Environmental Product Declaration for 0/200 aggregates from Bornholm quarry – Rønne Granit

According to EN 15804:2012+A2:2019/AC:2021, ISO 14025, ISO 14040 and ISO 14044
Programme operator: EPD International AB
EPD owner: NCC Industry Nordic AB

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EPD Information

Declared unit:	1000 kg of 0/200 aggregates
PCR:	Product Category Rules PCR 2019:14 Construction products, version 1.3.3 of 2024-03-01
Programme:	The International EPD® System, www.environdec.com

General product information

The declared product is an aggregate manufactured by NCC Industry, Division Stone Materials at the site Bornholm in Rønne, a site operated by NCC Industry in Denmark.

The declared product manufactured in Rønne during 2023 (product list in Table 1) is intended to be used as, e.g. filling material in civil engineering for harbour projects.

Several products are produced at the site, but only one product of aggregates is declared in this EPD, 0/200 aggregates. However, in the chapter "Additional Environmental Information" the result for the indicator Climate Change is presented for several other aggregates produced at the site. Information of the declared product and the other products are presented through the report.

The technical standards which the aggregates are compliant with are also presented. The aggregates consist of granite.

Table 1: Products manufactured at the declared site, classified into product groups and standards applicable.

EPD-EIS number (only for the declared product group)	Product group	Product names (English)	Product names (Danish)	EN-12620 1)	EN-13043 2)
EPD-EIS- 0015469	N/A	All-in Rock 0/200	Blå Rønne Granit 0/200		
	1	Macadam 32/45	Blå Rønne Granit 32/45		
		Macadam 16/32	Blå Rønne Granit 16/32		
		Sekunda, Macadam 16/25	Sekunda, Blå Rønne Granit 16/25		
		Macadam 11/16	Blå Rønne Granit, kl. E 11/16	X	X
		Macadam 8/11	Blå Rønne Granit 8/11		X
		Macadam 4/8	Blå Rønne Granit 4/8		X
		Macadam 2/8	Blå Rønne Granit, kl. E 2/8	X	
		Macadam 2/5	Blå Rønne Granit, kl. E 2/5	X	X
		All-in Rock 0/11	Blå Rønne Granit 0/11		
		Rock fines 0/5	Blå Rønne Granit 0/5		
		Rock fines 0/2	Blå Rønne Granit 0/2		X
	2	All-in Rock 0/32	Blå Rønne Granit, kørestabil 0/32		
		All-in Rock 0/25	Blå Rønne Granit 0/25		
		All-in Rock 0/16	Blå Rønne Granit 0/16		

1) EN-12620+A1:2008 - Aggregates for Concrete
2) EN-13043/AC:2006 - Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas

Products are grouped together based on the number of process steps, meaning products within a product group go through the same process steps and carry the same environmental impact.

When extracting virgin rock at the site, the first step is to remove the overburden, like soil, moraine and vegetations, with an excavator to uncover the hard rock. Consideration is taken to animals inhabiting the site by avoiding felling vegetations during the breeding season. The overburden is normally stored within the quarry to be used in rehabilitation of the quarry at the end of life. After removal of the overburden, holes are drilled, filled with explosives and detonated. The number of holes drilled depends on the amount of rock to extract at each blast. The explosives are normally taken to the site by tanker trucks. The explosive is in most cases a two-component product that is mixed and activated when pumped down into the holes. Hence, no explosives are stored at site. After the blast, the raw material is fed into the production process using a combination of excavators, wheel loaders and/or dumper trucks.

The continued production process is a combination of material feeders, conveyor belts, crushers and screens that transports, breaks and sorts the material into different products. The production process set-up is illustrated in Figure 1.

