
Environmental Product Declaration

CROMIE

1 m² medium size with thickness 22 mm (51 kg/mq)

1 m² medium size with thickness 15 mm (36 kg/mq)

1 m² medium size with thickness 30 mm (67 kg/mq)



LA PIETRA COMPATTATA SRL

Via Regina Pacis, 290 41049 - SASSUOLO (MO)

Environmental product declaration in accordance with ISO 14025 and EN 15804:2012+A2:2019

Program Operator: EPDItaly

Publisher: EPDItaly

EPDItaly registration number: EPDITALY0288

Declaration number: EPDCROMIE001

Date of issue: 14/06/2022

Valid until: 14/06/2027

GENERAL INFORMATION

PROGRAM OPERATOR	EPDItaly® - Via De Castilia, n° 10, 20124 – Milano - www.epditaly.it
TYPE OF DECLARATION	Product EPD: Declaration on the production of an average product
CATEGORY OF PRODUCT	Code CPC: 3731 - Bricks, blocks, tiles and other ceramic goods of siliceous earths
NAME OF THE PRODUCT	CROMIE
INFORMATION ON THE PRODUCT	Product made from natural raw materials (aggregates, cement), additives, oxides and water. The intended application is both indoor and outdoor, both for the floors and for the coating.
DECLARED UNIT	<ul style="list-style-type: none"> • 1 m2 medium size with thickness 22 mm (51 kg/mq), packaging included • 1 m2 medium size with thickness 15 mm (36 kg/mq), packaging included • 1 m2 medium size with thickness 30 mm (67 kg/mq), packaging included
EPD OWNER	LA PIETRA COMPATTATA SRL Production units: • Via Regina Pacis, 290 41049 - SASSUOLO (MO)
FURTHER INFORMATION	Contacts: 0536/845411 Website: https://lapietrcompattata.it/ Referent: Francesca Zeccarini
REFERENCE PCR	PCR for construction products: ICMQ-001/15- rev3 of 02/12/2019
INDEPENDENT VERIFICATION	Third party verifier: ICMQ S.p.A. Via De Castilia, 10 20124 - Milano (www.icmq.it)
TECHNICAL SUPPORT	QualityNet srl - Via Aquileia, 56, 35035 - Mestrino (PD), Italia EcamRicert srl - Viale del Lavoro, 6, 36030 - Monte di Malo (VI), Italia
RESPONSABILITY	LA PIETRA COMPATTATA SRL raises EPDItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and elements supporting evidence. EPDItaly declines all responsibility for information, data and the results provided by the EPD Owner for life cycle assessment.

Environmental statements published within the same product category, but from different programs, may not be comparable. In particular, EPDs of construction products may not be comparable unless they comply with EN 15804:2012+A2:2019

UNI EN 15804:2019 provides the framework for PCR

Independent verification of the EPD and the data contained therein carried out in accordance with UNI ENISO 14025:2010

Indoor

Outdoor

Third-party verification: ICMQ S.p.A.



1 INTRODUCTION

Type III Environmental Declarations contain verifiable and accurate information on the environmental performance of a products, quantified on the environmental performance of a product, quantified on the basis of a life cycle impact assessment. Their objective is to produce reliable information expressed on a common basis that allows a comparison of environmental performance between products performing the same function. In this perspective of product sustainability, Type III Environmental Declarations are developed in accordance with the requirements dictated by the voluntary standard UNI EN ISO 14025:2010 and in order to ensure that LCA studier are conducted consistently for all products within the same category, prices rules and methodologies are required. These rules are indicated by the PCR (Product Category Rules) which formulate clarifications regarding the performance of a life cycle analysis for a specific product category ensuring the harmony and comparability of the results.

1.1 THE BRAND

A selection of exclusively natural raw materials (PORPHYRY, QUARTZ AND GRANITE) recovered from the processing of stones that are ground in original dough, are compacted by pressing. The singularity of La Pietra Compattata surfaces, together with the high technical performance, allows it to be used both inside and outside, both for the floors and for wall covering (<https://lapietracompattata.it/it/>).

