

Environmental Product Declaration



MASONRY MORTARS



MG 40
MG 40 - BULK
MG 45
MG 45 - BULK
MG 35 JOLLY
MGK 18
MGK 182
MGK 182 - BULK
THERMOG 02



FORNACI CALCE GRIGOLIN S.P.A.

PRODUCTION SITE
Z.I. Loc. Piombinara
00034 Colferro RM
Via Ex Bombardieri, 14,
31010 Ponte Della Priula TV

According to ISO 14025:2010 and EN 15804:2012+ A2:2019/AC:2021

Program Operator	EPDItaly
Publisher	EPDItaly
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Registration number	EPDITALY1329
Publication date	27/05/2026
Expiry date	27/05/2031

GENERAL INFORMATION

EPD OWNER

Company name	Fornaci Calce Grigolin S.p.A.
Legal office	Via Bombardieri 14, Ponte della Priula (TV)
Contacts for information about the EPD	c.fregolent@fornacigrigolin.it
Company website	www.fornacigrigolin.it

PROGRAM OPERATOR

EPDItaly	EPDItaly - Via Gaetano De Castillia n° 10 - 20124 Milano, Italy
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INFORMATION ABOUT THE EPD

Product name	<ul style="list-style-type: none"> MG 40 MG 40 - BULK MG 45 MG 45 – BULK MG 35 JOLLY MGK 18 MGK 182 MGK 182 - BULK THERMOG 02
Production site	<ul style="list-style-type: none"> MG 40 MG 40 - BULK MG 45 MG 45 – BULK MG 35 JOLLY MGK 18 MGK 182 – BULK THERMOG 02 <p>Z.I, Loc. Piombinara, 00034 Colleferro (RM)</p> <ul style="list-style-type: none"> MGK 182 <p>Via Ex Bombardieri, 14, 31010 Ponte Della Priula (TV)</p>
Scope of the product	Premixed materials
EPD type	Specific product EPD based on a qualified tool
Product range	MASONRY MORTARS

SUMMARY DESCRIPTION AND TECHNICAL INFORMATION OF THE PRODUCTS

MG 40	Premixed cement mortar for masonry class M5
MG 40 - BULK	
MG 45	Premixed cement mortar for masonry with high mechanical resistance class
MG 45 - BULK	M10
MG 35 JOLLY	Premixed cement mortar for masonry and hand plastering class M5
MGK 18	Water-repellent fine-grained premixed cement mortar for exposed masonry class M5
MGK 182	Water-repellent premixed cement mortar with high mechanical strengths
MGK 182 - BULK	and fine grain size for exposed masonry class M10
THERMOG 02	Lightened and heat-insulating cement mortar of class M5 specific for low thermal conductivity walls

PRODUCTS TECHNICAL STANDARDS

MG 40	
MG 40 - BULK	
MG 45	
MG 45 – BULK	
MG 35 JOLLY	EN 998-2:2016
MGK 18	Specification for mortar for masonry - Part 2: Masonry mortars
MGK 182	
MGK 182 - BULK	
THERMOG 02	
CPC Code (number)	37560
Reference PCR	PCR ICMQ-001/15 rev. 3.2 Prodotti e servizi per l'edilizia, EPDItaly. Published on: 03/11/2025.
Declared Unit	1000 kg
Reference year	2023
EPD type	Specific product EPD based on a qualified tool
LCA Tool identification	Fornaci Calce Grigolin S.p.A. - LCA TOOL n.1_Rev.4, developed using SimaPro 10.2.0.2 and Ecoinvent 3.11
Company contact	Tel. 0422.5261 PEC: fornacigrigolin@legalmail.gruppogrigin.it E-mail: info@fornacigrigolin.it
TECHNICAL SUPPORT:	Greenwich S.r.l. - Tel. +39 035 4948794 Operations office: Via Presolana 2/4, 24030 Medolago (BG) Italy Registered office: Via Vittorio Emanuele II 179, 24033 Calusco d'Adda (BG) Italy tecnicog4@greenwicksrl.it info@greenwicksrl.it

INFORMATION ABOUT THE ASSESSMENT

PCR	PCR ICMQ-001/15 rev. 3.2 Prodotti e servizi per l'edilizia, EPDItaly. Published on: 03/11/2025.
EPDItaly Regulations	Regulation EPDITALY v. 6.0 published on 30/10/2023
Project Report LCA	LCA Report_Analisi del ciclo di vita di premiscelati, cementi e leganti plastici, pitture e tonachini Novembre 2025_rev.05
Verification Statement / Independent Validation	<p>PCR revision was performed by the EPDItaly Technical Committee – info@epditaly.it Independent verification of the declaration and the data was performed according to ISO 14025:2010.</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p> <p>Third party verification/validation done by: ICMQ S.p.A., via Gaetano De Castillia n° 10 - 20124 Milano, Italy. Accredited by Accredia.</p>
Comparability Statement	<p>Environmental declarations published within the same product category, but from different programmes may not be comparable. In particular, EPDItaly declarations on construction products may not be comparable if not compliant to EN 15804:2012+A2:2019.</p>
Responsibility Statement	<p>The EPD Owner releases EPDItaly from any non-compliance with environmental legislation. The declaration holder will be responsible for the supporting information and evidence. EPDItaly declines all responsibility for the information, data and results provided by the EPD Owner for the life cycle assessment.</p>
Reference documents	This declaration was developed in compliance to the EPDItaly Regulations rev. 6.0 published on 30/10/2023 and available at www.epditaly.it .

GENERAL INFORMATION

IDENTITY – FORNACI CALCE GRIGOLIN SPA

The Grigolin Group comprises a range of specialized companies operating across all sectors of the building and construction industry, offering integrated, next-generation solutions for production technologies. The Group places particular emphasis on environmental sustainability, the development of human resources, and product quality, thanks in part to the seamless synergy achieved through the integrated management of raw materials, resources, technologies, and professionals, enabling it to meet the needs of a constantly evolving market.

