ARMOURCOAT®
SURFACE FINISHES

EPD®

Environmental Product Declaration

In accordance with 14025, ISO 21930 and EN 15804

Polished Plasters P01 , P20 , P30, P66

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-04459
Publication date:	2021-08-19
Valid until:	2026-07-23

MANUFACTURER INFORMATION

Manufacturer	Armourcoat Ltd
Address	Unit 2/3 Morewood Close , Sevenoaks TN13 2HU
Contact details	technical@armourcoat.co.uk
Website	www.armourcoat.com

PRODUCT IDENTIFICATION

Product name	P01 Polished Plaster
Additional label(s)	P01, P20, P30, P66 Smooth, Pitted, Leatherstone, Cloudy, Travertine, Dragged, Koncrete,
Product number / reference	P01, P20, P30, P66
Place(s) of production	England UK
CPC code	37530

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core Product category rules (PCR) PCR 2019:14. Construction Products. Version 1.1. Sub-PCR-A Mortars applied to a surface.
EPD author	Duncan Mackellar
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	23/07/2021
EPD verifier	Dr Andrew Norton - Renuables Ltd
EPD number	S-P-04459
Publishing date	19/08/2021
EPD valid until	23/07/2026

GOAL AND SCOPE

This life cycle analysis has been conducted in order to produce and publish an EPD for communication of the products environmental impacts to Architects, designers and developers within the construction sector.

PRODUCT DESCRIPTION

Armourcoat Polished Plasters are natural mineral materials composed of hydrated lime, crushed marble and cement combined with special additives to control working characteristics. The materials are supplied in a powdered form and are mixed on site with clean water. The Polished plaster material is available in four natural stone colours and these are achieved by using different proportions of coloured marble powder.

Product	Colour	Marble powder colours
P01	White	White
P30	Cream	White and Yellow
P20	Beige	White Yellow and Red
P66	Limestone	White, Yellow, Red and Green

Armourcoat polished plaster is a versatile material and can be used to create a wide range of surface finish effects including Smooth, Pitted, Dragged, Travertine and many others.

PRODUCT APPLICATION

The product is for use by trained professional applicators. Armourcoat Polished Plaster is mixed on site with clean water and generally applied in two successive coats with the second coat being applied once the first layer is no longer tacky to the touch. For Armourcoat Finishes like Pitted, Trowel Pitted, Leatherstone, Travertine, Dragged etc additional crushed marble is added to the materiel prior to application to increase the proportion of larger aggregate.

See product data sheet Polished Plaster PDS001 for full application details.
https://armourcoat.com/en/technical/pds/PDS001

TECHNICAL SPECIFICATIONS

Armourcoat Polished plaster provides a hard and durable stone surface for walls and ceilings. Armourcoat Polished plasters are natural mineral finishes with low organic content and low embodied carbon which are ideally suited to sustainable architecture.

Pack Size: Armourcoat Polished Plaster is supplied in 18kg paper sacks.

Coverage Rates: Armourcoat Polished Plaster 1.5 - 2.5kg/m^2 depending upon finish and coat thickness.

Shelf Life:
Under normal storage conditions - 12 months
Full pallets with original shrink wrap - up to 24 months

PRODUCT STANDARDS

European fire test results to EN13501-1: 2018 : Reaction to fire classification: A2 - S1, D0
British Fire test
BS476 pt 6 & 7 - CLASS 0 Fire Safety, to the Building Regulations 1991
British fire test results:
Fire propagation index,1 - 0.3 Subindex,i1 - 0.1 Subindex,i2 - 0.0Subindex,i3 - 0.2
American fire test results: ASTM E84 98 Flame Spread Classification Class 1 Smoke Spread Index 10
VOC testing
VOC Emmissions Class A+ www.eurofins.com/france-voc
ASTM D3960 VOC - 0 (grams/litre), VOC 0 (lbs/gal)
ASTM D6886 VOC <0.1% (Weight), VOC <1(g/kg) (below measurable threshold)

PHYSICAL PROPERTIES OF THE PRODUCT

natural mineral material

- Zero VOCs
- powder product unaffected by frost
- pot life 4 - 6 hours
- wide range of finishes achievable
- wide range of colours available
- good workability in a wide range of site conditions
- good water vapour permeability
- completely non combustible as supplied or when applied
- Hard durable surface
- Low embodied Carbon