1.2 THE PRODUCTS

The subject of this declaration are the following products “Cromie¹”:

- 1 m2 medium size with thickness 22 mm (51 kg/mq)
- 1 m2 medium size with thickness 15 mm (36 kg/mq)
- 1 m2 medium size with thickness 30 mm (67 kg/mq)

The products are made from natural raw materials (inert, cement); additives, oxides and water.

Table 1: percentage composition of the products

RAW MATERIAL	KG (KG/MQ)
Inert	75%
Cement	19%
Water	5%
Oxides	0,27%
Additives	0,17%

The intended application is both for indoor and outdoor, both for the floors and for the coating of the walls. The collection “Cromie” consists of 2 surfaces::

¹ There are no substances of high SVHC concern listed on the ECHA Candidate List in concentration greater than 0,1%

- COMPACT: the geometric rigour of a smooth surface with completely regular edges (smooth surface with squared edges in 20 beautiful different shades, 10 sizes and 3 special pieces)
- CONSOLARE (Antiquated surface obtained by manual processing in 20 different colors, 13 sizes, 4 outdoor and 3 special pieces) antiquated surface, unique pieces obtained by manual processing.

2 SCOPE AND TYPE OF EPD

2.1 BOUNDARIES OF THE SYSTEM

The purpose of defining the boundaries of the system is to circumscribe a spatial, temporal and operational area within which to collect a reliable data that reflect the real environmental performance of the system and give a complete description. The detail and extent of the study are defined by these boundaries that allow to determine the unitary processes, the macro-consumptions involved in the production of products have been identified and on which the calculation model has been set and analyzed. (Figure 1, Figure 2).

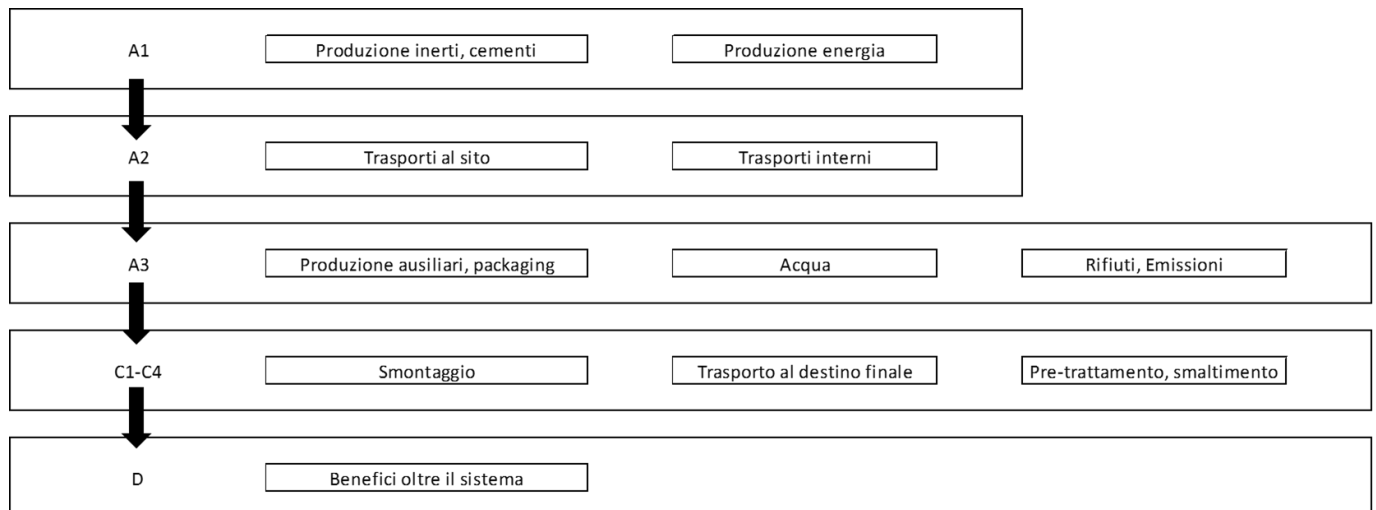


Figure 1. Flow diagram for life cycle description with modular approach

The production process is characterized as follows: the raw materials are ground in a dough and then compacted by pressing. Then the product is dried and finished by treatment. The analytical approach has allowed to study the products evaluating them as systems affected by input and output factors, and consequently subject to work cycles due to environmental impacts in accordance with the reference PCR. It is specified that the activity of LA PIETRA COMPATTATA SRL takes place in the plant of:

- Via Regina Pacis, 290, 41049 Sassuolo MO

The company LA PIETRA COMPATTATA SRL for the processing carried out, with regard to the products considered, at the above plant does not rely on third parties.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Decostruction, 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
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Figure 2: System boundaries considered in the study. X Module included; ND: Module not included

SOFTWARE: SimaPro 9

DATABASE: Ecoinvent 3.8

GEOGRAPHICAL VALIDITY OF THE EPD: Italy and European countries depending on market conditions

TYPE OF EPD: EPD product mean

The scenarios adopted for the modelling of modules C1, C2, C3, C4 where considered and assumed as follows:

- The impacts associated with demolition (C1) are assumed to be negligible. This is based on the nature of the product and following comparison with the bibliography currently available.
- It assumes a distance of transport to the platform of recovery equal to (C2) 53.1 km. for the distance of transport of waste was taken a distance equal to the radius of a metropolitan city. The city of Milan (<http://www.affari regionali.it/media/170177/dossier-citt%C3%A0-metro-di-milano.pdf>, page 58, distance Milan – San Colombo al Lambro).

It is assumed that the product can be partially recovered. The document information was used:

https://www.isprambiente.gov.it/files2020/pubblicazioni/rapporti/rapporriorifiutispeciali_ed-2020_n-321_versioneintegrale_agg02_10_2020.pdf, quotas recovery parts (69,85%) and disposal (30,15%)

- For module C3 an activity of “rock crushing” has been previewed
- For module C4 an inert disposal activity has been planned
- For module D, any environmental benefits beyond the system have been defined for the part recovered of inert (69,85%)



2.2 TEMPORAL, GEOGRAPHICAL AND TECHNOLOGICAL BOUNDARIES

The time limits include the period from January 2020 – December 2020, a period considered as representative of the activities of the company and the results of the study will be framed within these boundaries. These were chosen because of the most complete availability of study information. The geographical boundaries of the study are to be identified in the Italian international and national territory (in particular for the manufacturing phase). Technological boundaries refer to the average technological level related to the specific temporal/geographical context of the above-mentioned boundaries.

2.3 EXCLUSION CRITERIA AND RECRUITMENT

During the study of the product, the following flows were included in the cut-off: Transport additives, waste management similar to urban.

2.4 DECLARED UNIT

The unit declared therefore constitutes the reference for the combination of the flows attributed to the object of the analysis and the combination of the environmental impacts related to the modules recalled. In accordance with the directives of the reference standard and the product rule is considered as a declared unit, expressed according to m²:

- 1 m² medium size with thickness 22 mm (51 kg/mq), packaging included
- 1 m² medium size with thickness 15 mm (36 kg/mq), packaging included
- 1 m² medium size with thickness 30 mm (67 kg/mq), packaging included

2.5 RULES OF ALLOCATION

The inventory data were compared to the total production in m² in the reference year in order to arrive at the consumption according to the declared unit chosen. In this study therefore we tried to divide the input and output data maintaining the principle of modularity: materials and energy flows to and from the environment are then assigned to the module in which they occur. The allocation criteria adopted for the LCA model comply with the reference standards (EN 15804, ISO 14044) and are mainly based on the production m².

2 ENVIRONMENTAL PERFORMANCE OF THE PRODUCT

According to the reference PCR, the environmental profile of the product ²along the investigated information modules has been calculated. The impact assessment developed along the characteristic steps of the LCIA - Life Cycle Impact Assessment. The SimaPro calculation software was used for inventory processing and eco-profile calculation and the databases were selected: "ECOINVENT 3.8". For the characterization of the inventory data with reference to the various types of impact on which the system in question acts, it has been applied as a calculation method "EN 15804 +A2 Method". The following tables show the environmental performance for the formats indicated in paragraph 2.4.