Since 1963, Fornaci Calce Grigolin has been one of the most important Italian and international companies in the construction materials and technologies sector. It boasts over sixty years of experience, gained on construction sites and in research and development laboratories, and looks to the future with a view to continuous evolution, improving product quality, and implementing support services provided by qualified personnel.

Geographical expansion, technological innovation and the presence of highly qualified personnel have allowed Fornaci Calce Grigolin to become an industry leader and express its value through:






- large systems of synergies;
- diversification and verticalization of production sectors;
- technological development and applied research;
- continuous attention to environmental values.

Today, Fornaci Calce Grigolin is one of the most important Italian and international companies in the construction materials and technologies sector. It boasts a full range of special solutions: lime and derivatives, thermal insulation, underlays and installation of floors and coverings, renovations, green building, decorations, paintings and finishes, deep foundations and consolidations, binders, mortars and plasters.

The company has always paid attention to the environment by minimizing emissions from resource extraction, transportation, and their processing. Furthermore, the lime production process is automated and emissions controls are carried out with continuous monitoring by the relevant authorities, with EPDItaly certification recognized in 2024.



SCOPE AND TYPE OF EPD

 PRODUCT STAGE			 CONSTRUCTION PROCESS STAGE		 USE STAGE							 END OF LIFE STAGE				 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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
✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓	✓

GEOGRAPHIC VALIDITY FOR PRODUCT STAGE A1-A3	Europe & ITALY
GEOGRAPHIC VALIDITY FOR END OF LIFE C1-C4, D	ITALY
GEOGRAPHIC VALIDITY FOR PRODUCTION SITE	ITALY
EPD TYPE	Product specific EPD based on a qualified tool. From cradle to gate with modules C1-C4 and module D (A1-A3+C1-C4+D)
REFERENCE YEAR	2023
DATABASE	Ecoinvent 3.11
SOFTWARE	The EPD was generated with the LCA-Tool: Fornaci Calce Grigolin S.p.A. - LCA TOOL n.1_Rev.4 Such LCA-Tool was developed using SimaPro 10.2.0.2 and Ecoinvent 3.11

DETAILED PRODUCT DESCRIPTION

MASONRY MORTARS



MG 40 - BULK	MG 40 is a masonry mortar based on hydrated lime and hydraulic binders, calcareous sands with a maximum grain size of 3.0 mm, suitable for indoor and outdoor use. MG 40 is classified as a category M5 masonry mortar in accordance with EN 998-2.
MG 45	MG 45 is a high mechanical strength masonry mortar based on hydraulic binders and hydrated lime, calcareous sands with a maximum grain size of 3.0 mm, suitable for indoor and outdoor use. MG 45 is classified as a category M10 masonry mortar in accordance with EN 998-2.
MG 45 - BULK	
MG 35 JOLLY	MG 35 JOLLY is a multipurpose mortar for masonry with high plasticity, particularly workable, based on hydrated lime and hydraulic binders, calcareous sands with a maximum grain size of 2.0 mm, suitable for internal and external use. MG 35 JOLLY is classified as a category M5 masonry mortar in accordance with EN 998-2.
MGK 18	MGK 18 is a fine-grained water-repellent masonry mortar with a valuable aesthetic appearance specifically for exposed face masonry. MGK 18 is a mortar based on hydrated lime and hydraulic binders, calcareous sands with a maximum grain size of 1.2 mm, water-repellent additives designed for the elevation and grouting of exposed-face masonry inside and outside. MGK 18 is classified as a category M5 masonry mortar in accordance with EN 998-2.
MGK 182	MGK 182 is a water-repellent masonry mortar with high mechanical resistance and fine grain size, with a valuable aesthetic appearance specific to exposed masonry. MGK 182 is a mortar based on hydrated lime and hydraulic binders, calcareous sands with a maximum grain size of 1.25 mm, water-repellent additives designed for the elevation and grouting of exposed face masonry inside and outside. MGK 182 is classified as a category M10 masonry mortar in accordance with EN 998-2.
MGK 182 – BULK	
THERMOG 02	THERMOG 02 is a lightweight, heat-insulating masonry mortar based on hydrated lime, hydraulic binders, with a maximum grain size of 3 mm formulated with particular expanded minerals characterised by extreme lightness and excellent insulating capacity. THERMOG 02 is classified as a category M5 masonry mortar in accordance with EN 998-2.

