	A2 s1,d0
Adhesion after required freeze-thaw cycles	≥ 0.30 N/mm ² FP:B
Water absorption	category W1
Water vapour permeability coefficient, μ	15/35
Thermal conductivity coefficient	0,83 W/mK (λ _{10, dry})
Coverage	ca. 1.5 – 4.0 kg/m ² (regulated by particle size)
Dangerous substance	see MSDS
Content of soluble chromium (VI) in ready-to-use mix	≤ 0.0002 %
Technical requirements	AT-15-9090/2014 as element of thermal insulation system EN 998-1:2010 as single product

Priming mass Atlas CERPLAST

Trade name	ATLAS CERPLAST
Description	ready-to-use fluid mix
Colour	white
Density	1.5 kg/dm ³
Adhesion to concrete	> 1.0 MPa
Drying time	4 - 6 h
Consumption	0.3 kg/m ²
Dangerous substance	see MSDS
Technical requirements	AT-15-9090/2014 as element of thermal insulation system

6. PRODUCT MANUFACTURE

Raw materials and energy

Table 1. Raw materials used to produce ATLAS mineral renders

No	Name of semi-finished product or raw material	total used in production [Mg]	used on product [%/kg]	used on product [kg/m ²]
1	raw materials	7348.9	86.983	3.05
2	additives	500.9	5.929	0.156
3	rest components (each < 0,5 %)	124.4	1.472	0.055
4	pallet	191.7	2.269	0.17
5	PE foil st.	6.9	0.081	0.008
6	PE foil	1.1	0.013	0.001
7	multilayer paper bag	33.2	0.393	0.015
8	carton spacer	1.6	0.019	0.0048
9	bucket	37.9	0.449	0.11
10	water	202	2.391	0.598

The figure below show the working process during the production of dry mixes. The raw materials are stored in the production factory in silos, big bags, or sacks accordingly. They are dosed and intensely mixed according to the applicable formulation. Next, the products, in the form of dry mixes, are packed into paper bags and send to quality control. Then, they are temporarily stored, or delivered directly to the site as ready-to-use products.

Quality assurance

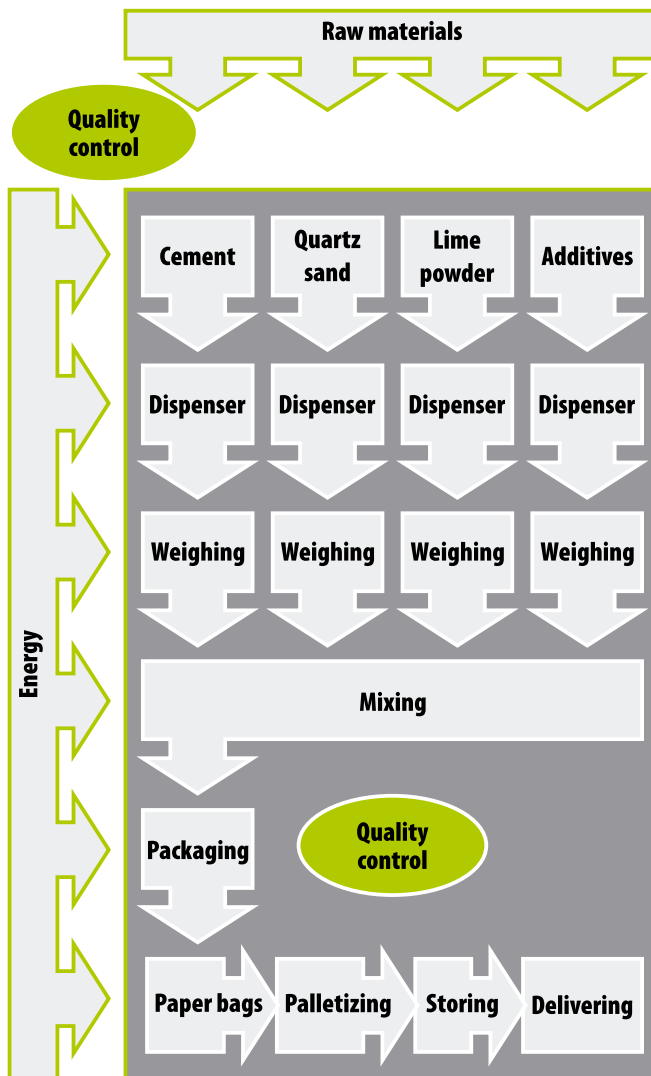
Integrated Management System consists of three complementary subsystems:

- the quality management ISO 9001:2008 (since 1999);
- environmental management ISO 14001:2004 + Cor 1:2009 (since 2008);
- the management of occupational health and safety BS OHSAS 18001:2007 (since 2009)

Packaging

Dry mortars are packed in paper bags (25 kg). These products must be transported and stored in tightly sealed bags, in dry conditions (most preferably on pallets). Protect against humidity. Shelf life in conditions as specified is 12 months from the production date shown on the packaging.