Table 2: Environmental performance

22 mm (51 kg/mq)								
Impact category	Unit	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP - Total	kg CO2 eq	1,34E+01	0,00E+00	4,48E-01	1,70E-02	3,38E+00	1,72E+01	-1,35E+00
GWP-fossil	kg CO2 eq	1,64E+01	0,00E+00	4,46E-01	1,68E-02	1,62E-01	1,70E+01	-1,35E+00
GWP-biogenic	kg CO2 eq	-2,97E+00	0,00E+00	1,19E-03	2,40E-04	3,22E+00	2,44E-01	-4,55E-03
GWP-luluc	kg CO2 eq	1,14E-02	0,00E+00	1,77E-04	3,06E-05	1,64E-04	1,17E-02	-4,53E-03
ODP	kg CFC11 eq	1,42E-06	0,00E+00	1,04E-07	5,78E-10	4,92E-08	1,58E-06	-2,61E-07
AP	mol H+ eq	6,99E-02	0,00E+00	2,26E-03	8,38E-05	1,37E-03	7,37E-02	-1,25E-02
EP-freshwater	kg P eq	2,55E-03	0,00E+00	2,90E-05	8,86E-06	4,70E-05	2,63E-03	-1,51E-04
EP-marine	kg N eq	1,74E-02	0,00E+00	7,78E-04	1,60E-05	4,71E-04	1,87E-02	-3,80E-03
EP-terrestrial	mol N eq	1,88E-01	0,00E+00	8,51E-03	1,58E-04	5,12E-03	2,02E-01	-4,16E-02
POCP	kg NMVOC eq	4,63E-02	0,00E+00	2,08E-03	4,06E-05	1,26E-03	4,96E-02	-1,02E-02
ADP-minerals&metals**	kg Sb eq	6,56E-05	0,00E+00	1,56E-06	2,81E-08	5,29E-07	6,78E-05	-7,88E-06
ADP-fossil**	MJ	1,50E+02	0,00E+00	6,66E+00	1,80E-01	3,72E+00	1,61E+02	-1,87E+01
WDP**	m3 depriv.	4,88E+00	0,00E+00	2,04E-02	2,79E-03	1,66E-01	5,07E+00	-1,66E+00
PM	disease inc.	5,36E-07	0,00E+00	3,21E-08	6,03E-10	2,65E-08	5,95E-07	-1,27E-07
IRP*	kBq U-235 eq	1,56E+00	0,00E+00	3,50E-02	3,23E-03	1,79E-02	1,62E+00	-9,79E-02
ETP-fw**	CTUe	1,68E+02	0,00E+00	5,31E+00	2,98E-01	2,71E+00	1,76E+02	-1,82E+01
HTP-nc**	CTUh	1,50E-07	0,00E+00	5,55E-09	2,28E-10	1,81E-09	1,58E-07	-1,87E-08
HTP-c**	CTUh	8,07E-09	0,00E+00	1,72E-10	1,03E-11	1,17E-10	8,37E-09	-1,04E-09
SQP**	Pt	3,02E+02	0,00E+00	4,84E+00	4,09E-02	9,42E+00	3,17E+02	-4,29E+01

GWP-total = Climate change; GWP-fossil = Climate change - fossil; GWP-biogenic = Climate change - biogenic; GWP-luluc = Climate change - land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water deprivation potential; PM = Particulate matter, IRP = Ionising radiation, ETP-fw = Ecotoxicity freshwater, HTP-nc = Human toxicity non cancer, HTP-c = Human toxicity cancer, SQP = Land use

*Disclaimer: This category of impact is mainly concerned with the possible impact of low-dose ionizing radiation on the human nuclear fuel cycle. It does not take into account the effects of possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground installations. Potential ionizing radiation from soil, radon and some building materials is also not measured by this indicator

**Disclaimer: The results of this environmental impact indicator should be used with caution as the uncertainties of these results are high or experience with the indicator is limited

² The estimated impact results are only the relative declarations that do not indicate the endpoints of the impact categories, the exceeding of the threshold values the safety margins or risks