FIELDS OF USE

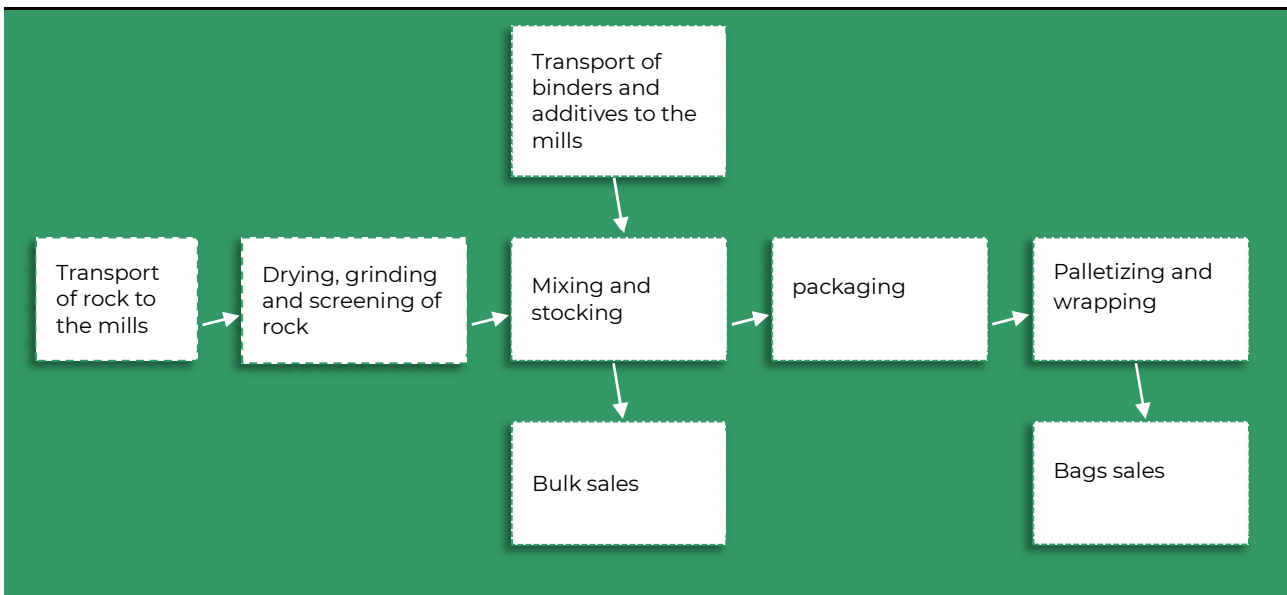
MG 40	MG 40 is a mortar for the elevation of load-bearing or infill walls made of brick, solid brick, stone or mixed masonry. MG 40 is also used for closing tracks, fixing, coating and protecting pipes and systems.
MG 40 – BULK	
MG 45	MG 45 is a mortar with high mechanical resistance for the elevation of load-bearing or infill walls made of brick, solid brick, stone or mixed walls. MG 45 is suitable for restoration and consolidation work on masonry using the "stitch and sew" technique, structural reconstruction of stone or brick masonry, reinforced stitching with the interposition of Aisi 316 stainless steel bars with improved adhesion (PALLADIO HELICAL BAR 6-8-10) in the attachment joints of stone or solid brick masonry.
MG 45 - BULK	
MG 35 JOLLY	MG 35 JOLLY is a multipurpose mortar to build masonry, hand plastering brick, stone or mixed masonry supports, closing traces, fixing, lining and protecting pipes and systems.
MGK 18	MGK 18 is a specific fine grain masonry mortar for the elevation and grouting of exposed stone, brick, concrete block or expanded clay masonry. The water repellency of the mortar, together with the maximum grain size of 1.2 mm, guarantees a styling of the exposed-face joints with a valuable aesthetic appearance and excellent resistance to atmospheric agents.
MGK 182	MGK 182 is a specific fine grain masonry mortar for the elevation and grouting of load-bearing or exposed-face infill walls made of stone, brick, concrete block or expanded clay. The water repellency of the mortar, together with the maximum grain size of 1.25 mm, guarantees a styling of the exposed-face joints with a valuable aesthetic appearance and excellent resistance to atmospheric agents.
MGK 182 – BULK	
THERMOG 02	THERMOG 02 is a lightweight, heat-insulating masonry mortar specifically designed to accommodate thermolabels or lightweight, heat-insulating blocks in order to create masonry that ensures low thermal conductivity. THERMOG 02 is not suitable as mortar for the lodging of rectified blocks of autoclaved cellular concrete, plaster blocks or for exposed masonry.

DESCRIPTION OF THE MANUFACTURING PROCESS

The production process for the premixed products under study consists of the following stages:

1. Transport of rock to the mills;
2. Drying, grinding, and screening of rock;
3. Mixing of rock, binders and additives, and storage of the premix;
4. Packaging;
5. Palletizing and wrapping.

The ground limestone, sorted by particle size, is conveyed to the storage silo via elevators located downstream of the grinding and screening process. The semi-finished products, which may be further sorted by particle size, are fed into dedicated silos. The plant is fully automated and operates in a closed-loop system. The production of premixed products involves mixing the raw materials, which are weighed according to the formulation and blended in a mixer. After the mixing process, the finished product can be sent to the bagging line, to bulk storage silos, or loaded directly into a tanker. A portion of the mixed product is stored in silos to meet various bulk requests from customers. Most of the finished product is bagged using a bagging machine and subsequently palletized.



PRODUCT COMPOSITION
(excluding packaging)

Material	Min [kg]	Max [kg]
Aggregates	7,59E+02	9,05E+02
Binders	9,50E+01	1,90E+02
Additives	1,50E-01	5,08E+01

PACKAGING COMPOSITION

Material	Min [kg]	Max [kg]
Wood	0,00E+00	1,77E+01
Cardboard	0,00E+00	3,12E+00
Polyethylene	0,00E+00	3,46E-01
Total	0,00E+00	2,12E+01

CALCULATION RULES

DECLARED UNIT	1000 kg
ASSUMPTIONS	No assumptions have been done
CUT-OFF RULES	No cut-off contributions have been considered
LCA METHOD	Cut-off by classification
CHARACTERISATION FACTORS	EF 3.1
EMPLOYEE COMMUTING	<ul style="list-style-type: none"> • Staff movements; • Production of capital goods and buildings.
DATA QUALITY	<p>UPSTREAM phase:</p> <ul style="list-style-type: none"> • Site-specific data regarding weight, quantity, raw materials, raw materials packaging, raw materials transportation, electrical and thermal energy. <p>CORE phase:</p> <ul style="list-style-type: none"> • Site-specific data regarding auxiliary materials, emissions to the atmosphere, internal transport, waste transport and treatment.
ALLOCATION	The allocation of input and output flows to the studied system was carried out on a mass basis considering the entire production of the plant.
GENERIC DATA	Criteria of geographical equivalence, technological equivalence, and equivalence with respect to system boundaries.