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at https www.armourcoat.com

https://armourcoat.com/en/technical/pds/PDS00126

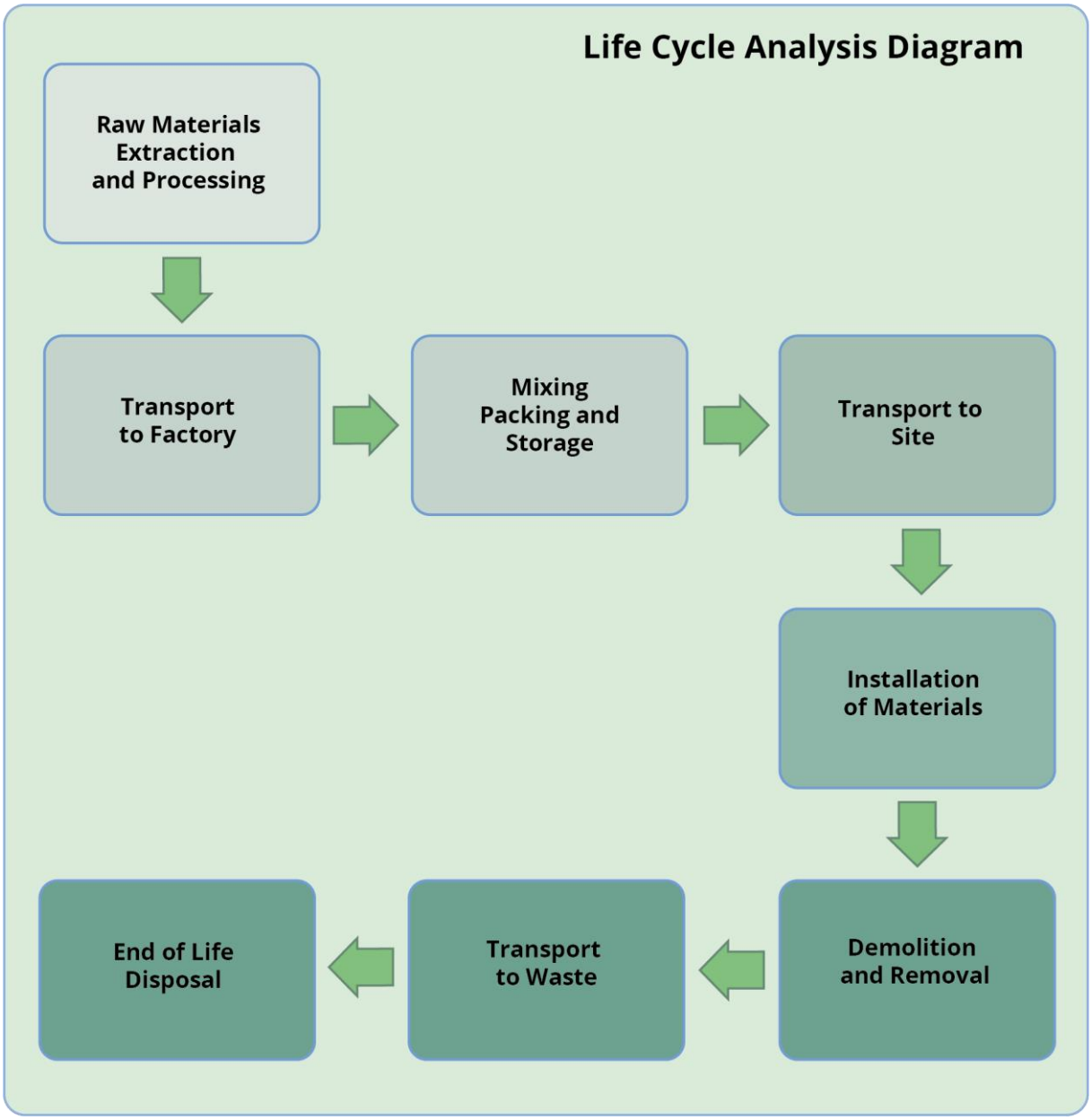
PRODUCT RAW MATERIAL COMPOSITION

The exact composition of the product is deemed commercially sensitive information so no details are provided here.

SUBSTANCES, REACH - VERY HIGH CONCERN

Armourcoat Polished Plaster P01 does not contain any REACH SVHC substances.

PRODUCT LIFE-CYCLE



MANUFACTURING AND PACKAGING (A1-A3)

Armourcoat Polished Plasters are natural mineral materials composed of hydrated lime, crushed marble and cement combined with special additives to control working characteristics.
The ingredients are carefully weighed and sieved. They are then blended in a U trough ribbon blender in our factory in the UK. The Polished plaster material is filled into paper sacks to 18kg +/100g. Every batch is subject to a complete Quality control check and residual samples retained for a minimum of 2 years from date of manufacture.
Materials are then stored in our warehouse ready for transportation to site. Polished plaster contains small amounts of natural plant based additives to control the working characteristics. These materials contains no pollutants, VOCs or Formaldehyde and when mixed and applied provides a thin durable stone surface that can be applied onto a wide range of substrates. Polished plaster is an inert mineral coating that will last for years and is a significantly more environmental choice for interior walls that paints or other synthetic wall coverings due to its composition and longevity.