Table 3: Use of resources

22 mm (51 kg/mq)								
PARAMETERS	UNIT OF MEASURE	A1-A3	C1	C2	C3	C4	TOTAL	D
PERE	MJ	1,38E+01	0,00E+00	9,59E-02	2,95E-02	6,50E-02	1,40E+01	-4,19E-01
PERM	MJ	3,31E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,31E+01	0,00E+00
PERT	MJ	4,69E+01	0,00E+00	9,59E-02	2,95E-02	6,50E-02	4,71E+01	-4,19E-01
PENRE	MJ	1,56E+02	0,00E+00	6,80E+00	2,33E-01	3,80E+00	1,67E+02	-1,92E+01
PENRM	MJ	1,30E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,30E+01	0,00E+00
PENRT	MJ	1,69E+02	0,00E+00	6,80E+00	2,33E-01	3,80E+00	1,80E+02	-1,92E+01
SM	Kg	0,00E+00	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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	1,25E-01	0,00E+00	7,09E-04	1,14E-04	3,96E-03	1,30E-01	-3,94E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable energy resources as raw materials; PERT= Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources as raw materials; PENRT = Total use of non-renewable primary energy resources; MS = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of fresh water

Table 4: Output and waste streams

22 mm (51 kg/mq)								
PARAMETERS	UNIT	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	3,14E-04	0,00E+00	1,78E-05	1,08E-07	5,89E-06	3,38E-04	-1,13E-04
NHWD	kg	2,69E+00	0,00E+00	3,50E-01	1,17E-03	1,54E+01	1,85E+01	-8,54E-01
RWD	kg	7,07E-04	0,00E+00	4,60E-05	8,96E-07	2,27E-05	7,76E-04	-1,22E-04
CRU	kg	0,00E+00	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	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

HWD = Hazardous waste disposed of; NHWD = Non-hazardous waste disposed of; RWD = Radioactive waste disposed of; CRU = Components for reuse; MFR= Recycling materials; EEE = Energy recovery materials; EEE = Electricity exported; EET = Heat exported

Table 5: Information on biogenic carbon content

22 mm (51 kg/mq)		
BIOGENIC CARBON CONTENT	UNIT	QUANTITY
Biogenic carbon content in the product	Kg C/declared unit	0,00E+00
Biogenic carbon content in the packaging	Kg C/declared unit	1,84E+00

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO2

Table 6: Environmental performance

15 mm (36 kg/mq)								
Impact category	Unit	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP - Total	kg CO2 eq	9,46E+00	0,00E+00	3,16E-01	1,20E-02	2,38E+00	1,22E+01	-9,56E-01
GWP-fossil	kg CO2 eq	1,16E+01	0,00E+00	3,15E-01	1,18E-02	1,14E-01	1,20E+01	-9,50E-01
GWP-biogenic	kg CO2 eq	-2,10E+00	0,00E+00	8,40E-04	1,69E-04	2,27E+00	1,72E-01	-3,21E-03
GWP-luluc	kg CO2 eq	8,03E-03	0,00E+00	1,25E-04	2,16E-05	1,16E-04	8,29E-03	-3,20E-03
ODP	kg CFC11 eq	1,01E-06	0,00E+00	7,35E-08	4,08E-10	3,48E-08	1,11E-06	-1,84E-07
AP	mol H+ eq	4,94E-02	0,00E+00	1,60E-03	5,91E-05	9,64E-04	5,20E-02	-8,84E-03
EP-freshwater	kg P eq	1,80E-03	0,00E+00	2,05E-05	6,26E-06	3,32E-05	1,86E-03	-1,07E-04
EP-marine	kg N eq	1,23E-02	0,00E+00	5,49E-04	1,13E-05	3,32E-04	1,32E-02	-2,68E-03
EP-terrestrial	mol N eq	1,33E-01	0,00E+00	6,01E-03	1,12E-04	3,62E-03	1,42E-01	-2,94E-02
POCP	kg NMVOC eq	3,27E-02	0,00E+00	1,47E-03	2,87E-05	8,90E-04	3,50E-02	-7,22E-03
ADP-minerals&metals**	kg Sb eq	4,63E-05	0,00E+00	1,10E-06	1,98E-08	3,74E-07	4,78E-05	-5,56E-06
ADP-fossil**	MJ	1,06E+02	0,00E+00	4,70E+00	1,27E-01	2,62E+00	1,13E+02	-1,32E+01
WDP**	m3 depriv.	3,44E+00	0,00E+00	1,44E-02	1,97E-03	1,17E-01	3,58E+00	-1,17E+00
PM	disease inc.	3,78E-07	0,00E+00	2,27E-08	4,26E-10	1,87E-08	4,20E-07	-8,94E-08
IRP*	kBq U-235 eq	1,10E+00	0,00E+00	2,47E-02	2,28E-03	1,26E-02	1,14E+00	-6,91E-02
ETP-fw**	CTUe	1,19E+02	0,00E+00	3,75E+00	2,10E-01	1,91E+00	1,24E+02	-1,28E+01
HTP-nc**	CTUh	1,06E-07	0,00E+00	3,91E-09	1,61E-10	1,27E-09	1,12E-07	-1,32E-08
HTP-c**	CTUh	5,69E-09	0,00E+00	1,21E-10	7,29E-12	8,23E-11	5,90E-09	-7,34E-10
SQP**	Pt	2,13E+02	0,00E+00	3,42E+00	2,88E-02	6,65E+00	2,24E+02	-3,03E+01