SCENARIOS AND OTHER TECHNICAL INFORMATION

INCLUDED PROCESSES A1-A3	<p>The UPSTREAM phase (A1) includes:</p> <ul style="list-style-type: none"> the extraction and transformation of raw materials into a raw material, not yet definable as a finished product, including the packaging used for the individual materials; the generation and supply of energy required for the extraction and refining of the raw material; the generation of energy used for the production of the finished product; specific electricity mix: 0,628 kg CO2 eq/kWh; the production of waste resulting from these processes. <p>The CORE phase (A2 and A3) includes:</p> <ul style="list-style-type: none"> external and internal transportation; product manufacturing; production of auxiliary materials required to obtain the finished product; production of the finished product packaging; waste management related to the production process. 																								
END OF LIFE SCENARIO C1-C4, D	<p>The construction and demolition waste scenario from Eionet (European Environment Information and Observation Network) was used: "Construction and Demolition Waste: challenges and opportunities in a circular economy" (2020).</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Phase</th> <th style="text-align: left;">Scenario</th> <th style="text-align: left;">Modelling</th> </tr> </thead> <tbody> <tr> <td>C1</td> <td>Dismantling</td> <td>Diesel consumption, 0,044 MJ/kg product</td> </tr> <tr> <td>C2</td> <td>Waste transport</td> <td>kg product per 100 km</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Phase</th> <th style="text-align: left;">Scenario</th> <th style="text-align: left;">Concrete</th> <th style="text-align: left;">Phase</th> </tr> </thead> <tbody> <tr> <td rowspan="2">C3</td> <td>Recycling [%]</td> <td>95,00%</td> <td>C3</td> </tr> <tr> <td>Energy recovery [%]</td> <td>0,00%</td> <td>0,00%</td> </tr> <tr> <td>C4</td> <td>Landfill [%]</td> <td>5,00%</td> <td>C4</td> </tr> </tbody> </table>	Phase	Scenario	Modelling	C1	Dismantling	Diesel consumption, 0,044 MJ/kg product	C2	Waste transport	kg product per 100 km	Phase	Scenario	Concrete	Phase	C3	Recycling [%]	95,00%	C3	Energy recovery [%]	0,00%	0,00%	C4	Landfill [%]	5,00%	C4
Phase	Scenario	Modelling																							
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C3	Recycling [%]	95,00%	C3																						
	Energy recovery [%]	0,00%	0,00%																						
C4	Landfill [%]	5,00%	C4																						







ENVIRONMENTAL IMPACT INDICATORS

Impact categories

GWP	Potential global warming at 100 years	<p>GWP – Global Warming Potential</p> <p>GWP quantifies the contribution of a greenhouse gas (e.g., CH₄, N₂O, CFCs, etc.) to the greenhouse effect relative to that of CO₂, which has a reference potential of 1. The ultimate goal is to estimate the impacts caused by the rise in average temperature on humans, ecosystems, and materials.</p> <p>The method for characterizing the impacts of greenhouse gases is based on the EF 3.1 method, which uses kilograms of CO₂ equivalent over a 100-year time horizon as the impact indicator.</p>
GWP-fossil	Potential global warming at 100 years - Fossil	
GWP-biogenic	Potential global warming at 100 years - Biogenic	
GWP-land use	Potential global warming at 100 years – soil use and change in soil use	
ODP	Potential for depletion of the stratospheric ozone layer	<p>Ozone Layer Depletion</p> <p>Ozone is a gas found in the stratosphere that protects the Earth from the ultraviolet rays emitted by the sun. The depletion of the ozone layer caused by unstable compounds (such as CFCs, HCFCs, etc.) allows more UV rays to reach the Earth's surface, resulting in adverse effects on humans, ecosystems, and materials. The method for characterizing these impacts is based on the guidelines of the World Meteorological Organization (WMO), which uses kilograms of CFC-11 equivalent (ODP, Ozone Depletion Potential—based on a relative scale that compares the gas in question to CFC-11) as an impact indicator.</p>
AP	Potential for soil and water acidification	<p>Soil acidification</p> <p>The acidification indicator is linked to atmospheric emissions of specific acidifying substances that cause changes in the pH of rain, soil, and water. The method for characterizing the impacts of acidification is based on the findings of the Centre for Environmental Sciences in Leiden, NL (CML), which uses kilograms of SO₂ equivalent (AP, Acidification Potential—based on a relative scale that compares the substance in question with an equal mass of SO₂ equivalent) as an impact indicator.</p>
EP-freshwater	Eutrophication potential, freshwater	<p>Water Eutrophication</p> <p>This refers to a condition of excessive nitrate and phosphate levels in an aquatic environment, which leads to the proliferation of microscopic algae and increased bacterial activity; the resulting decrease in oxygen levels in the water and soil causes environmental degradation with serious impacts on ecosystems. The method for characterizing the impacts of eutrophication is based on the findings of the Centre for Environmental Sciences in Leiden, NL (CML), which uses kilograms of phosphorus equivalent (EP, Eutrophication Potential—based on a relative scale that compares the substance in question with an equal mass of P) as an impact indicator.</p>
EP-marine	Eutrophication potential, saltwater	
EP-terrestrial	Eutrophication potential, terrestrial	
POCP	Photochemical formation of ozone	<p>Formation of photochemical oxidants</p> <p>This phenomenon results from the reaction of unburned hydrocarbons and nitrogen oxides present in exhaust fumes when exposed to solar radiation, leading to the formation of ozone, which is harmful to health. The method for characterizing the impacts of photochemical smog is based on the guidelines established by the United Nations Economic Commission for Europe (UNECE), which uses kilograms of C₂H₄-equivalent POCP (Photochemical Ozone Creation Potential—based on a relative scale that compares the substance in question with an equal mass of C₂H₄-equivalent POCP) as an impact indicator.</p>
ADPF	Potential depletion of fossil abiotic resources	<p>ADP – Abiotic Depletion</p>
ADPE	Potential depletion of non-fossil abiotic resources	
Water Use	Water use	Water Use

LCA RESULTS

IMPACT CATEGORY INDICATORS

	<p style="text-align: center;">MG 40 MG 40 - BULK</p>
	<p style="text-align: center;">MG 45 MG 45 - BULK</p>
	<p style="text-align: center;">MG 35 JOLLY</p>
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	<p style="text-align: center;">MGK 182 MGK 182 - BULK</p>
	<p style="text-align: center;">THERMOG 02</p>