Figure 1. Production process – dry mixes (scheme)



Key coat is packed in containers made of Polypropylene (5 kg, 10 kg, 15 kg or 25 kg). The products must be transported and stored in tightly sealed containers, in dry conditions and positive temperatures (most preferably on pallets). Shelf life in conditions as specified is 12 months from the production date shown on the packaging.

7. PRODUCT APPLICATION

Key coat application

The products are delivered as the ready to use mixes. It must not be mixed with other materials, diluted, or thickened. The whole content of the container should be stirred directly before application to equalize the consistency. Apply the priming mass onto the prepared substrate (evenly over the whole surface) using a roller or a brush. Rendering of the surface can commence after the mass has completely dried i.e. after 4 - 6 hours after its application.

Render application

The whole content of the packaging should be poured into the container with the measured amount of water and then mixed by means of the drill with a mixer until the homogeneous mass. Manual execution consists of the application of the render in a layer equal to the aggregate grain size, with a stainless steel float. The excess of the material should be removed, placed into the bucket and then remixed. The freshly applied coat requires texture forming by the means of a float made of plastic. The spotted effect (SN render) is obtained by floating the render with circular moves, while the rustic texture (DR render) - by floating with circular, horizontal, or vertical moves, depending on the required direction of scores. Machine application must be carried out with special plastering units. Note: machine applied render forms a spotted structure different from that obtained with manual application. The setting time, depending on the surface, the temperature and the relative humidity of the air, is from 12 to 48 hours.

Occupational safety and environmental protection

Occupational safety and environmental protection are described in Material Safety Data Sheets (MSDS) for each product.

Note

Specific information on application and other actions with these products are described in detail in the technical data sheet available on the producer website www.atlas.com.pl.

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8. EMISSIONS (LCI) AND THEIR IMPACT ON THE ENVIRONMENT

The following chapter show the life cycle inventory analysis of the adhesives with regard to primary energy needs, water needs, emissions into air and waste.

Table 2. Primary energy consumption for A3 module

Energy resource	Unit	total in production [unit]	used on product [unit/Mg]	used on product [unit/m ²]
electricity	kWh	4359798	23.26	0.08
black coal	Mg	—	—	—
lignite coal	Mg	—	—	—
coke	Mg	—	—	—
ON	litrs	133222	0.71	0.002
benzin 95/98	litrs	—	—	—
oil	litrs	—	—	—
natural gas	m ³	1015218	5.42	0.02
gas highly nitrogened	m ³	—	—	—
LPG	litrs	—	—	—

Table 3. Emissions into air generated during production stage A3

Air emission	Unit	total in production [Mg]	used on product [kg/Mg]	used on product [kg/m ²]
Dust	kg	852.48	0.0045	1.5E-05
CO	kg	836.92	0.0045	1.5E-05
CO ₂	kg	193852.00	1.1	0.0036
NO ₂	kg	1365.87	0.0073	2.40E-05
SO ₂	kg	406.45	1.00E-02	3.30E-05
CH ₄	kg	0.49	2.62E-06	8.66E-09

Table 4. Emissions into water generated during production stage A3

Water and sewage	Unit	Total amount
Water	m ³	10354
Industrial sewage	m ³	27
Municipal sewage:	m ³	5131
Municipal sewage water emissions		
BOD	mg/l	28
COD	mg/l	77
pH	°	7.7
Suspended matter	mg/l	32
Nitrogen amonian	mg/l	0.64
Phosphorans	mg/l	0.9
Industrial sewage water emissions		
BOD	mg/l	200
COD	mg/l	350
pH	°	8
Suspended matter	mg/l	100

Table 5. Waste generated in the phase of product manufacturing A3

Waste code	Unit	total in production [Mg]	used on product [kg/Mg]	used on product [kg/m ²]
150101	Mg	91.755	0.490	0.00162
150102	Mg	53.753	0.287	0.00095
101382	Mg	1149.9	6.135	0.02024
130208	Mg	0.8	0.004	1.41E-05
150110	Mg	0.109	0.001	1.92E-06
150202	Mg	1.678	0.009	2.95E-05
150203	Mg	2	0.011	3.52E-05
160107	Mg	0.12	0.001	2.11E-06
170405	Mg	6.272	0.033	1.10E-04
80112	Mg	1.361	0.007	2.40E-05
130307	Mg	0.083	0.0004	1.46E-06
150105	Mg	61.36	0.327	1.08E-03
160214	Mg	0.014	0.0001	2.46E-07
160216	Mg	0.79	0.004	1.39E-05
160304	Mg	37.567	0.200	6.61E-04
160605	Mg	0.0026	0.00001	4.58E-08
170107	Mg	319.824	1.706	0.00563
150103	Mg	90.36	0.482	0.00159

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9. ENVIRONMENTAL CHARACTERISTICS (LCA)

The results of the LCA with the indicators as per EPD requirement are given in the following tables for product manufacture (A1, A2, A3 modules).