GWP-total = Climate change; GWP-fossil = Climate change - fossil; GWP-biogenic = Climate change - biogenic; GWP-luluc = Climate change - land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water deprivation potential; PM = Particulate matter, IRP = Ionising radiation, ETP-fw = Ecotoxicity freshwater, HTP-nc = Human toxicity non cancer, HTP-c = Human toxicity cancer, SQP = Land use

*Disclaimer: This category of impact is mainly concerned with the possible impact of low-dose ionizing radiation on the human nuclear fuel cycle. It does not take into account the effects of possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground installations. Potential ionizing radiation from soil, radon and some building materials is also not measured by this indicator

**Disclaimer: The results of this environmental impact indicator should be used with caution as the uncertainties of these results are high or experience with the indicator is limited

Table 7: Use of the resources

15 mm (36 kg/mq)								
PARAMETERS	UNIT OF MEASURE	A1-A3	C1	C2	C3	C4	TOTAL	D
PERE	MJ	9,75E+00	0,00E+00	6,77E-02	2,09E-02	4,59E-02	9,89E+00	-2,96E-01
PERM	MJ	2,34E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,34E+01	0,00E+00
PERT	MJ	3,31E+01	0,00E+00	6,77E-02	2,09E-02	4,59E-02	3,32E+01	-2,96E-01
PENRE	MJ	1,10E+02	0,00E+00	4,80E+00	1,64E-01	2,69E+00	1,18E+02	-1,35E+01
PENRM	MJ	9,21E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,21E+00	0,00E+00
PENRT	MJ	1,19E+02	0,00E+00	4,80E+00	1,64E-01	2,69E+00	1,27E+02	-1,35E+01
SM	Kg	0,00E+00	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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	8,81E-02	0,00E+00	5,00E-04	8,04E-05	2,80E-03	9,15E-02	-2,78E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable energy resources as raw materials; PERT= Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources as raw materials; PENRT = Total use of non-renewable primary energy resources; MS = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of fresh water

Table 8: Output and waste streams

15 mm (36 kg/mq)								
PARAMETERS	UNIT	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	2,22E-04	0,00E+00	1,25E-05	7,61E-08	4,16E-06	2,38E-04	-7,97E-05
NHWD	kg	1,90E+00	0,00E+00	2,47E-01	8,26E-04	1,09E+01	1,30E+01	-6,03E-01
RWD	kg	4,99E-04	0,00E+00	3,25E-05	6,32E-07	1,61E-05	5,48E-04	-8,61E-05
CRU	kg	0,00E+00	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	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

HWD = Hazardous waste disposed of; NHWD = Non-hazardous waste disposed of; RWD = Radioactive waste disposed of; CRU = Components for reuse; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Electricity exported; EET = Exported thermal energy

