ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Incinerator Bottom Ash Aggregate (IBAA)

Rock Solid Processing Ltd

EPD HUB, HUB-0994
Publishing date 5 January 2024, last updated on 5 January 2024, valid until 5 January 2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Rock Solid Processing Ltd
Address	Unit 3, The Square, Grampound Road, Truro, Cornwall, TR2 4DS
Contact details	info@rocksolidbv.com
Website	https://www.rocksolidrecycling.co.uk/

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 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Sam McGarrick, Blue Marble Environmental Partnerships Ltd.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ 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	Incinerator Bottom Ash Aggregate (IBAA)
Additional labels	-
Product reference	-
Place of production	Production sites at: Hill Barton Exeter; Hill and Moor Pershore; Lower Melville Wood Ladybank; Goathill Quarry Cowdenbeath (United Kingdom)
Period for data	Calendar Year (2022)
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 tonne of incinerator bottom ash aggregate
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO2e)	2.75E-01
GWP-total, A1-A3 (kgCO2e)	2.75E-01
Secondary material, inputs (%)	100.0
Secondary material, outputs (%)	100.0
Total energy use, A1-A3 (kWh)	1.03
Total water use, A1-A3 (m3e)	2.28E-04

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Mineral rest streams from Energy from Waste processes are generally regarded as a waste by-product, but not by Rock Solid. For us, these rest streams are a new sustainable and renewable resource serving to support a developing and expanding circular economy.

Since its establishment in 2006, Rock Solid has specialised in the processing of Incinerator Bottom Ash (IBA) generated by Energy from Waste plants across both The UK and Europe, and also the high-quality recovery of both metals and aggregate streams from within the IBA itself.

Rock Solid are not only market leaders in the recovery of both Ferrous and Non-Ferrous metals from IBA, but also in the production and associated distribution of IBA Aggregates (IBAA) into local and national construction markets. Rock Solid offer their valued customers sustainable, reliable and cost-effective solutions, in both a trusted and transparent way.

With many years of experience, extending much further back than the establishment of Rock Solid itself, we possess extensive knowledge of applicable markets, and have built a global network in the respective sectors along the chain. Solid cooperation with the right parties is the cornerstone of our way of working.

PRODUCT DESCRIPTION

Using the most advanced processing methods, Rock Solid have been producing IBA aggregate for over 15 years and have a number of well-located aggregate operations across the UK, and possible future locations, ready to service your civil engineering or groundworks projects.