TRANSPORT AND INSTALLATION (A4-A5)

Armourcoat Polished Plaster P01 is blended in our factory in the UK and either transported to site by road for UK projects or transported by road to port and then by sea to our agents around the world.
Transportation impacts occurred from final products delivery to construction site (A4) to cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. The transportation distance is defined according to RTS PCR. Average distance of transportation from production plant to building site is assumed as 100 km and the transportation method is assumed to be lorry.

PRODUCT USE AND MAINTENANCE (B1-B7)

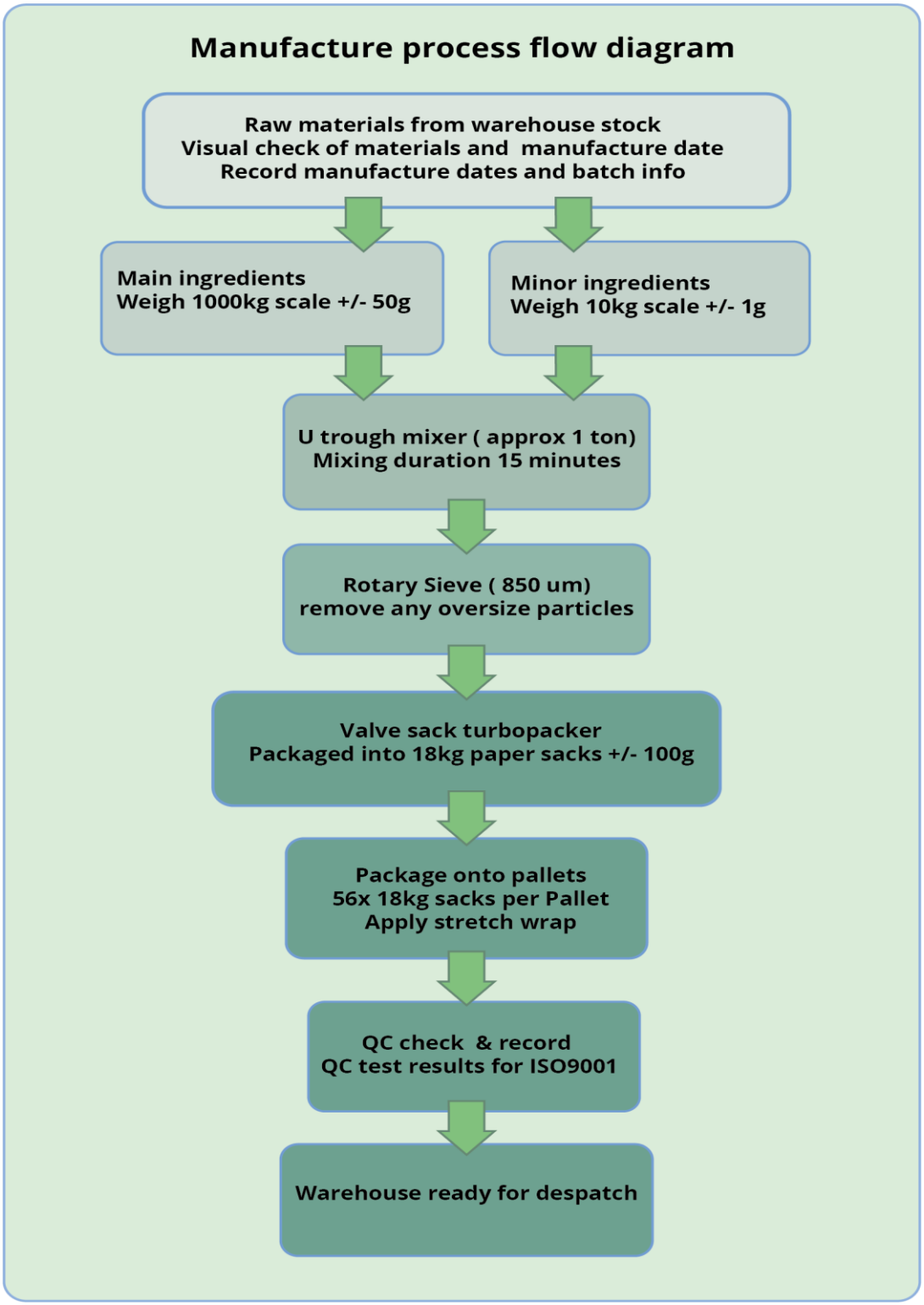
Armourcoat Polished Plaster P01 forms a thin inert stone layer to the wall or ceiling surface and as there are no requirements for energy or water during the lifetime of the product, the specific air, soil and water impacts are negligible and as a result this EPD does not cover the use phase.