Table 9: Information on biogenic carbon content

15 mm (36 kg/mq)		
CONTENT OF BIOGENIC CARBON	UNIT	QUANTITY
Biogenic carbon content in the product	Kg C/declared unit	0,00E+00
Biogenic carbon content in packaging	Kg C/declared unit	1,30E+00

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO2

Table 10: Environmental performance

30 mm (67 kg/mq)								
Impact category	Unit	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP - Total	kg CO2 eq	1,76E+01	0,00E+00	5,88E-01	2,24E-02	4,44E+00	2,27E+01	-1,78E+00
GWP-fossil	kg CO2 eq	2,15E+01	0,00E+00	5,86E-01	2,20E-02	2,13E-01	2,23E+01	-1,77E+00
GWP-biogenic	kg CO2 eq	-3,91E+00	0,00E+00	1,56E-03	3,15E-04	4,23E+00	3,20E-01	-5,97E-03
GWP-luluc	kg CO2 eq	1,49E-02	0,00E+00	2,32E-04	4,03E-05	2,15E-04	1,54E-02	-5,96E-03
ODP	kg CFC11 eq	1,87E-06	0,00E+00	1,37E-07	7,59E-10	6,47E-08	2,07E-06	-3,42E-07
AP	mol H+ eq	9,19E-02	0,00E+00	2,97E-03	1,10E-04	1,79E-03	9,68E-02	-1,65E-02
EP-freshwater	kg P eq	3,35E-03	0,00E+00	3,81E-05	1,16E-05	6,17E-05	3,46E-03	-1,99E-04
EP-marine	kg N eq	2,28E-02	0,00E+00	1,02E-03	2,10E-05	6,18E-04	2,45E-02	-4,99E-03
EP-terrestrial	mol N eq	2,47E-01	0,00E+00	1,12E-02	2,08E-04	6,73E-03	2,65E-01	-5,47E-02
POCP	kg NMVOC eq	6,08E-02	0,00E+00	2,73E-03	5,34E-05	1,66E-03	6,52E-02	-1,34E-02
ADP-minerals&metals**	kg Sb eq	8,62E-05	0,00E+00	2,06E-06	3,69E-08	6,95E-07	8,90E-05	-1,04E-05
ADP-fossil**	MJ	1,97E+02	0,00E+00	8,75E+00	2,37E-01	4,88E+00	2,11E+02	-2,46E+01
WDP**	m3 depriv.	6,41E+00	0,00E+00	2,68E-02	3,67E-03	2,18E-01	6,66E+00	-2,18E+00
PM	disease inc.	7,04E-07	0,00E+00	4,22E-08	7,92E-10	3,48E-08	7,82E-07	-1,66E-07
IRP*	kBq U-235 eq	2,05E+00	0,00E+00	4,59E-02	4,24E-03	2,35E-02	2,12E+00	-1,29E-01
ETP-fw**	CTUe	2,21E+02	0,00E+00	6,97E+00	3,92E-01	3,56E+00	2,32E+02	-2,39E+01
HTP-nc**	CTUh	1,98E-07	0,00E+00	7,29E-09	3,00E-10	2,37E-09	2,08E-07	-2,46E-08
HTP-c**	CTUh	1,06E-08	0,00E+00	2,26E-10	1,36E-11	1,53E-10	1,10E-08	-1,37E-09
SQP**	Pt	3,97E+02	0,00E+00	6,36E+00	5,37E-02	1,24E+01	4,16E+02	-5,64E+01

GWP-total = Climate change; GWP-fossil = Climate change - fossil; GWP-biogenic = Climate change - biogenic; GWP-luluc = Climate change - land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water deprivation potential; PM = Particulate matter, IRP = Ionising radiation, ETP-fw = Ecotoxicity freshwater, HTP-nc = Human toxicity non cancer, HTP-c = Human toxicity cancer, SQP = Land use

*Disclaimer: This category of impact is mainly concerned with the possible impact of low-dose ionizing radiation on the human nuclear fuel cycle. It does not take into account the effects of possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground installations. Potential ionizing radiation from soil, radon and some building materials is also not measured by this indicator