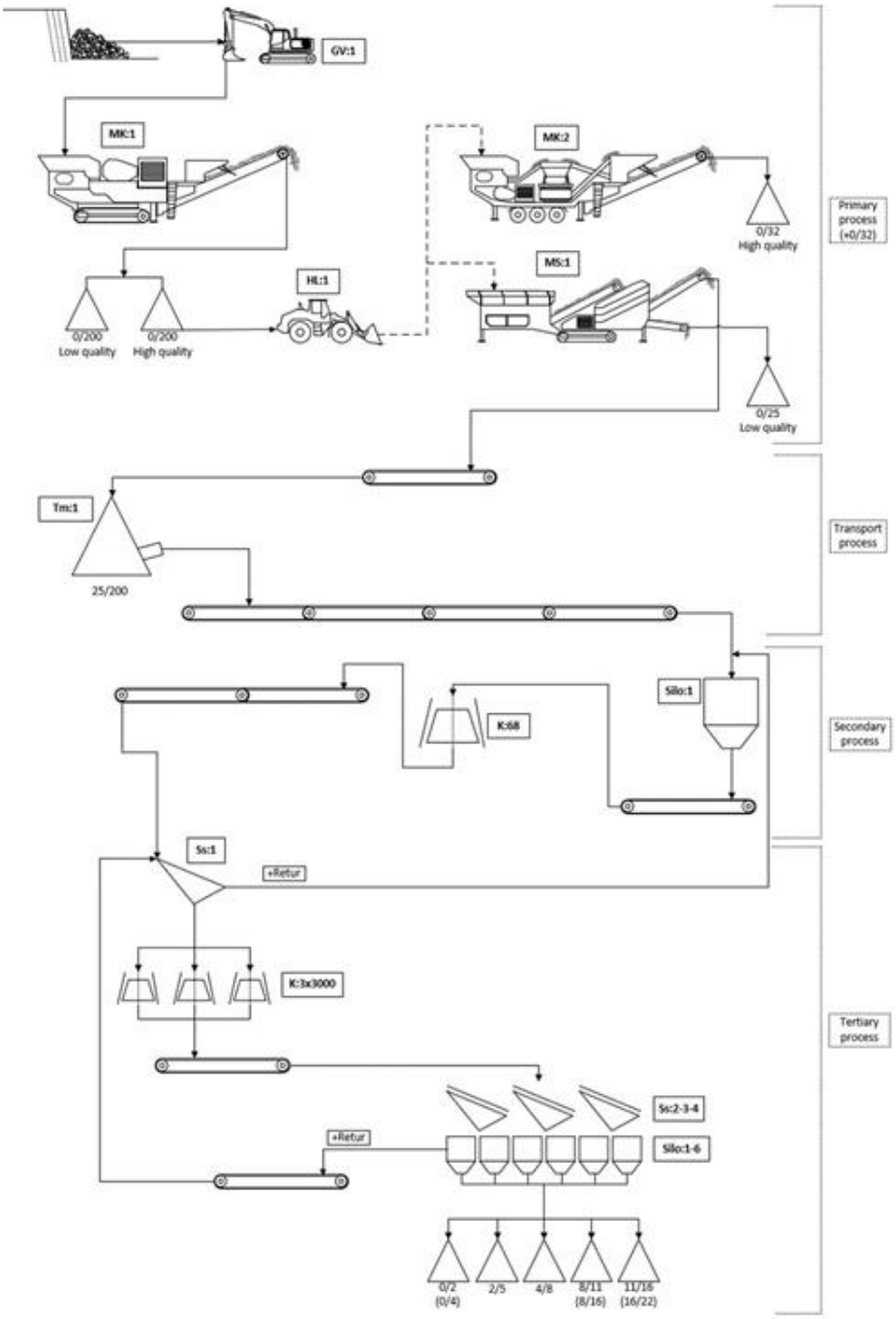

Figure 1: Process set-up for the production of aggregates at the declared site.

The declared product, as well as the other products, are classified according to the United Nations Central Product Classification (UN CPC) 15320. All materials are produced according to the Construction Products Regulation (CPR) within the EU regulation 305/2011.

The geographical location of the declared site is shown in Figure 2.