PRODUCT END OF LIFE (C1-C4, D)

The consumption of energy and natural resources is negligible for the removal of the plasterboard so the impacts of demolition are assumed zero (C1).
It is assumed that the waste will be transported to the nearest construction waste treatment plant this is assumed to be 50km . (C2)
There is no waste processing for reuse, recovery or recycling (C3)
Polished plaster forms a thin inert stone skin onto the substrate to which it is applied. Due to the durable nature of the material it is impractical to remove it from the substrate and therefore it is assumed that it will be disposed of at end of life with the other inert mineral construction waste.
Plasterboard is the most commonly used substrate for both commercial and residential projects

and it is therefore assumed that it is likely to be treated as gypsum waste along this the plasterboard substrate (C4). There are no benefits and loads beyond the system boundaries (D)

MANUFACTURE PROCESS FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2020-2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	1kg of P01 Polished Plaster
Mass per declared unit	1kg
Functional unit	1kg

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.0024 kg C
Biogenic carbon content in packaging, kg C	0.0025 kg C

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			**Assembly stage**		**Use stage**							**End of life stage**				**Beyond the system boundaries**		
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**	**D**	**D**
x	**x**	**x**	**x**	**x**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	**EU**	**EU**	**EU**	**EU**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**EU**	**EU**	**EU**	**EU**	**EU**		
Raw materials	**Transport**	**Manufacturing**	**Transport**	**Assembly**	**Use**	**Maintenance**	**Repair**	**Replacement**	**Refurbishment**	**Operational energy use**	**Operational water use**	**Deconstr./demol.**	**Transport**	**Waste processing**	**Disposal**	**Reuse**	**Recovery**	**Recycling**

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.
The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.
The LCA boundaries of Polished plaster include the following life cycle stages.
(A1) Raw material extraction / mining and processing.
(A2) Transportation of raw materials to Armourcoat factory.
(A3) Manufacture of the product to include sieving of raw materials, blending and packing into paper sacks. Internal handling, washing of machinery and disposal of manufacturing scrap materials and raw material packaging.
Consumption of energy for all stages of manufacture, use of water and treatment of waste are included in the manufacturing process.
Packaging, pallets and pallet wrapping of the materials and storage are also included in the manufacturing.
(A4-A5) Distribution of the materials to construction site for application and Mixing and application of the materials on site are included in Construction.
(C1-C4,D) End of life treatment includes , transport of construction waste and disposal of the P01 with the plasterboard onto which it has been applied as well as packaging waste.
All ingredients in section A1-A3 have been included with the exception of starch which has an addition level of 0.03%.
No allowance has been made for the manufacture of the manufacturing machinery.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Raw material data was obtained from the One Click LCA database. (Ecoinvent 3.6)
The crushed marble use in the product is waste material from the marble slab production industry and therefore no allocation was made for the primary mining process.
All manufacturing energy was measured in the Armourcoat Factory for the specific machinery and the power usage calculated from this information.
No allocation of resources or energy was allocated to the manufacture of the manufacturing plant and equipment.
The factory and warehouse are unheated and lighting is all LED and therefore energy consumption is considered negligible.
The majority of wooden pallets are reused from the raw materials and the remaining pallets are recycled.
Site mixing of the material has been allocated but general site lighting or heating has not been included in the allocation.
Polished plaster provides a strong durable layer that can be cleaned with a soap wash and repaired if damaged. It is expected that the material can last for the lifetime of the building.
Plasterboard is the most common substrate and as the material cannot readily be removed from the

plasterboard the disposal criteria has been based on the disposal of plasterboard which contains calcium sulphate.

Module C1:
Since the consumption of energy and natural resources is negligible for disassembling of the end-of-life product, the impacts of demolition are assumed zero.

Module C2:
All of the product is assumed to be sent to the closest facilities such as recycling and landfill. Transportation distance to the closest disposal area is assumed to be 50 km and the transportation method is assumed as lorry which is the most common.

Module A2, A4 & C2:
Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients.

Module C4:
All of the plaster waste is gathered as a part of the plasterboard and is generally not separated from it at the end of life. It is assumed that the Polished plaster waste is treated along with the plasterboard.
Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

AVERAGES AND VARIABILITY

The product is made in a single factory on the same manufacturing equipment and therefore there were no averages or variability in the data collected for this Life Cycle analysis.
Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	Actual%
Variation in GWP-GHG between products	N/A
Variation in GWP-GHG between sites	N/A

ENVIRONMENTAL IMPACT DATA - Results for 1kg of Polished Plasters P01 , P20 , P30, P66

