

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

MasterRoc MP 650

Master Builders Solutions



EPD HUB, HUB-3164

Publishing date 12 April 2025, last updated on 12 April 2025, valid until 11 April 2030.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Master Builders Solutions
Address	Gullfotdalen 4 NO-2120 Sagstua, Norway
Contact details	Sustainability-team@masterbuilders.com
Website	www.master-builders-solutions.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate
EPD author	Natalia Kupferschmidt - Master Builders Solutions
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	MasterRoc MP 650
Place of production	Sagstua, Norway
Period for data	Calendar year 2024
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	984
GWP-total, A1-A3 (kgCO ₂ e)	985
Secondary material, inputs (%)	5.83
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	1780
Total water use, A1-A3 (m ³ e)	1,21

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Master Builders Solutions is one of the leading suppliers of concrete admixtures and underground construction solutions worldwide. With over a century of experience in the construction industry, we leverage cutting-edge technologies, a global community of experts at the core of our business, as well as in-depth knowledge of local building needs to provide innovative and sustainable solutions.

PRODUCT DESCRIPTION

MasterRoc MP 650 is a fast-setting micro fine Portland cement for rock and soil injection. The product is a well graded cement milled from pure Portland cement clinker with a Blaine value of 650 m²/kg. Due to its small particle size, it penetrates tight joints, fissures, and pores very well to provide a water-tight grouted rock or soil mass.

It achieves initial and final setting faster than standard micro fine cements. This increases the productivity in injection operations. The short open time of 1 to 1½ hours and a very short setting time of 2½ hours (at about 20°C) reduces the waiting time for the next excavation round to a minimum.

Areas of application are pre-injection in underground structures, post injection, water ingress reduction, ground stabilization and contact injection.

Further information can be found at www.master-builders-solutions.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	>99	UK
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate.

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton
Mass per declared unit	1000 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage								End of life stage				Beyond the system boundaries	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND				MND		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

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

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities (if any) are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Limestone or chalk (high in calcium carbonate) and clay (containing silica, alumina, and iron oxides) are quarried near production sites. Crushed material is transported by conveyor for milling.

Raw materials are stored in silos and proportioned for the raw mix. They are ground into a fine powder in a raw mill, using exhaust gases for drying, then sent to a blending silo for preheater feeding.

The raw mix enters a preheater tower, reaching ~900°C via cyclone stages. A calciner at the tower's base adds fuel to optimize kiln readiness.

Heated to 1450°C in a rotary kiln, the raw mix forms clinker using fossil, waste-derived, and biomass fuels. The kiln flame reaches 2000°C.

Air cools clinker from 1450°C to ~150°C, with recovered heat improving kiln efficiency. Clinker is stored or sent directly to milling.

Clinker is ground with gypsum and additives (e.g., PFA, GGBS, limestone) in ball or vertical mills to produce various cement types with specific properties. Cement is stored in silos and transported in bulk by road or rail.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final product delivery to the construction site (A4) and further installation stages (A5) are not modelled within this EPD.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The product end of life stages (C1 – C4) are not included in this EPD based on the EN 15804 standard special provision for construction products and materials which fulfil the conditions for exemption based on the product being integrated and not capable of separation from site of application at end of life, the product not being identifiable as original based on the physical change after deconstruction and the omission of any biogenic carbon in the product.

MANUFACTURING PROCESS

A1. extraction and production of raw materials

A2. Transportation to production plant

A3. cement manufacturing process and treatment of waste produced within processes



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption (some minor additives used in small quantities have been cut-off, e.g. strength enhancer). All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Not applicable
Ancillary materials	No allocation
Manufacturing energy and waste	No allocation

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent 3.8 and One Click LCA databases were used as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	8,40E+02	1,45E+02	0,00E+00	9,85E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – fossil	kg CO ₂ e	8,40E+02	1,45E+02	0,00E+00	9,84E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – biogenic	kg CO ₂ e	1,99E-01	4,05E-02	0,00E+00	2,39E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – LULUC	kg CO ₂ e	4,75E-02	8,39E-02	0,00E+00	1,31E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ozone depletion pot.	kg CFC ₁₁ e	1,03E-05	3,01E-05	0,00E+00	4,03E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Acidification potential	mol H ⁺ e	2,06E+00	3,62E+00	0,00E+00	5,68E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-freshwater ²⁾	kg Pe	7,14E-02	6,72E-04	0,00E+00	7,21E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-marine	kg Ne	5,10E-03	9,11E-01	0,00E+00	9,16E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-terrestrial	mol Ne	6,64E+00	1,01E+01	0,00E+00	1,68E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP (“smog”) ³⁾	kg NMVOCe	1,60E+00	2,65E+00	0,00E+00	4,25E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP-minerals & metals ⁴⁾	kg Sbe	1,62E-04	2,24E-04	0,00E+00	3,86E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP-fossil resources	MJ	2,74E+03	1,91E+03	0,00E+00	4,65E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Water use ⁵⁾	m ³ e depr.	4,47E+01	6,32E+00	0,00E+00	5,10E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

¹⁾ GWP = Global Warming Potential; ²⁾ EP = Eutrophication potential; ³⁾ POCP = Photochemical ozone formation; ⁴⁾ ADP = Abiotic depletion potential

For EP-freshwater, the required characterization method and data are in kg P-eq. Multiply by 3,07 to get PO4e

^{4,5)} EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	0,00E+00	7,76E-06	0,00E+00	7,76E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ionizing radiation ⁶⁾	kBq U235e	0,00E+00	8,90E+00	0,00E+00	8,90E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ecotoxicity (freshwater)	CTUe	0,00E+00	1,35E+03	0,00E+00	1,35E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human toxicity, cancer	CTUh	0,00E+00	7,17E-08	0,00E+00	7,17E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human tox. non-cancer	CTUh	0,00E+00	1,05E-06	0,00E+00	1,05E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SQP ⁷⁾	-	0,00E+00	8,60E+02	0,00E+00	8,60E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

⁶⁾ EN 15804+A2 disclaimer for Ionizing radiation, human health: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator

⁷⁾ SQP = Land use related impacts/soil quality

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	5,37E+02	1,52E+01	0,00E+00	5,52E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of renew. PER	MJ	5,37E+02	1,52E+01	0,00E+00	5,52E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-re. PER as energy	MJ	2,74E+03	1,91E+03	0,00E+00	4,65E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of non-re. PER	MJ	2,74E+03	1,91E+03	0,00E+00	4,65E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Secondary materials	kg	5,83E+01	7,12E-01	0,00E+00	5,90E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Renew. secondary fuels	MJ	4,27E+02	3,18E-03	0,00E+00	4,27E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-ren. secondary fuels	MJ	7,87E+02	0,00E+00	0,00E+00	7,87E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of net fresh water	m³	1,05E+00	1,56E-01	0,00E+00	1,21E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

⁸⁾ PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	0,00E+00	2,45E+00	0,00E+00	2,45E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-hazardous waste	kg	0,00E+00	2,65E+01	0,00E+00	2,65E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Radioactive waste	kg	0,00E+00	1,34E-02	0,00E+00	1,34E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	8,40E+02	1,45E+02	0,00E+00	9,85E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

⁹⁾ This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

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

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

12.04.2025