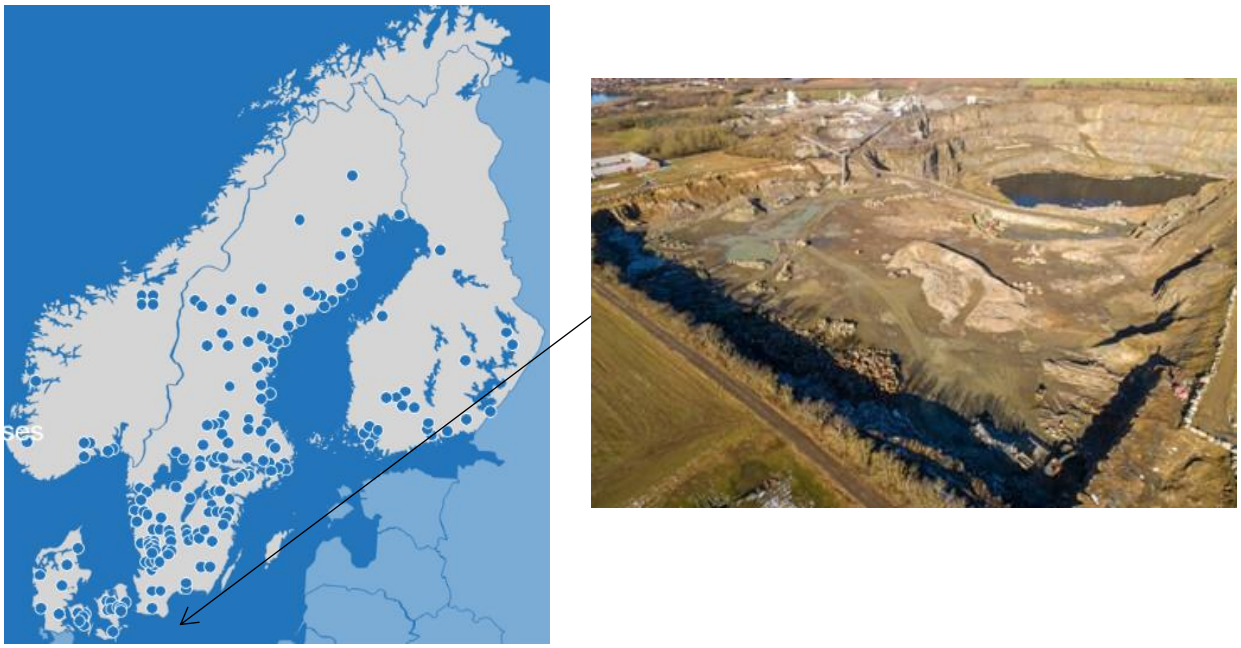

Figure 2: Map and picture showing the geographical location of the declared site.

Declared unit

The declared unit is 1 tonne (1000 kg) of 0/200 aggregates.

System boundary

The system boundaries cover aspects such as temporal and geographical. The setting of system boundaries follows two principles according to EN 15804: (1) The “modularity principle” and (2) the “polluter pays principle”.

The EPD is based on an LCA model described in the background report and in the related annex (see reference list). The declared modules are A1-A3, C and D, see Table 2. The product system under study is presented in Figure 3.

For aggregates used in asphalt and concrete, the declared modules are A1-A3 (i.e. “cradle to gate”). Exemptions in EN 15804 (chapter 5.2) are fulfilled permitting not to declare module C and D.

For aggregates used in other applications, as for the declared product 0/200 aggregates, the declared modules are A1-A3, C and D (i.e. “cradle to gate”, modules C1–C4, and module D). The modules declared are also relevant for the other products presented under “Additional Environmental Information”.

Data that represent the current production process at the site are used. All input data used in the LCA model (e.g. raw materials and production data) that NCC Industry has influence over are site specific data for the production year 2023. The geographical scope, i.e. location(s) of use and end-of-life performance, is Denmark

The environmental impact from infrastructure, construction, production equipment and tools that are not directly consumed in the production process are not accounted for in the Life Cycle Inventory (LCI). Personnel-related impacts, such as transportation to and from work, are neither accounted for in the LCI.