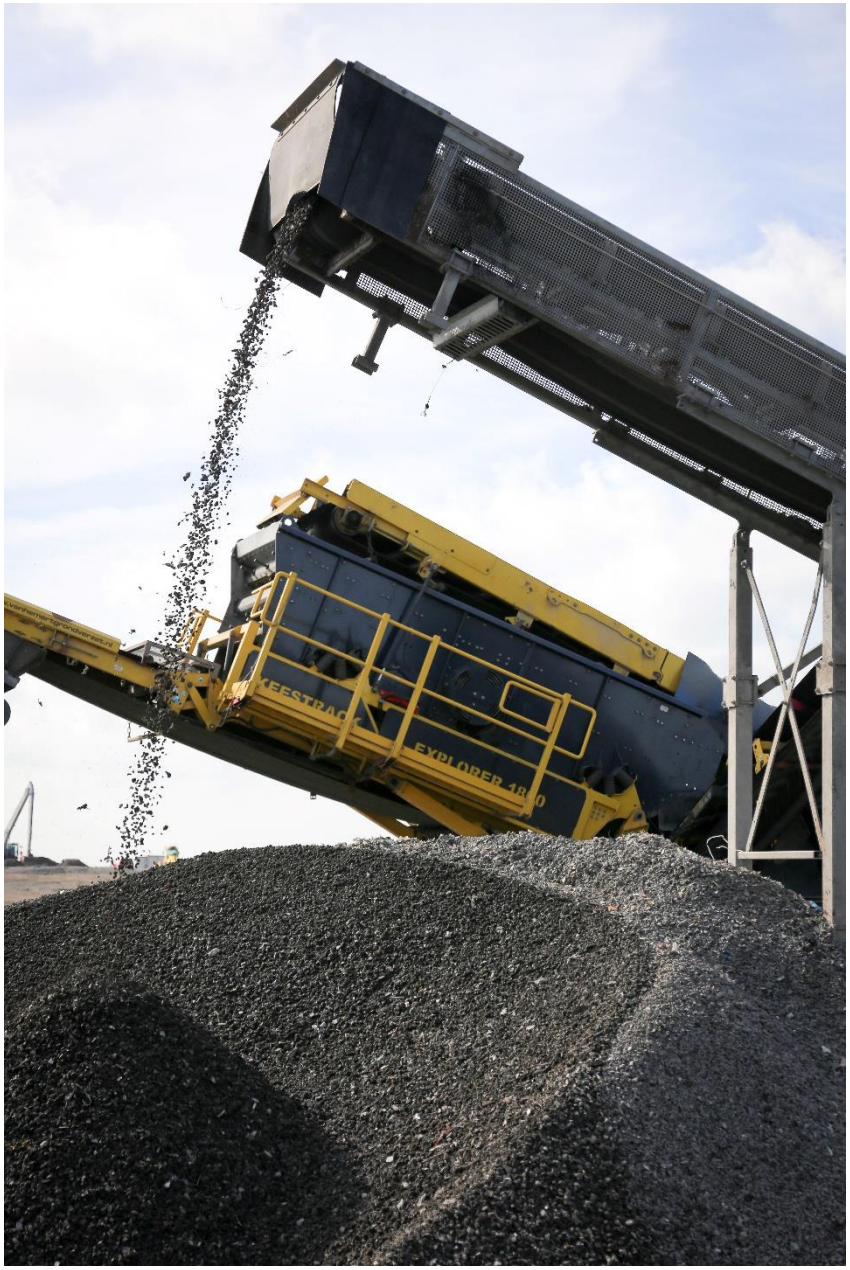
IBA Aggregate (IBAA) consists of stone, concrete, brick, ceramics and glass and is tested in accordance with the Specification for Highway Works 600 and 800 series, BS EN 13242 ‘’Aggregates for unbound and hydraulically bound materials’’ and BS EN 12620 ‘’Aggregates for concrete’’. Production is within a grading range of 0-40mm.

The Reference Service Life is assumed to be equal to the lifetime of the structure in which the aggregate is used. The service life is reasonably expected to be up to 100 years.

IBA Aggregates:

- Type 1 Aggregate Blends
- 6F5 Aggregate Blends
- SHW Cl 1A & 6N Bulk Fills
- 0/40mm subbase/capping
- Various Single Size Pipe Bedding
- 0/2mm & 0/4mm Sands
- Concrete aggregates
- Hydraulically-bound mixtures (HBM)

Further information can be found at
https://www.rocksolidrecycling.co.uk/iba-aggregates/



PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	
Minerals	100	
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 tonne of incinerator bottom ash aggregate
Mass per declared unit	1000 kg
Functional unit	n/a
Reference service life	n/a

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances.

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	MNR	MNR	x	x	x	MNR	MNR		
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)

Incinerator Bottom Ash Aggregate (IBAA) is the extracted aggregate of Incinerator Bottom Ash (IBA) which is itself a by-product of the Energy from Waste (EfW) process. Non-reusable domestic waste and mixed commercial waste is incinerated in EfW plants within the UK and produces IBA.

Processing of IBA occurs upstream of the IBAA system boundary and involves extraction and recovery of ferrous and non-ferrous metals and extraction followed by incineration of residual unburned materials to create IBAA. During the IBA processing stage metals are sent for recycling by the metal industry to produce further metal products.