Note: ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930 are presented in annex.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP – total	kg CO2e	3.73E-1	4.78E-2	7.75E-5	4.21E-1	9.12E-3	-1.02E-1	MND	3.51E-8	0E0	5.28E-9	7.68E-3	-1.06E-6
GWP – fossil	kg CO2e	3.72E-1	4.77E-2	7.03E-3	4.27E-1	9.2E-3	-1.05E-1	MND	3.43E-8	0E0	5.27E-9	5.27E-3	-1.05E-6
GWP – biogenic	kg CO2e	5.26E-4	9.35E-5	-7E-3	-6.38E-3	6.68E-6	2.51E-3	MND	7E-10	0E0	1.04E-11	2.41E-3	-8.52E-9
GWP – LULUC	kg CO2e	9.19E-5	2.74E-5	5.24E-5	1.72E-4	2.77E-6	1.18E-5	MND	5.66E-11	0E0	1.56E-12	1.56E-6	-5.06E-10
Ozone depletion pot.	kg CFC11e	2.2E-8	9.73E-9	6.66E-10	3.24E-8	2.16E-9	9.49E-10	MND	3.04E-15	0E0	2.17E-15	2.17E-9	-3.27E-13
Acidification potential	mol H+e	8.51E-4	2.53E-4	4.36E-5	1.15E-3	3.86E-5	3.31E-5	MND	2E-10	0E0	5E-11	5E-5	-8.99E-9
EP-freshwater[2)]	kg Pe	4.5E-6	8.42E-7	1.24E-6	6.59E-6	7.48E-8	2.75E-7	MND	2.81E-12	0E0	6.36E-14	6.36E-8	-1.84E-11
EP-marine	kg Ne	1.76E-4	8.11E-5	1.03E-5	2.68E-4	1.16E-5	6.47E-6	MND	3.19E-11	0E0	1.72E-11	1.72E-5	-3.05E-9
EP-terrestrial	mol Ne	2.04E-3	8.97E-4	1.01E-4	3.04E-3	1.29E-4	7.62E-5	MND	3.7E-10	0E0	1.9E-10	1.9E-4	-3.36E-8
POCP (“smog”)	kg NMVOCe	6.57E-4	2.62E-4	3.05E-5	9.49E-4	4.13E-5	1.93E-5	MND	1.16E-10	0E0	5.51E-11	5.51E-5	-9.69E-9
ADP-minerals & metals	kg Sbe	1.61E-6	9.65E-7	7.32E-8	2.65E-6	1.57E-7	2.29E-8	MND	1.01E-12	0E0	4.81E-14	4.81E-8	-1.13E-11
ADP-fossil resources	MJ	3.68E0	7.17E-1	1.5E-1	4.54E0	1.43E-1	2.24E-1	MND	5.86E-7	0E0	1.47E-7	1.47E-1	-2.48E-5
Water use[1)]	m3e depr.	6.77E-2	3.81E-3	1.07E-2	8.23E-2	5.32E-4	3.49E-4	MND	2.06E-6	0E0	6.81E-9	6.81E-3	-1.11E-6

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Particulate matter	Incidence	5.26E-9	3.55E-9	7.26E-10	9.54E-9	8.32E-10	1.09E-10	MND	1.68E-15	0E0	9.72E-16	9.72E-10	-1.72E-13
Ionizing radiation[3)]	kBq U235e	9.53E-3	3.36E-3	8.81E-4	1.38E-2	6.25E-4	3.71E-3	MND	4.05E-9	0E0	6.04E-10	6.04E-4	-9.71E-8
Ecotoxicity (freshwater)	CTUe	3.62E0	6.04E-1	5.52E-1	4.78E0	1.09E-1	1.13E-1	MND	6.25E-7	0E0	9.29E-8	9.29E-2	-1.78E-5
Human toxicity, cancer	CTUh	4.73E-11	2.38E-11	4.69E-12	7.57E-11	2.8E-12	1.89E-12	MND	9.37E-17	0E0	2.2E-18	2.2E-12	-6.48E-16
Human tox. non-cancer	CTUh	2.93E-9	6.91E-10	1.58E-10	3.78E-9	1.3E-10	7.05E-11	MND	2.09E-15	0E0	6.79E-17	6.79E-11	-1.35E-14
SQP	-	2.07E-1	6.22E-1	1.71E-2	8.46E-1	2.16E-1	1.25E-2	MND	5.17E-8	0E0	2.5E-7	2.5E-1	-8.85E-5