The Reference Service Life (RSL) can only be declared if defined as part of the functional unit (FU) according to a c-PCR. Since no FU is used, and no c-PCR exist for the declared product, RSL is not defined in this EPD.

Table 2: Modules of the life cycle in the EPD, including geography, share of specific data (in GWP-GHG indicator) and data variation.

	Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X*	X*	X*	X*	X*
Geography	DK	DK	DK	-	-	-	-	-	-	-	-	-	DK	DK	DK	DK	DK
Specific data	91%**			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	N/A***			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Only declared for products used in other applications than asphalt and concrete, as for the declared product.
** Specific data for the declared product. See Table 3 for specific data of other product groups.
*** Not applicable since only one product is declared.

Table 3: Share specific data for each product group.

Product group	Share specific data (%)
1	90%
2	91%

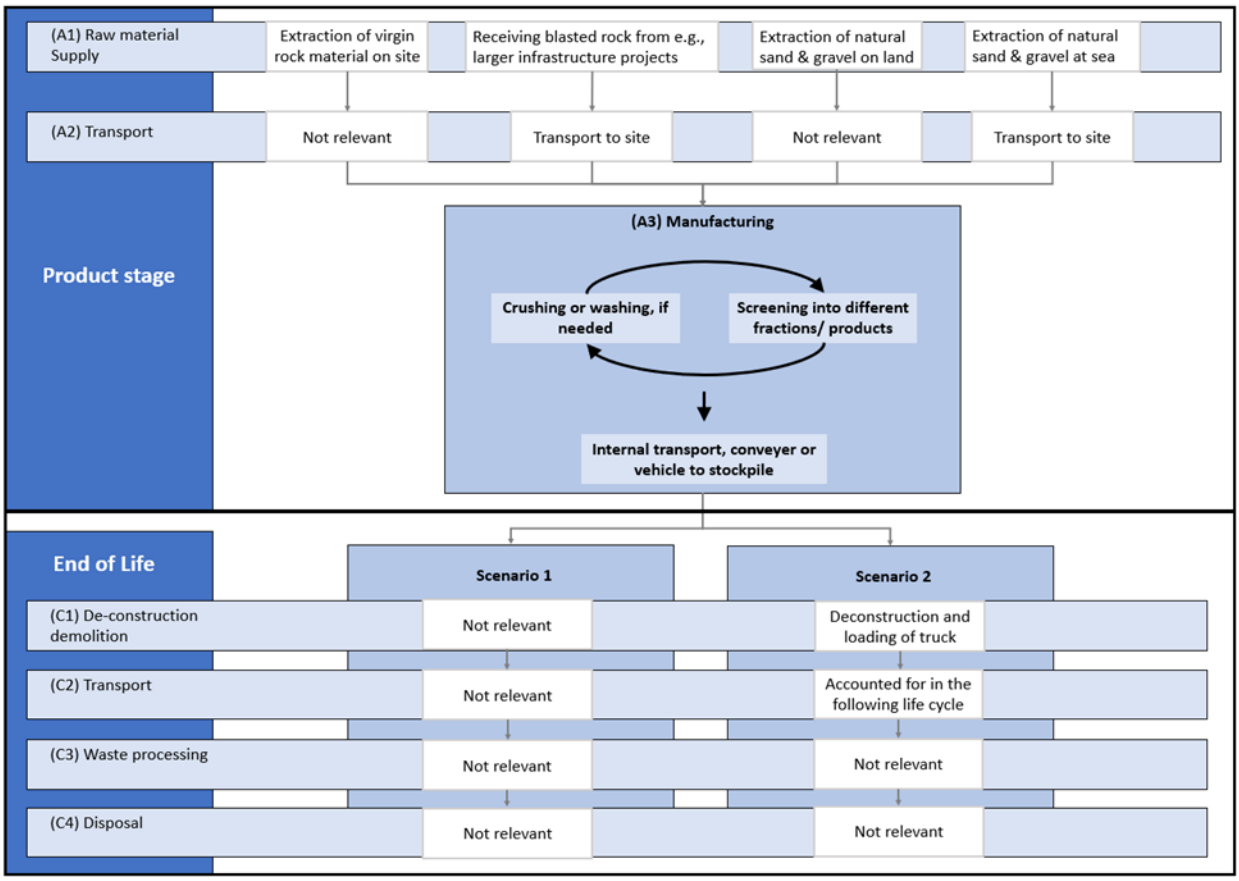

Figure 3: System boundaries for the studied product system.