Table 6. Environmental characteristic.

Environmental assessment information (MND – Module not declared, MD – Module Declared)																
Product stage			Construction process		Use stage							End of life			Benefits and loads beyond the system boundary	
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Environmental impacts: 1 kg					
Indicator	Unit	A1	A2	A3	A1-A3
Global warming potential	[kg CO ₂ eq.]	0.38	0.003	0.03	0.41
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	3.92E-08	2.28E-08	3.14E-10	6.23E-08
Acidification potential of soil and water	[kg SO ₂ eq.]	0.001	0.00001	0.00004	0.001
Eutrophication potential	[kg (PO ₄) ³⁻ eq.]	0.0001	0.00003	0.00001	0.0001
Formation potential of tropospheric ozone	[kg Ethene eq.]	0.0001	0.00	0.00	0.0001
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	0.0021	0.00	0.00	0.0021
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	1.8	0.045	0.4	2.2

Environmental aspects on resource use: 1 kg					
Indicator	Unit	A1	A2	A3	A1-A3
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0.09	0.00	0.02	0.11
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	2.13	0.05	0.44	2.62
Use of secondary material	[kg]	0.00	0.00	0.00	0.00
Use of renewable secondary fuels	[MJ]	0.10	0.00	0.00	0.10
Use of non-renewable secondary fuels	[MJ]	0.14	0.00	0.00	0.14
Net use of fresh water	[dm ³]	0.10	0.0010	0.01	0.11

Other environmental information describing waste categories: 1 kg					
Indicator	Unit	A1	A2	A3	A1-A3
Hazardous waste disposed	[kg]	0.0001	0.00	0.00	0.0001
Non-hazardous waste disposed	[kg]	0.012	0.0004	0.009	0.0215
Radioactive waste disposed	[kg]	0.00	0.00	0.00	0.00
Components for re-use	[kg]	0.00	0.00	0.0049	0.005
Materials for recycling	[kg]	0.008	0.00	0.0009	0.009
Materials for energy recovery	[kg]	0.00	0.00	0.00	0.00
Exported energy	[MJ]	0.00	0.00	0.00	0.00

VERIFICATION

The process of verification of an EPD is in accordance with ISO 14025, clause 8 and ISO 21930, clause 9. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804

Independent verification corresponding to ISO 14025 & 8.3.1.



external



internal

Verification of EPD: dr eng. Aleksander Panek

LCI audit and input data verification: msc eng. Dominik Bekierski

LCA: dr eng. Michał Piasecki

Verification of procedures and declaration: dr eng. Halina Prejzner

NORMATIVE REFERENCES

- ISO 14025:2006, Environmental management – Type III environmental declarations – Principles and procedure.
- ISO 21930:2007, Sustainability in building and construction – Environmental declaration of building products.
- ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.
- ISO 15686-1:2000, Buildings and constructed assets – Service life planning – Part 1: General principles
- ISO 15686-8:2008, Buildings and constructed assets – Service life planning – Part 8: Reference service life
- EN 15804:2012, Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.
- EN 15942:2011, Sustainability of construction



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02-656 Warszawa, ul. Ksawerów 21

ŚWIADECTWO nr 014/2014

DEKLARACJI ŚRODOWISKOWEJ III TYPU

Wyroby:

**Mineralne zaprawy tynkarskie z podkładami ATLAS:
CERPLAST, CERMIT**

Wnioskodawca:

ATLAS Sp. z o.o.

91-222 Łódź, ul. Św. Teresy 105

potwierdza się poprawność ustalenia danych uwzględnionych przy opracowaniu
Deklaracji Środowiskowej III typu oraz zgodność z wymaganiami normy

PN-EN 15804:2012

Zrównoważoność obiektów budowlanych.

Deklaracje środowiskowe wyrobów.

Podstawowe zasady kategoryzacji wyrobów budowlanych.

Niniejsze świadectwo, wydane po raz pierwszy 10 marca 2014 r. jest ważne 5 lat,
lub do czasu zmiany wymienionej Deklaracji Środowiskowej

Kierownik
Zakładu Fizyki Ciepłej,
Instalacji Sanitarnych i Środowiska

Robert Geryto



Dyrektor
Instytutu Techniki Budowlanej

Jan Bobrowicz

Warszawa, marzec 2014 r.