MG 40 Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	9,04E+01	6,89E+00	7,79E+00	1,05E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO ₂ eq.	7,28E-01	4,62E-03	-7,32E-01	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO ₂ eq.	1,09E-02	2,24E-03	4,60E-02	5,91E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO ₂ eq.	9,12E+01	6,89E+00	7,10E+00	1,05E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq.	4,65E-06	1,50E-07	2,13E-07	5,01E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H ⁺ eq.	2,27E-01	2,38E-02	3,05E-02	2,82E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq.	1,11E-02	4,60E-04	3,68E-03	1,53E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq.	7,45E-02	8,16E-03	1,07E-02	9,34E-02	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq.	7,90E-01	8,88E-02	1,00E-01	9,79E-01	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq.	2,15E-01	3,56E-02	3,75E-02	2,88E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq.	1,53E-02	2,26E-05	2,67E-05	1,54E-02	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,17E+02	7,50E+00	3,02E+01	2,54E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	8,56E+00	3,70E-01	4,54E+00	1,35E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms
 GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,88E+01	1,56E+00	1,09E+02	1,29E+02	3,63E-01	4,41E+00	1,06E+01	1,36E+02	-9,94E+00
PERM	MJ	4,47E+00	0,00E+00	1,32E+02	1,36E+02	0,00E+00	0,00E+00	0,00E+00	-1,36E+02	0,00E+00
PERT	MJ	2,33E+01	1,56E+00	2,40E+02	2,65E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	2,72E+02	7,50E+00	0,00E+00	2,79E+02	2,24E+00	2,12E+01	3,48E+01	5,43E+01	-1,90E+01
PENRM	MJ	5,92E+00	0,00E+00	4,67E+01	5,27E+01	0,00E+00	0,00E+00	0,00E+00	-5,27E+01	0,00E+00
PENRT	MJ	2,77E+02	7,50E+00	4,67E+01	3,32E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	2,14E-01	1,19E-02	1,22E-01	3,48E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

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

Indicator	indicato roi	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	9,89E-03	2,42E-03	1,72E-02	2,96E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	5,06E+00	4,55E+00	1,57E+00	1,12E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	5,36E-04	2,81E-05	1,94E-04	7,58E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	2,60E+00	2,60E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,35E-01	1,35E-01	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	6,00E-02
in the final product packaging	kg C	1,72E+00

MG 40 - BULK Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	8,76E+01	6,85E+00	2,14E+00	9,66E+01	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	7,34E-01	4,60E-03	6,39E-03	7,45E-01	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	9,83E-03	2,23E-03	3,45E-06	1,21E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	8,83E+01	6,86E+00	2,15E+00	9,73E+01	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	4,59E-06	1,49E-07	2,47E-10	4,74E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,14E-01	2,37E-02	5,76E-04	2,38E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,03E-02	4,57E-04	3,03E-06	1,07E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	7,15E-02	8,12E-03	3,23E-04	8,00E-02	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	7,53E-01	8,85E-02	3,16E-03	8,44E-01	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,04E-01	3,54E-02	9,22E-04	2,40E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	6,96E-05	2,25E-05	3,31E-08	9,21E-05	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,02E+02	7,47E+00	1,72E-02	2,10E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	8,10E+00	3,69E-01	1,31E-03	8,47E+00	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms

GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,71E+01	1,55E+00	4,46E-03	1,86E+01	3,63E-01	4,41E+00	1,06E+01	4,70E+00	-9,94E+00
PERM	MJ	4,47E+00	0,00E+00	0,00E+00	4,47E+00	0,00E+00	0,00E+00	0,00E+00	-4,47E+00	0,00E+00
PERT	MJ	2,16E+01	1,55E+00	4,46E-03	2,31E+01	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	2,63E+02	7,47E+00	1,72E-02	2,71E+02	2,24E+00	2,12E+01	3,48E+01	1,77E+00	-1,90E+01
PENRM	MJ	1,12E-01	0,00E+00	0,00E+00	1,12E-01	0,00E+00	0,00E+00	0,00E+00	-1,12E-01	0,00E+00
PENRT	MJ	2,63E+02	7,47E+00	1,72E-02	2,71E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	2,01E-01	1,18E-02	4,00E-05	2,13E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

Acronyms

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	8,93E-03	2,41E-03	2,21E-04	1,16E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	4,96E+00	4,53E+00	1,11E-02	9,49E+00	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	4,91E-04	2,80E-05	1,07E-07	5,19E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	7,54E-02	7,54E-02	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,04E-02	1,04E-02	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	6,00E-02
in the final product packaging	kg C	0,00E+00

MG 45 Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	1,01E+02	7,30E+00	7,79E+00	1,16E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	1,06E+00	4,91E-03	-1,06E+00	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	1,28E-02	2,37E-03	4,60E-02	6,11E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	1,02E+02	7,31E+00	6,77E+00	1,16E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	3,37E-06	1,59E-07	2,13E-07	3,74E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,59E-01	2,49E-02	3,05E-02	3,15E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,22E-02	4,88E-04	3,68E-03	1,63E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	8,09E-02	8,55E-03	1,07E-02	1,00E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	9,03E-01	9,31E-02	1,00E-01	1,10E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,45E-01	3,74E-02	3,75E-02	3,20E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	3,44E-02	2,40E-05	2,67E-05	3,44E-02	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,29E+02	7,97E+00	3,02E+01	2,67E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	9,57E+00	3,94E-01	4,54E+00	1,45E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption									