Assumptions and approximations

Various oils and lubricants used in the production process, are approximated with a dataset for lubricants since no dataset or EPD were found for hydraulic oil or grease and the impact is judged to be similar.

Transport distances have been approximated together with operational experts at the site, based on location of raw material supply.

A small part of the use of fuel derives from a subcontractor which there is no data available from. There is however information on the average fuel use per handled ton for this machine. In combination with the amounts of tons that is handled by this machine, a consumption for this part of the fuel use is known.

The wear of manganese steel from crushers is estimated based on values from another site, since there are no current data available.

No information is available regarding how many litres of oil is changed per service of the machinery at site. Therefore, an assumption is made based on information from another site and the number of services carried out. This data is as well used regarding the amounts of hazardous waste.

Allocation

The production does not deliver any co-products.

Except for the declared product, the products are divided into different product groups (see Table 1) based on the number of crushing steps and other eventual process steps. This affects for instance the amount of electricity, fuels and water used in the production.

The consumption of explosives is allocated equally on all products originating from blasted rock, based on mass. Explosives are not allocated to products not originating from blasted rock. Since the declared product originates from blasting, the consumption of explosives is allocated based on mass.

The electricity consumption is known for the production process as a whole. Since the electricity consumption is known for the production process as a whole, allocation of electricity is made based on knowledge about the mass of rock going through each process step.

The fuel consumption is known for each process step consuming fuel. Allocation of the fuel consumption is made based on knowledge about which process steps each product goes through.

Cut-offs

The cut-off criteria are 1% of the renewable and non-renewable primary energy usage and 1% of the total mass input of the manufacture process (according to the EN 15804 standard).

In the assessment, all available data from the production process are considered, i.e. all raw materials used, utilised ancillary materials, and energy consumption using the best available LCI datasets.

The following cut-offs have been made:

– The amount of oil-contaminated soil due to spillage from machines/vehicles is very difficult to estimate. Based on internal expert knowledge, this amount is deemed negligible and very rarely occurring.
– The packaging for the input materials used in the production process are negligible.
– Fuse heads used for igniting explosives is excluded from the calculation since those are used in a very small amount.

Software and database

The LCA software “LCA for Experts” (formerly GaBi Professional) and its integrated database from Sphera has been used in the LCA modelling. See the list of references.

Electricity in manufacturing

If the electricity in module A3 accounts for more than 30% of the GWP-GHG results in modules A1-A3, the energy sources behind the electricity shall be documented, including the LCA data of grams CO_2 eq./kWh (using the GWP-GHG indicator). For transparency the information is given in Table 4 even though electricity in A3 accounts for less than 30% of the GHG-GHG in A1-A3. The LCA data in Table 4 are generic values from “LCA for experts”.

Table 4: Electricity in manufacturing (A3).

Energy source	LCA data (g CO_2 eq./kWh)
Wind power	6.3

Guarantees of origin (electronic certificates that guarantee the origin of electricity) have been bought for the electricity used at the site.

Scenario information

For modules other than A1-A3, scenario-based information shall be declared for the products, see Table 5.

Module A4
Module 4 is not declared.

Module C (not for aggregates used in asphalt or concrete)

Scenario 1:
The majority of the aggregates (excluding the asphalt and concrete applications) stay in the construction for a long time period (more than 100 years). Thus, it is assumed that the aggregates do not reach the end-of-life stage.