Following the polluter-pays-principle of EN 15804, the lifecycle of IBAA starts at the point the studied material reaches end-of-waste state, in other words the point where the IBA becomes a usable or valuable material capable of performing a function. In practical terms, this occurs after the metals and unburned materials are removed (as described above). Therefore, IBAA enters the lifecycle as 100% secondary material (A1).

After the IBA has been processed, and the IBAA is available for use, it is stockpiled on-site using mechanical wheel loaders. Very good primary data was provided by RockSolid on the diesel consumption and lubricants required for stockpiling the IBAA and loading for onward transportation. Collected rainwater is used for water on-site and there is no requirement for electricity. There are no production losses. Small amounts of waste lubricants have been modelled as leaving the system as hazardous mineral oils for incineration; they are transported via >32 tonne truck 50km to waste treatment (A3).

IBAA is provided in bulk and therefore no packaging is required (A3).

TRANSPORT AND INSTALLATION (A4-A5)

This EPD does not cover the construction phase.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

PRODUCT END OF LIFE (C1-C4, D)

IBAA is predominantly used in an unbound form (95% of production). IBAA's use as a Hydraulically Bound Material represents 5% of production, and as this would be incorporated within another product, bound uses have not been modelled as an end-of-life scenario.

Unbound uses include general fill, sub-bases, platforms and as pipe bedding. In this scenario, after removing the paving construction, the IBAA is freely extractable with a hydraulic excavator. IBAA has a density of 1.8 tonnes per cubic metre when applied (C1).

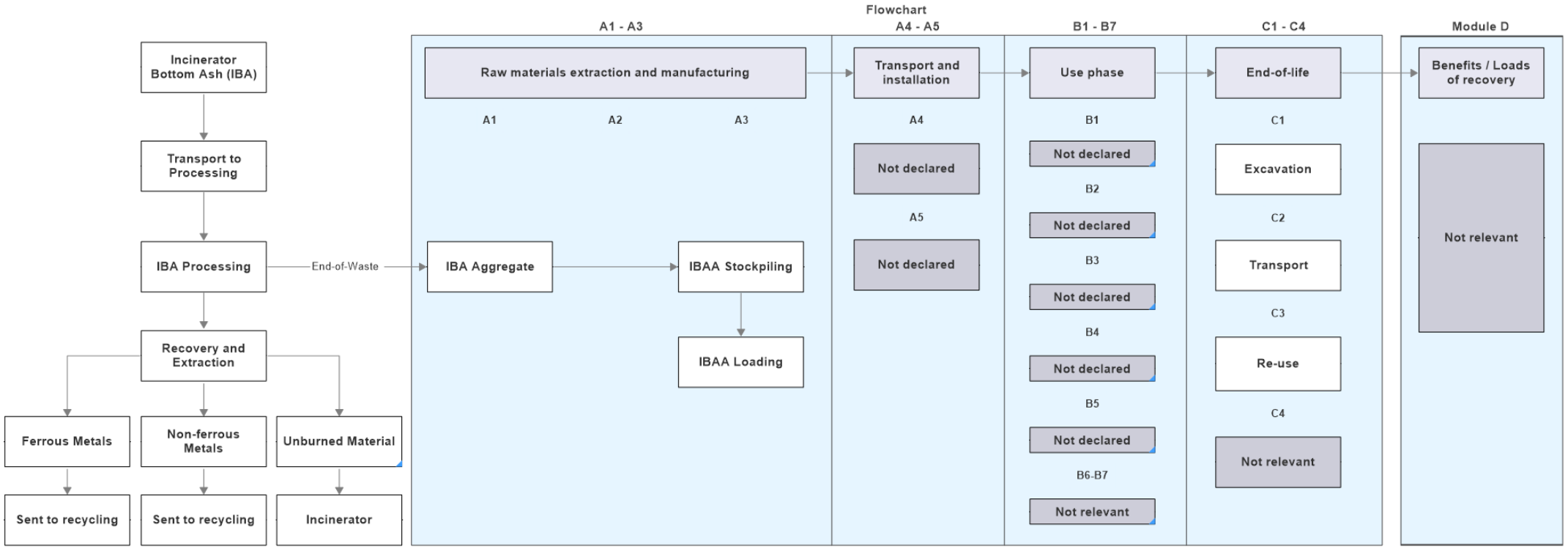
After removal and loading, the IBAA is transported via >32 tonne truck to another construction project (modelled as not more than 30km distance due to economic reasons) for re-use (C2).