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	2,20E+01	1,66E+00	1,09E+02	1,32E+02	3,63E-01	4,41E+00	1,06E+01	1,35E+02	-9,94E+00
PERM	MJ	2,98E+00	0,00E+00	1,32E+02	1,35E+02	0,00E+00	0,00E+00	0,00E+00	-1,35E+02	0,00E+00
PERT	MJ	2,49E+01	1,66E+00	2,40E+02	2,67E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	2,72E+02	7,97E+00	0,00E+00	2,80E+02	2,24E+00	2,12E+01	3,48E+01	5,43E+01	-1,90E+01
PENRM	MJ	5,92E+00	0,00E+00	4,67E+01	5,27E+01	0,00E+00	0,00E+00	0,00E+00	-5,27E+01	0,00E+00
PENRT	MJ	2,78E+02	7,97E+00	4,67E+01	3,32E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	2,47E-01	1,26E-02	1,22E-01	3,81E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water									

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,11E-02	2,57E-03	1,72E-02	3,09E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	6,08E+00	4,84E+00	1,57E+00	1,25E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	6,18E-04	2,99E-05	1,94E-04	8,42E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	2,60E+00	2,60E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,35E-01	1,35E-01	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	4,00E-02
in the final product packaging	kg C	1,72E+00

MG 45 - BULK Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	9,82E+01	7,24E+00	2,14E+00	1,08E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	1,04E+00	4,85E-03	6,39E-03	1,05E+00	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	1,19E-02	2,36E-03	3,45E-06	1,43E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	9,92E+01	7,25E+00	2,15E+00	1,09E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	5,84E-06	1,58E-07	2,47E-10	6,00E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,45E-01	2,53E-02	5,76E-04	2,71E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,22E-02	4,83E-04	3,03E-06	1,27E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	8,34E-02	8,61E-03	3,23E-04	9,23E-02	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	8,57E-01	9,38E-02	3,16E-03	9,54E-01	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,31E-01	3,75E-02	9,22E-04	2,69E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	8,35E-05	2,38E-05	3,31E-08	1,07E-04	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,10E+02	7,89E+00	1,72E-02	2,18E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	9,09E+00	3,90E-01	1,31E-03	9,48E+00	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms

GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	2,22E+01	1,64E+00	4,46E-03	2,38E+01	3,63E-01	4,41E+00	1,06E+01	4,27E+00	-9,94E+00
PERM	MJ	4,04E+00	0,00E+00	0,00E+00	4,04E+00	0,00E+00	0,00E+00	0,00E+00	-4,04E+00	0,00E+00
PERT	MJ	2,62E+01	1,64E+00	4,46E-03	2,79E+01	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	2,58E+02	7,89E+00	1,72E-02	2,66E+02	2,24E+00	2,12E+01	3,48E+01	1,77E+00	-1,90E+01
PENRM	MJ	1,12E-01	0,00E+00	0,00E+00	1,12E-01	0,00E+00	0,00E+00	0,00E+00	-1,12E-01	0,00E+00
PENRT	MJ	2,59E+02	7,89E+00	1,72E-02	2,66E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	2,34E-01	1,25E-02	4,00E-05	2,47E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

Acronyms

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,02E-02	2,54E-03	2,21E-04	1,30E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	5,93E+00	4,78E+00	1,11E-02	1,07E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	5,79E-04	2,95E-05	1,07E-07	6,09E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	7,54E-02	7,54E-02	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,04E-02	1,04E-02	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	5,88E-02
in the final product packaging	kg C	0,00E+00

MG 35 JOLLY Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	9,67E+01	7,03E+00	7,79E+00	1,11E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	4,43E-01	4,71E-03	-4,47E-01	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	1,93E-02	2,29E-03	4,60E-02	6,76E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	9,71E+01	7,04E+00	7,38E+00	1,12E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	6,57E-06	1,53E-07	2,13E-07	6,93E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,43E-01	2,46E-02	3,05E-02	2,99E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,23E-02	4,69E-04	3,68E-03	1,65E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	8,31E-02	8,40E-03	1,07E-02	1,02E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	8,42E-01	9,14E-02	1,00E-01	1,03E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,28E-01	3,65E-02	3,75E-02	3,02E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	1,53E-02	2,31E-05	2,67E-05	1,54E-02	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,44E+02	7,66E+00	3,02E+01	2,82E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	9,39E+00	3,78E-01	4,54E+00	1,43E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms

GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,97E+01	1,59E+00	1,09E+02	1,30E+02	3,63E-01	4,41E+00	1,06E+01	1,40E+02	-9,94E+00
PERM	MJ	8,24E+00	0,00E+00	1,32E+02	1,40E+02	0,00E+00	0,00E+00	0,00E+00	-1,40E+02	0,00E+00
PERT	MJ	2,79E+01	1,59E+00	2,40E+02	2,70E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	3,11E+02	7,66E+00	0,00E+00	3,19E+02	2,24E+00	2,12E+01	3,48E+01	5,43E+01	-1,90E+01
PENRM	MJ	5,92E+00	0,00E+00	4,67E+01	5,27E+01	0,00E+00	0,00E+00	0,00E+00	-5,27E+01	0,00E+00
PENRT	MJ	3,17E+02	7,66E+00	4,67E+01	3,71E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	2,22E-01	1,21E-02	1,22E-01	3,55E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

Acronyms

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,05E-02	2,47E-03	1,72E-02	3,02E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	5,23E+00	4,64E+00	1,57E+00	1,14E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	5,53E-04	2,87E-05	1,94E-04	7,75E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	2,60E+00	2,60E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,35E-01	1,35E-01	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	1,34E-01
in the final product packaging	kg C	1,72E+00

MGK 18 Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	1,14E+02	7,74E+00	7,79E+00	1,30E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	-1,55E+00	5,18E-03	1,55E+00	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	2,13E+00	2,53E-03	4,60E-02	2,18E+00	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	1,15E+02	7,75E+00	9,38E+00	1,32E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	9,28E-06	1,69E-07	2,13E-07	9,66E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,96E-01	2,73E-02	3,05E-02	3,54E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,55E-02	5,17E-04	3,68E-03	1,97E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	1,14E-01	9,27E-03	1,07E-02	1,34E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	1,02E+00	1,01E-01	1,00E-01	1,22E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,70E-01	4,02E-02	3,75E-02	3,48E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	3,69E-02	2,54E-05	2,67E-05	3,70E-02	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,80E+02	8,44E+00	3,02E+01	3,18E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m3 world eq deprived	1,15E+01	4,17E-01	4,54E+00	1,65E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01
Acronyms	<p>GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption</p>									