Scenario 2:
A minor part of the aggregates is relocated, for example at the road where it is located. The material could for instance be used to fill an embankment in the proximity. This is expected to occur within a 100-year time horizon.

Scenario 2 is chosen for the declared product as well as for the other product groups. The two scenarios for module C correspond with the two scenarios for module D.

Table 5: Scenario-based information for end of life.

Scenario information	Unit (per declared unit)	Scenario 1	Scenario 2
Collection process specified by type	kg collected separately	N/A	1000
	kg collected with mixed construction waste	N/A	0
Recovery system specified by type	kg for re-use	N/A	1000
	kg for recycling	N/A	0
	kg for energy recovery	N/A	0
Disposal specified by type	kg product or material for final disposal	N/A	0
Assumptions for scenario development, e.g. transportation	units as appropriate	Further scenario-based information is presented in the Annex of the Background Report	

Module D
Information in module D aims at transparency of the environmental benefits or loads resulting from reusable products, recyclable materials and/or useful energy carriers leaving a product system e.g. as secondary materials or fuels.

Loads are assigned to module D for materials and fuels where further processing occur after the end-of-

waste state is reached. This, in order to replace primary material or fuel input in another product systems.

Benefits are assigned to module D for materials and fuels (that have left the system in any of the modules A4-C4) that can substitute primary material of fuels that do not need to be produced. A functional equivalence must be reached.

The substitution effect is only calculating the resulting net output flow. The net output flow for the aggregates is shown in Table 6.

Table 6: Net output flow for module D per declared unit.

Product/Product group	Mass (kg)
0/200*	1000
1	1000
2	1000

*The declared product.

There are two scenarios for module D. The choice of scenario in module D correspond with the choice of scenario in module C.

Scenario 1 (Net loads and net benefits):
Not relevant.

Scenario 2 (Net loads and net benefits):
The net load relates to the transport of the excavated material. This is assumed to be 3 km transported by a small truck (approximately 9 tonnes payload capacity).

The benefit gained is equal to the virgin aggregates that are substituted. This is assumed to replace the product group with the lowest environmental impact declared in the EPD (module A1-A3) (conservative assumption).

Data quality

The primary data collected by the manufacturer are based on the required materials and energy to manufacture the product. The data of the raw materials are collected per declared unit. All necessary life cycle inventories for the basic materials are available in the database or via EPDs. No generic selected datasets (secondary data) used are older than ten years. No specific data collected is older than five years and represent a period of about one year. The representativeness, completeness, reliability and consistency are judged as good.

About NCC

NCC is one of the leading construction and property development companies in the Nordic region, with sales of 5.7 billion Euro and approximately 12 200 employees in 2023. With the Nordic region as its home market, NCC is active throughout the value chain – developing commercial properties and constructing housing, offices, industrial facilities and public buildings, roads, civil engineering structures and other types of infrastructure. NCC also offers input materials used in construction and accounts for paving and road services.

NCC’s vision is to renew our industry and provide superior sustainable solutions. NCC aims to be the leading society builder of sustainable environments and will proactively develop new businesses in line with this.

NCC works to reduce both our own and our customers’ environmental impact and continues to further refine our offerings with additional products and solutions for sustainability. In terms of the environment, this entails that NCC, at every step of the supply chain, is to offer resource and energy-efficient products and solutions to help our customers reduce their environmental impact and to operate more sustainably.

NCC’s sustainability work is based on a holistic approach with all three dimensions of sustainability – social, environmental and economical. NCC´s sustainability framework is divided into eight impact areas: Data and expertise, Natural resources and biodiversity, Materials and circularity, Climate and energy, Health and safety, People and team, Ethics and compliance and Economic performance. Our sustainability strategy includes the aim of being both a leader and a pioneer in these areas.

NCC reports on its sustainability progress each year and the report has been included in NCC’s Annual Report since 2010. NCC applies Global Reporting Initiative (GRI) Standards, the voluntary guidelines of the GRI for the reporting of sustainability information. In addition to GRI, NCC also reports the Group’s emission of greenhouse gases to the CDP each year. NCC is a member in BSCI (Business Social Compliance Initiative), which is the broadest business-driven platform for the improvement of social compliance in the global supply chain and has been a member of the UN Global Compact since 2010.