4) SQP = Land use related impacts/soil quality.5) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	3.13E-1	2.35E-2	1.28E-1	4.65E-1	1.8E-3	3.64E-2	MND	7.95E-8	0E0	1.19E-9	1.19E-3	-4.09E-7
Renew. PER as material	MJ	0E0	0E0	8.5E-2	8.5E-2	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	3.13E-1	2.35E-2	2.13E-1	5.5E-1	1.8E-3	3.64E-2	MND	7.95E-8	0E0	1.19E-9	1.19E-3	-4.09E-7
Non-re. PER as energy	MJ	2.28E0	7.17E-1	1.14E-1	3.11E0	1.43E-1	2.24E-1	MND	5.86E-7	0E0	1.47E-7	1.47E-1	-2.48E-5
Non-re. PER as material	MJ	1.4E0	0E0	3.58E-2	1.44E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	3.68E0	7.17E-1	1.5E-1	4.54E0	1.43E-1	2.24E-1	MND	5.86E-7	0E0	1.47E-7	1.47E-1	-2.48E-5
Secondary materials	kg	4.91E-4	0E0	5.57E-5	5.47E-4	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m3	2.94E-3	1.61E-4	1.73E-4	3.27E-3	2.98E-5	5.54E-5	MND	1.17E-7	0E0	1.61E-10	1.61E-4	-2.8E-8

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste	Kg	5.43E-3	1.36E-3	4.06E-4	7.19E-3	1.39E-4	6.43E-4	MND	3.44E-9	0E0	0E0	1.37E-4	-4.34E-8
Non-hazardous waste	Kg	1.9E-1	6.77E-2	1.53E-2	2.73E-1	1.54E-2	1.67E-2	MND	1.25E-7	0E0	0E0	1E0	-1E-4
Radioactive waste	Kg	1.09E-5	4.74E-6	6.25E-7	1.63E-5	9.82E-7	1.74E-6	MND	3.16E-12	0E0	0E0	9.74E-7	-1.49E-10

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for re-use	Kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	Kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	Kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG	kg CO2e	3.72E-1	4.77E-2	7.03E-3	4.27E-1	9.2E-3	-1.05E-1	MND	3.43E-8	0E0	5.27E-9	5.27E-3	-1.05E-6

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Additional Information

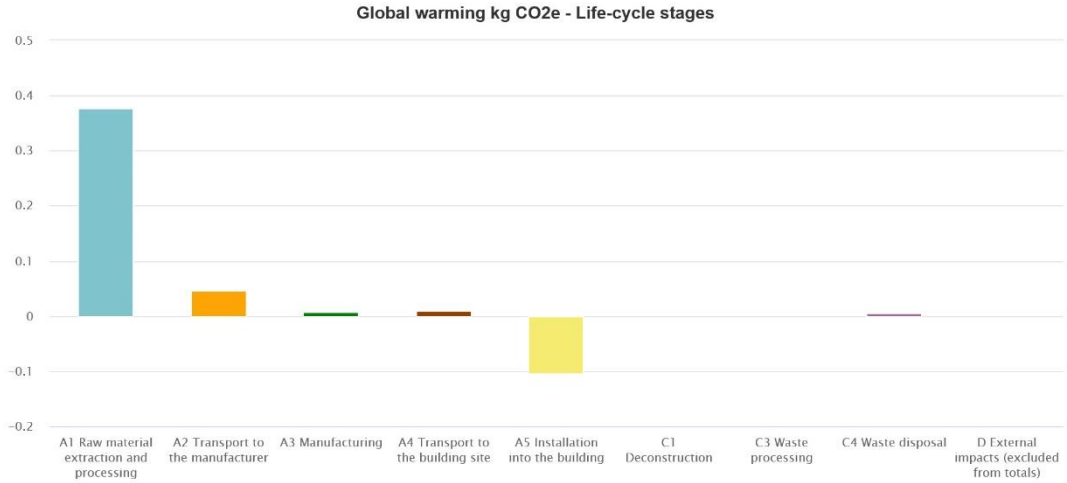
Core Environmental Impact indicator total to EN15804 + A2 (all categories Cradle to Grave)

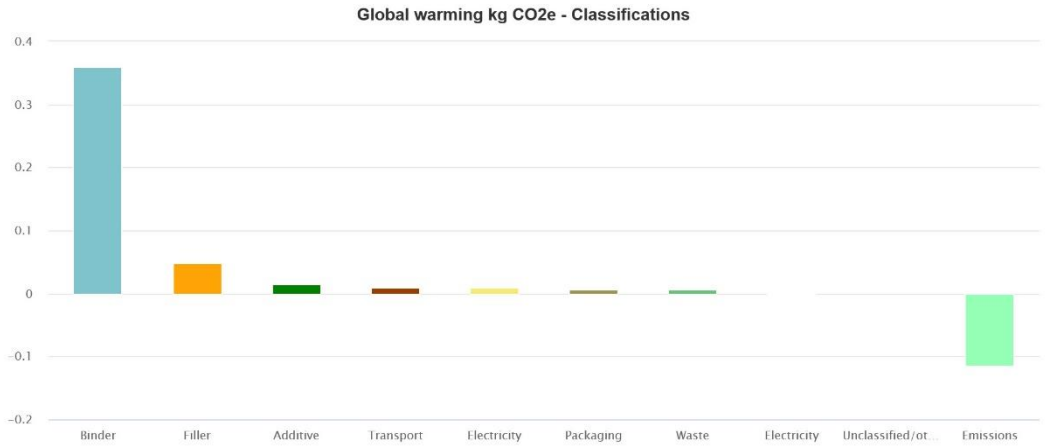
GWP per declared unit of 1kg = 0.34Co_2e