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	7,30E+01	1,75E+00	1,09E+02	1,84E+02	3,63E-01	4,41E+00	1,06E+01	1,42E+02	-9,94E+00
PERM	MJ	1,04E+01	0,00E+00	1,32E+02	1,42E+02	0,00E+00	0,00E+00	0,00E+00	-1,42E+02	0,00E+00
PERT	MJ	8,33E+01	1,75E+00	2,40E+02	3,26E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	3,47E+02	8,44E+00	0,00E+00	3,55E+02	2,24E+00	2,12E+01	3,48E+01	5,43E+01	-1,90E+01
PENRM	MJ	5,92E+00	0,00E+00	4,67E+01	5,27E+01	0,00E+00	0,00E+00	0,00E+00	-5,27E+01	0,00E+00
PENRT	MJ	3,53E+02	8,44E+00	4,67E+01	4,08E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m3	2,98E-01	1,33E-02	1,22E-01	4,33E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01
Acronyms	<p>PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water</p>									

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,50E-02	2,72E-03	1,72E-02	3,49E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	6,64E+00	5,11E+00	1,57E+00	1,33E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	6,52E-04	3,16E-05	1,94E-04	8,77E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	2,60E+00	2,60E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,35E-01	1,35E-01	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	1,51E-01
in the final product packaging	kg C	1,72E+00

MGK 182 Ponte della Priula

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	9,96E+01	1,24E+01	9,23E+00	1,21E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	-7,44E-01	8,42E-03	7,37E-01	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	1,86E+00	4,08E-03	4,69E-02	1,91E+00	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	1,01E+02	1,24E+01	1,00E+01	1,23E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	5,92E-06	2,71E-07	2,44E-07	6,43E-06	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	2,80E-01	4,16E-02	3,42E-02	3,56E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,36E-02	8,39E-04	3,92E-03	1,83E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	1,03E-01	1,40E-02	1,18E-02	1,29E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	9,75E-01	1,53E-01	1,09E-01	1,24E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,64E-01	6,22E-02	4,47E-02	3,71E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	1,19E-04	4,14E-05	3,13E-05	1,92E-04	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,02E+02	1,37E+01	3,45E+01	2,50E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	1,21E+01	6,76E-01	1,70E+01	2,98E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms
 GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8,09E+01	2,85E+00	1,10E+02	1,94E+02	3,63E-01	4,41E+00	1,06E+01	1,38E+02	-9,94E+00
PERM	MJ	5,72E+00	0,00E+00	1,32E+02	1,37E+02	0,00E+00	0,00E+00	0,00E+00	-1,37E+02	0,00E+00
PERT	MJ	8,66E+01	2,85E+00	2,42E+02	3,31E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	1,85E+02	1,37E+01	0,00E+00	1,99E+02	2,24E+00	2,12E+01	3,48E+01	7,49E+01	-1,90E+01
PENRM	MJ	1,67E+01	0,00E+00	5,65E+01	7,32E+01	0,00E+00	0,00E+00	0,00E+00	-7,32E+01	0,00E+00
PENRT	MJ	2,02E+02	1,37E+01	5,65E+01	2,72E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	3,30E-01	2,16E-02	3,99E-01	7,51E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,51E-02	4,41E-03	1,98E-02	3,93E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	7,95E+00	8,33E+00	1,79E+00	1,81E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	6,89E-04	5,13E-05	2,14E-04	9,55E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	3,30E-04	3,30E-04	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	4,33E-01	4,33E-01	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	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	0,00E+00	0,00E+00

Acronyms HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed
 CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity;
 EET = Exported energy, thermal

Disclaimer [1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators

Biogenic carbon	Unit	Value
in the final product	kg C	1,05E-01
in the final product packaging	kg C	1,72E+00

MGK 182 - BULK Colferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	1,17E+02	8,13E+00	2,14E+00	1,27E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	-6,79E-01	5,49E-03	6,74E-01	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	2,14E+00	2,64E-03	3,45E-06	2,14E+00	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	1,18E+02	8,13E+00	2,81E+00	1,29E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	7,93E-07	1,77E-07	2,47E-10	9,71E-07	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	3,02E-01	2,71E-02	5,76E-04	3,30E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	1,35E-02	5,45E-04	3,03E-06	1,40E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	9,93E-02	9,34E-03	3,23E-04	1,09E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	1,05E+00	1,02E-01	3,16E-03	1,15E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	2,85E-01	4,11E-02	9,22E-04	3,27E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	1,19E-04	2,69E-05	3,31E-08	1,46E-04	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	2,30E+02	8,90E+00	1,72E-02	2,39E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	1,19E+01	4,39E-01	1,31E-03	1,23E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms
 GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	7,55E+01	1,85E+00	4,46E-03	7,74E+01	3,63E-01	4,41E+00	1,06E+01	6,27E+00	-9,94E+00
PERM	MJ	6,04E+00	0,00E+00	0,00E+00	6,04E+00	0,00E+00	0,00E+00	0,00E+00	-6,04E+00	0,00E+00
PERT	MJ	8,15E+01	1,85E+00	4,46E-03	8,34E+01	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	2,30E+02	8,90E+00	1,72E-02	2,39E+02	2,24E+00	2,12E+01	3,48E+01	1,77E+00	-1,90E+01
PENRM	MJ	1,12E-01	0,00E+00	0,00E+00	1,12E-01	0,00E+00	0,00E+00	0,00E+00	-1,12E-01	0,00E+00
PENRT	MJ	2,30E+02	8,90E+00	1,72E-02	2,39E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	3,31E-01	1,41E-02	4,00E-05	3,45E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	1,51E-02	2,87E-03	2,21E-04	1,82E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	8,26E+00	5,41E+00	1,11E-02	1,37E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	7,56E-04	3,34E-05	1,07E-07	7,89E-04	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	7,54E-02	7,54E-02	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,04E-02	1,04E-02	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	1,10E-01
in the final product packaging	kg C	0,00E+00