The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with 10 defined and universally accepted principles in the areas of human rights, labour, environment and anti-corruption.

Also visit: https://www.ncc.com/sustainability

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Content declaration including packaging

The declared product, as well as the other products, do not contain any substances of very high concern (SVHC) according to REACH. Table 7 presents the content declaration for the declared product as well as for the various product groups. The mass of biogenic carbon in the products is less than 5%. The packaging material is negligible.

Table 7: Content declaration of the declared product group and other product groups manufactured at the site.

Product/Product group	Product component	Weight, kg	Post-consumer recycled material, weight-%	Biogenic material, weight-% and kg C/kg
0/200 aggregates*	Granite	1000	0	0 resp. 0
1	Granite	1000	0	0 resp. 0
2	Granite	1000	0	0 resp. 0
Product/Product group	Packaging material	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
0/200 aggregates*	No material used	-	-	-
1-2	No material used	-	-	-

*The declared product.

Environmental performance

The results of the life cycle assessment, based on the declared unit, can be found in Table 8 (core environmental indicators), Table 9 (resource use) and Table 10 (output flows and waste categories).

The results have been calculated based on the characterization factors of EN 15804, version EF 3.1.

Except for the declared product, the products are grouped into product groups depending on the number of crushing steps and other eventual process steps, affecting the environmental impact. Thus have the products within a product group undergone the same process steps. Therefore, products within the same product group carry the same environmental impact.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Table 8: Results of the LCA (modules A1-A3, C and D) – Core environmental indicators per declared unit of the declared product. S2=Scenario 2

Core environmental indicators			0/200 aggregates					
Impact category		Unit	A1-A3	C1 (S2)	C2	C3	C4	D (S2)
Climate change	Total	kg CO_2 eq	2.8	0.94	0	0	0	-2.4
	Fossil	kg CO_2 eq	2.8	0.93	0	0	0	-2.4
	Biogenic*	kg CO_2 eq	0	0	0	0	0	0
	Land use and land use change	kg CO_2 eq	6.5E-04	8.2E-03	0	0	0	3.0E-03
	GWP-GHG	kg CO_2 eq	2.8	0.94	0	0	0	
Ozone depletion		kg CFC 11 eq	3.3E-13	7.8E-14	0	0	0	-3.0E-13
Acidification		mol H^+ eq.	8.9E-03	2.2E-03	0	0	0	-8.4E-03
Eutrophication aquatic freshwater		kg P eq.	9.4E-07	3.2E-06	0	0	0	5.0E-07
Eutrophication aquatic marine		kg N eq.	3.7E-03	9.9E-04	0	0	0	-3.5E-03
Eutrophication terrestrial		mol N eq.	0.043	0.011	0	0	0	-0.041
Photochemical ozone formation		kg NMVOC eq.	0.011	3.2E-03	0	0	0	-0.011
Depletion of abiotic resources - minerals and metals		kg Sb eq.	1.3E-07	5.8E-08	0	0	0	2.6E-08
Depletion of abiotic resources - fossil fuels		MJ, net calorific value	39	12	0	0	0	-33
Water use		m^3 world eq. deprived	0.032	0.010	0	0	0	-0.028

*This indicator is set to zero, due to inconsistencies in the dataset used delivered by Sphera. Though, net result over the life cycle is zero since carbon uptake and emission is zero during a life-cycle.

Table 9: Results of the LCA (modules A1-A3, C and D) – Resource use per declared unit of the declared product. S2=Scenario 2.