Coverage Rate is 1.5 - 2.5kg/m^2

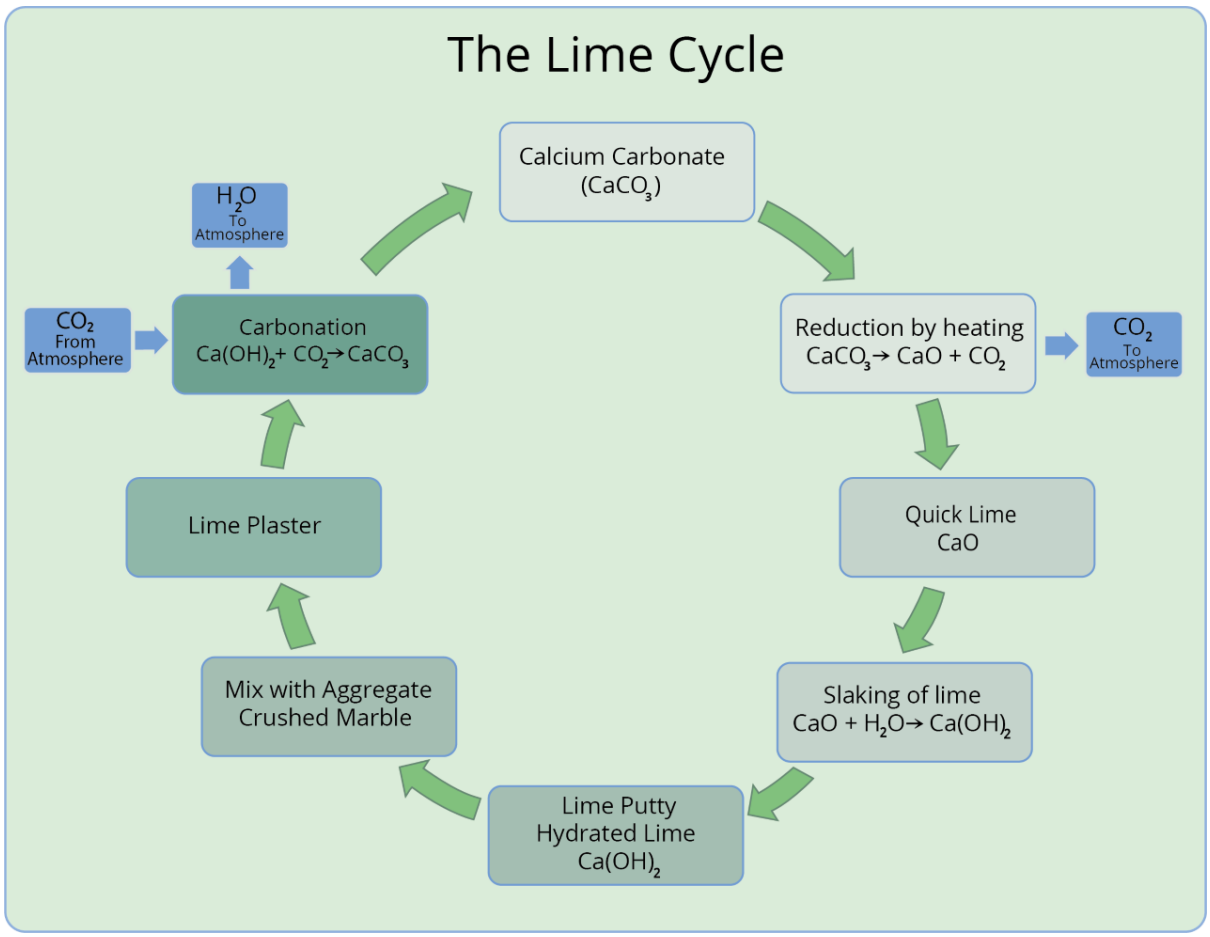
GWP per m^2 = 0.51 - 0.85 kg Co_2e

CHART





The raw material extraction and processing (A1) account for 110% of the total GWP.
The next largest contributor is from the Manufacture A3 at 28%. (A2) Transportation to the site of manufacturing 15% and (A4) transport to the construction site 15% are make significant contributions.
The highest contributing materials are the Lime and cement in A1 which account for 106%, however once installed (A5) the lime will harden by carbonation and reabsorb the CO2 that was emitted during the initial manufacture process . This is the reason for a negative impact in A5 which offsets a proportion of the CO2 generated in A1 by - 31%. This is a process known as the lime cycle.
The other significant contribution is the crushed marble filler at 14%.