It is assumed that 100% of IBAA will be re-used and re-applied in another similar construction project and is sifted and re-laid using hydraulic excavators (C3).

No IBAA is anticipated to reach landfill, therefore module C4 is not relevant to the life cycle assessment.

Despite the recycled IBAA potentially replacing virgin aggregates at end-of-life, the input to IBAA is 100% secondary material, therefore, to avoid double counting, the net benefit at module D is set to zero (D).

MANUFACTURING PROCESS



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. 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 location specific and does not contain average calculations. Capital goods (machinery and infrastructure) and associated fuel consumption and lubricants used are the same across all locations.

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 v3.8 and One Click LCA databases were used as sources of environmental data.

Created with One Click LCA

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_2e	0.00E+00	6.28E-04	2.75E-01	2.75E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.55E-01	2.70E+00	4.02E+00	0.00E+00	0.00E+00
GWP – fossil	kg CO_2e	0.00E+00	6.28E-04	2.75E-01	2.75E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.55E-01	2.70E+00	4.02E+00	0.00E+00	0.00E+00
GWP – biogenic	kg CO_2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – LULUC	kg CO_2e	0.00E+00	2.44E-07	2.75E-05	2.77E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.17E-05	1.05E-03	4.00E-04	0.00E+00	0.00E+00
Ozone depletion pot.	kg CFC_{-11}e	0.00E+00	1.48E-10	5.87E-08	5.89E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	5.43E-08	6.35E-07	8.59E-07	0.00E+00	0.00E+00
Acidification potential	mol H^+e	0.00E+00	2.05E-06	2.85E-03	2.85E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.59E-03	8.79E-03	4.17E-02	0.00E+00	0.00E+00
EP-freshwater[2)]	kg Pe	0.00E+00	5.32E-09	9.19E-07	9.24E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.29E-06	2.29E-05	1.33E-05	0.00E+00	0.00E+00
EP-marine	kg Ne	0.00E+00	4.49E-07	1.26E-03	1.26E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.13E-03	1.93E-03	1.85E-02	0.00E+00	0.00E+00
EP-terrestrial	mol Ne	0.00E+00	4.99E-06	1.38E-02	1.38E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.24E-02	2.14E-02	2.03E-01	0.00E+00	0.00E+00
POCP ("smog")[3)]	kg NMVOCe	0.00E+00	1.93E-06	3.80E-03	3.81E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.43E-03	8.30E-03	5.57E-02	0.00E+00	0.00E+00
ADP-minerals & metals[4)]	kg Sbe	0.00E+00	1.53E-09	1.43E-07	1.45E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.79E-07	6.57E-06	2.04E-06	0.00E+00	0.00E+00
ADP-fossil resources	MJ	0.00E+00	9.84E-03	3.70E+00	3.71E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.42E+00	4.23E+01	5.41E+01	0.00E+00	0.00E+00
Water use[5)]	m^3e depr.	0.00E+00	4.39E-05	1.00E-02	1.00E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.32E-02	1.89E-01	1.45E-01	0.00E+00	0.00E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 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 experience with the indicator.