**Disclaimer: The results of this environmental impact indicator should be used with caution as the uncertainties of these results are high or experience with the indicator is limited

Table 11: Use of the resources

30 mm (67 kg/mq)								
PARAMETERS	UNIT OF MEASURE	A1-A3	C1	C2	C3	C4	TOTAL	D
PERE	MJ	1,82E+01	0,00E+00	1,26E-01	3,88E-02	8,54E-02	1,84E+01	-5,50E-01
PERM	MJ	4,35E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,35E+01	0,00E+00
PERT	MJ	6,16E+01	0,00E+00	1,26E-01	3,88E-02	8,54E-02	6,19E+01	-5,50E-01
PENRE	MJ	2,05E+02	0,00E+00	8,93E+00	3,06E-01	5,00E+00	2,19E+02	-2,52E+01
PENRM	MJ	1,71E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,71E+01	0,00E+00
PENRT	MJ	2,22E+02	0,00E+00	8,93E+00	3,06E-01	5,00E+00	2,36E+02	-2,52E+01
SM	Kg	0,00E+00	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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	1,64E-01	0,00E+00	9,31E-04	1,50E-04	5,21E-03	1,70E-01	-5,17E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable energy resources as raw materials; PERT= Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources as raw materials; PENRT = Total use of non-renewable primary energy resources; MS = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of fresh water

Table 12: Output and waste streams

30 mm (67 kg/mq)								
PARAMETERS	UNIT	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,13E-04	0,00E+00	1,48E-05	8,99E-08	4,91E-06	4,32E-04	-1,75E-04
NHWD	kg	3,18E+00	0,00E+00	2,92E-01	9,77E-04	1,29E+01	1,63E+01	-1,01E+00
RWD	kg	8,35E-04	0,00E+00	3,84E-05	7,47E-07	1,90E-05	8,93E-04	-1,44E-04
CRU	kg	0,00E+00	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	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

HWD = Hazardous waste disposed of; NHWD = Non-hazardous waste disposed of; RWD = Radioactive waste disposed of; CRU = Components for reuse; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Electricity exported; EET = Exported thermal energy

Table 13: Information on biogenic carbon content

30 mm (67 kg/mq)		
CONTENT OF BIOGENIC CARBON	UNIT	QUANTITY
Biogenic carbon content in the product	Kg C/declared unit	0,00E+00
Biogenic carbon content in packaging	Kg C/declared unit	2,42E+00

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO2

Within the average products studied, the following average percentage difference can be found along all investigated impact categories (Table 14):

Table 14

PERCENTAGE DIFFERENCE BETWEEN	AVERAGE PERCENTAGE DIFFERENCE FOUND
22 mm – 15 mm	42%
22 mm –30 mm	-24%
15 mm – 30 mm	-46%

From the analysis the A1-A3 modules would be the main "impact" items. In particular, electricity and matter are the main "hot spots" within the A1-A3 modules with an average percentage impact along the various categories of 19,57 % (electricity) and 74,05 % (matter).

3.1 QUALITY OF THE DATA

The data used for the assessment of the environmental impact of the phases are:

- Specific (primary) data, collected and related to the production of the reference year
- Generic (secondary) data used in LCA modelling

3.2 CRITERIA FOR EXCLUSION

During the study of the product, the following flows were included in the cut-off: Transport additives, waste management similar to urban.



4 REFERENCES

RULES OF THE EPDItaly PROGRAMME 5.2

PCR for construction products: ICMQ-001/15- rev3 of 02/12/2019

UNI EN 15804:20019 - Sustainability of construction - Environmental product declarations - Development framework rules by product category.

UNI EN ISO 14025:2010 - Labels and environmental declarations - Type III environmental declarations - Principles and procedures

UNI EN ISO 14040:2021 - Environmental management - Life cycle assessment - Principles and framework

UNI EN ISO 14044:2021 - Environmental management - Life cycle assessment - Requirements and guidelines

SAFETY DATA SHEET Pursuant to Art. 32 of Reg. 1907/2006/EC - Date of Issue: 05/05/2015

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