LIME CYCLE

Chalk , limestone and marble are all forms of Calcium Carbonate. When limestone or chalk is burnt in a kiln, Carbon dioxide is released into the atmosphere, and you are left with Calcium Oxide which is commonly known as Quicklime.
Quicklime is then slaked with water to form lime putty or Hydrated lime and when exposed to the air lime naturally harden by absorbing Carbon dioxide from the atmosphere and over time turns back into limestone.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Market for electricity, medium voltage (Reference product: electricity, medium voltage) Ecoinvent 3.6, year: 2019
Electricity CO_2e / kWh	0.37
District heating data source and quality	None
District heating CO_2e / kWh	None

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO_2e emissions, kg CO_2e / tkm	0.132
Average transport distance, km	100
Capacity utilization (including empty return) %	100
Bulk density of transported products	1300
Volume capacity utilization factor	50

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	1 kg
Collection process – kg collected with mixed waste	1 kg
Recovery process – kg for re-use	0 kg
Recovery process – kg for recycling	0 kg
Recovery process – kg for energy recovery	0 kg
Disposal (total) – kg for final deposition	1 kg
Scenario assumptions e.g. transportation	transportation

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.
ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.
ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.6 (2019) and One Click LCA database.
EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.
The CEN standard EN 15804+A2 serves as the core PCR.

EPD. General Programme Instructions of the international EPD® system. Version 4.0
P01 LCA background report 15.06.2021

ABOUT THE MANUFACTURER

Armourcoat Ltd is a Manufacturer and supplier of performance coatings and decorative surface finishes.
Armourcoat ltd was incorporated in the UK in 1986 as a specialist manufacturer of ultra hard plasters and renders for Squash and Rackets courts.
In 1990 Armourcoat diversified into a range of decorative plasters and paints and has become the leading company worldwide for specialist decorative plasters and coatings.
Armourcoat has offices in the UK and USA and has agents and distributors in over 40 countries around the world. Armourcoat manufactures its products in the UK to ISO9001.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Armourcoat Ltd
EPD author	Duncan Mackellar - Armourcoat Ltd
EPD verifier	Dr Andrew Norton - Renuables Ltd
EPD program operator	The International EPD System
Background data EPD	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Software

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	**Answer**
Independent EPD verifier	Dr Andrew Norton - Renuables Ltd
EPD verification started on	28/06/2021
EPD verification completed on	23/07/2021
Approver of the EPD verifier	The International EPD System

Author & tool verification	**Answer**
EPD author	Duncan Mackellar - Armourcoat Ltd
EPD author training completion	04/02/2021
EPD Generator module	One Click LCA
Independent software verifier	The International EPD System
Software verification date	17 January 2021

VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee 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 Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Dr Andrew Norton - Renuables Ltd
Approved by:	The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

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THE INTERNATIONAL EPD® SYSTEM

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ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global warming potential	kg CO2e	3.76E-1	4.71E-2	3.13E-3	4.27E-1	9.12E-3	8.93E-3	MND	3.35E-8	0E0	5.17E-9	5.17E-3	-1.03E-6
Depletion of stratospheric ozone	kg CFC11e	1.97E-8	7.85E-9	1.89E-10	2.78E-8	1.72E-9	1.06E-9	MND	3.43E-15	0E0	1.72E-15	1.72E-9	-2.61E-13
Acidification	kg SO2e	6.98E-4	1.52E-4	1.17E-5	8.61E-4	1.87E-5	2.88E-5	MND	1.62E-10	0E0	2.08E-11	2.08E-5	-7.16E-8
Eutrophication	kg PO4 3e	1.63E-4	4.38E-5	4.12E-6	2.11E-4	3.78E-6	8.47E-6	MND	9.18E-11	0E0	4.03E-12	4.03E-6	-1.46E-9
Photochemical ozone formation	kg C2H4e	6.17E-5	7.53E-6	1.27E-6	7.05E-5	1.19E-6	1.14E-6	MND	1.08E-11	0E0	1.53E-12	1.53E-6	-2.7E-10
Abiotic depletion of non-fossil res.	kg Sbe	1.47E-6	9.64E-7	2.63E-8	2.46E-6	1.57E-7	2.22E-8	MND	1.01E-12	0E0	4.81E-14	4.81E-8	-1.13E-11
Abiotic depletion of fossil	MJ	3.77E0	7.16E-1	8.69E-2	4.58E0	1.43E-1	2.22E-1	MND	5.86E-7	0E0	1.47E-7	1.47E-1	-2.48E-5

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