THERMOG 02 Colleferro

Results by Declared Unit: 1000 kg

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	2,24E+02	1,23E+01	7,79E+00	2,44E+02	4,43E+00	1,90E+01	1,79E+01	1,13E+00	-4,95E+00
GWP-biogenic	kg CO2 eq	2,18E+00	8,34E-03	-2,19E+00	1,00E-03	8,98E-04	1,30E-02	6,01E-02	1,30E-03	-1,43E-01
GWP-luluc	kg CO2 eq	4,20E-02	4,05E-03	4,60E-02	9,20E-02	4,53E-04	6,30E-03	6,82E-03	2,38E-03	-2,21E-03
GWP-total	kg CO2 eq	2,26E+02	1,23E+01	5,64E+00	2,44E+02	4,43E+00	1,90E+01	1,80E+01	1,14E+00	-5,08E+00
ODP	kg CFC 11 eq	1,90E-04	2,69E-07	2,13E-07	1,90E-04	6,60E-08	4,15E-07	3,73E-07	2,12E-08	-7,13E-08
AP	mol H+ eq	7,54E-01	4,18E-02	3,05E-02	8,26E-01	3,96E-02	6,11E-02	1,46E-01	6,90E-03	-3,33E-02
EP-freshwater	kg P eq	3,78E-02	8,31E-04	3,68E-03	4,23E-02	1,43E-04	1,30E-03	8,10E-03	1,01E-04	-1,26E-03
EP-marine	kg N eq	1,93E-01	1,42E-02	1,07E-02	2,18E-01	1,84E-02	2,06E-02	5,54E-02	2,79E-03	-8,84E-03
EP-terrestrial	mol N eq	2,06E+00	1,54E-01	1,00E-01	2,31E+00	2,02E-01	2,24E-01	6,01E-01	3,03E-02	-1,14E-01
POCP	kg NMVOC eq	5,82E-01	6,24E-02	3,75E-02	6,82E-01	6,04E-02	9,26E-02	1,92E-01	1,02E-02	-3,17E-02
ADP-minerals&metals [1]	kg Sb eq	7,26E-02	4,10E-05	2,67E-05	7,27E-02	1,58E-06	6,41E-05	3,99E-05	2,47E-06	-5,14E-05
ADP-fossil [1]	MJ	5,94E+02	1,36E+01	3,02E+01	6,38E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
WDP [1]	m ³ world eq deprived	2,80E+01	6,70E-01	4,54E+00	3,32E+01	1,23E-01	1,05E+00	-4,78E+01	3,83E-01	-1,42E+01

Acronyms
 GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential 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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; 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 (user) deprivation potential, deprivation-weighted water consumption

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,08E+02	2,82E+00	1,09E+02	2,20E+02	3,63E-01	4,41E+00	1,06E+01	1,39E+02	-9,94E+00
PERM	MJ	7,45E+00	0,00E+00	1,32E+02	1,39E+02	0,00E+00	0,00E+00	0,00E+00	-1,39E+02	0,00E+00
PERT	MJ	1,15E+02	2,82E+00	2,40E+02	3,59E+02	3,63E-01	4,41E+00	1,06E+01	2,32E-01	-9,94E+00
PENRE	MJ	5,89E+02	1,36E+01	0,00E+00	6,02E+02	2,24E+00	2,12E+01	3,48E+01	5,43E+01	-1,90E+01
PENRM	MJ	5,92E+00	0,00E+00	4,67E+01	5,27E+01	0,00E+00	0,00E+00	0,00E+00	-5,27E+01	0,00E+00
PENRT	MJ	5,95E+02	1,36E+01	4,67E+01	6,55E+02	2,24E+00	2,12E+01	3,48E+01	1,65E+00	-1,90E+01
SM	kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
FW	m ³	7,86E-01	2,14E-02	1,22E-01	9,29E-01	4,04E-03	3,35E-02	-1,02E+00	9,45E-03	-3,23E-01

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

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	5,18E-02	4,37E-03	1,72E-02	7,35E-02	5,40E-04	6,81E-03	4,34E-02	3,84E-04	-2,40E-02
NHWD	kg	1,48E+01	8,24E+00	1,57E+00	2,46E+01	3,89E-02	1,29E+01	3,85E+02	5,05E+01	-9,12E-01
RWD	kg	1,50E-03	5,08E-05	1,94E-04	1,75E-03	6,03E-06	7,93E-05	2,50E-04	3,20E-06	-7,21E-05
CRU	kg	0,00E+00	0,00E+00	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	2,60E+00	2,60E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,35E-01	1,35E-01	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	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	0,00E+00	0,00E+00
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy, electricity; EET = Exported energy, thermal									
Disclaimer	[1] ADPF, ADPE, Water Use: the results of these environmental impact indicators must be used carefully as the uncertainties of these results are high or as there is limited experience with such indicators									

Biogenic carbon	Unit	Value
in the final product	kg C	1,00E-01
in the final product packaging	kg C	1,72E+00

GUIDELINES

Guidelines	UNI ISO 14040: 2021
	UNI ISO 14044: 2021
	EN ISO 14025:2010
	EN 15804:2012+A2:2019/AC:2021
	PCR per i prodotti da costruzione: ICMQ-001/15 rev 3.2 (compliant to EN 15804+A2
	LCA Report_Analisi del ciclo di vita di premiscelati, cementi e leganti plastici, pitture e tonachini Novembre 2025_rev.05
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