ADDITIONAL (OPTIONAL) 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	7.14E-11	7.63E-08	7.64E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	6.88E-08	3.07E-07	8.56E-06	0.00E+00	0.00E+00
Ionizing radiation[6)]	kBq U235e	0.00E+00	4.71E-05	1.70E-02	1.71E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.60E-02	2.02E-01	2.48E-01	0.00E+00	0.00E+00
Ecotoxicity (freshwater)	CTUe	0.00E+00	8.75E-03	2.22E+00	2.23E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.27E+00	3.76E+01	3.25E+01	0.00E+00	0.00E+00
Human toxicity, cancer	CTUh	0.00E+00	2.14E-13	8.51E-11	8.53E-11	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.29E-10	9.20E-10	1.25E-09	0.00E+00	0.00E+00
Human tox. non-cancer	CTUh	0.00E+00	8.42E-12	1.61E-09	1.62E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.67E-09	3.62E-08	2.35E-08	0.00E+00	0.00E+00
SQP[7)]	-	0.00E+00	1.13E-02	4.81E-01	4.92E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.67E-01	4.86E+01	7.03E+00	0.00E+00	0.00E+00

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	0.00E+00	1.11E-04	2.13E-02	2.15E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.89E-02	4.76E-01	3.09E-01	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	0.00E+00	1.11E-04	2.13E-02	2.15E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.89E-02	4.76E-01	3.09E-01	0.00E+00	0.00E+00
Non-re. PER as energy	MJ	0.00E+00	9.84E-03	3.69E+00	3.70E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.42E+00	4.23E+01	5.41E+01	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-re. PER	MJ	0.00E+00	9.84E-03	3.69E+00	3.70E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.42E+00	4.23E+01	5.41E+01	0.00E+00	0.00E+00
Secondary materials	kg	1.00E+03	2.73E-06	1.44E-03	1.00E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.43E-03	1.17E-02	2.12E-02	0.00E+00	0.00E+00
Renew. secondary fuels	MJ	0.00E+00	2.75E-08	4.89E-06	4.92E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.71E-06	1.18E-04	6.91E-05	0.00E+00	0.00E+00
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	0.00E+00	1.27E-06	2.27E-04	2.28E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.64E-04	5.46E-03	3.28E-03	0.00E+00	0.00E+00

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	1.30E-05	5.16E-03	5.18E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	6.89E-03	5.57E-02	7.23E-02	0.00E+00	0.00E+00
Non-hazardous waste	kg	0.00E+00	2.13E-04	3.50E-02	3.52E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.99E-02	9.14E-01	5.08E-01	0.00E+00	0.00E+00
Radioactive waste	kg	0.00E+00	6.63E-08	2.60E-05	2.61E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.33E-05	2.85E-04	3.81E-04	0.00E+00	0.00E+00

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	0.00E+00	0.00E+00	1.00E+03	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	0.00E+00	6.22E-04	2.72E-01	2.72E-01	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	2.52E-01	2.67E+00	3.97E+00	0.00E+00	0.00E+00
Ozone depletion Pot.	kg CFC_{-11}e	0.00E+00	1.17E-10	4.65E-08	4.66E-08	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	4.31E-08	5.03E-07	6.80E-07	0.00E+00	0.00E+00
Acidification	kg SO_2e	0.00E+00	1.66E-06	2.03E-03	2.03E-03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	1.85E-03	7.13E-03	2.98E-02	0.00E+00	0.00E+00
Eutrophication	kg PO_4^3e	0.00E+00	3.63E-07	4.71E-04	4.72E-04	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	4.39E-04	1.56E-03	6.90E-03	0.00E+00	0.00E+00
POCP (“smog”)	kg C_2H_4e	0.00E+00	7.64E-08	4.45E-05	4.45E-05	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	4.37E-05	3.28E-04	6.51E-04	0.00E+00	0.00E+00
ADP-elements	kg Sbe	0.00E+00	1.49E-09	1.41E-07	1.42E-07	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	1.77E-07	6.38E-06	2.00E-06	0.00E+00	0.00E+00
ADP-fossil	MJ	0.00E+00	9.84E-03	3.70E+00	3.71E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	3.42E+00	4.23E+01	5.41E+01	0.00E+00	0.00E+00

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

Why does verification transparency matter? Read more online
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

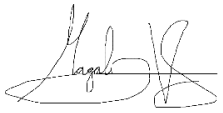
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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
05.01.2024



VERIFIED ISO 14025