Use of resources		0/200 aggregates					
Parameter	Unit	A1-A3	C1 (S2)	C2	C3	C4	D (S2)
Use of renewable primary energy excl. renewable primary energy resources used as raw materials	MJ, net calorific value	0.45	0.86	0	0	0	-0.069
Use of renewable primary energy as raw materials	MJ, net calorific value	0	0	0	0	0	0
Total use of renewable primary energy	MJ, net calorific value	0.45	0.86	0	0	0	-0.069
Use of non-renewable primary energy excl. non-renewable primary energy resources used as raw materials	MJ, net calorific value	39	12	0	0	0	-33
Use of non-renewable primary energy as raw materials	MJ, net calorific value	0	0	0	0	0	0
Total use of non-renewable primary energy	MJ, net calorific value	39	12	0	0	0	-33
Use of secondary material	kg	0	0	0	0	0	0
Use of renewable secondary fuels	MJ, net calorific value	0	0	0	0	0	0
Use of non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	0	0
Use of net fresh water	m^3	1.1E-03	9.4E-04	0	0	0	-6.4E-04

Table 10: Results of the LCA (modules A1-A3, C and D) – Waste categories and output flows per declared unit of the declared product. S2=Scenario 2.

Waste categories & output flows		0/200 aggregates					
Parameter/Indicator	Unit	A1-A3	C1 (S2)	C2	C3	C4	D (S2)
Hazardous waste disposed	kg	-4.0E-03	4.5E-11	0	0	0	-4.0E-03
Non-hazardous waste disposed	kg	0.021	1.7E-03	0	0	0	-0.020
Radioactive waste disposed	kg	1.1E-04	1.6E-05	0	0	0	-1.0E-04
Components for re-use	kg	0	1000	0	0	0	0
Materials for recycling	kg	9.0E-03	0	0	0	0	-9.0E-03
Materials for energy recovery	kg	0.011	0	0	0	0	-0.011
Exported energy	MJ per energy carrier	0	0	0	0	0	0

Disclaimer: It is not recommended to use the results of modules A1-A3 without considering the results of module C.

Table 11: Additional environmental impact indicators are only declared in the Annex to the General background report.

Impact category	Unit	Module A1-D
Particulate matter emissions	Disease incidence	Not declared in EPD, see Background Annex Report
Ionizing radiation, human health	kBq U235 eq.	Not declared in EPD, see Background Annex Report
Eco-toxicity (freshwater)	CTUe	Not declared in EPD, see Background Annex Report
Human toxicity, cancer effects	CTUh	Not declared in EPD, see Background Annex Report
Human toxicity, non-cancer effects	CTUh	Not declared in EPD, see Background Annex Report
Land use related impacts/Soil quality	dimensionless	Not declared in EPD, see Background Annex Report

Table 12: Classification of disclaimers to the declaration of core and additional environmental impact indicators.

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1*
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2**
	Abiotic depletion potential for fossil resources (ADP-fossil)	2**
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2**
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2**
	Potential Comparative Toxic Unit for humans (HTP-c)	2**
	Potential Comparative Toxic Unit for humans (HTP-nc)	2**
	Potential Soil quality index (SQP)	2**

*Disclaimer 1 – 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.
**Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

General information

Virgin aggregates, especially glaciofluvial sand and gravel, is a finite resource. To extract rock from bedrock or sand and gravel from natural deposits will affect the environment through use of land which means changed conditions in existing habitats.

The extraction may have a negative impact on surrounding freshwaters and underlying groundwaters and the operations require equipment and vehicles running on fossil and renewable energy. The operations, including transports, cause emissions to air, water and soil and disturbances such as noise, vibrations and dust.

Therefore, quarries, gravel pits and terminals need to be environmentally assessed in accordance with current legislation. During the application procedure consultations are held with interested parties. Decisions and permits can be appealed.

All sites in NCC Industry, Division Stone Materials, are operated according to a given permit/decision from actual authority which include different conditions. Those conditions might regulate e.g. distance to groundwater level, noise, vibrations, dust, emissions to water and air, and rehabilitation of the finalized operation area.

The sites in Denmark, Finland and Sweden are certified according to ISO 14001. The Business Management System in NCC Industry, including Norway, contains routines corresponding to this standard.

However, aggregates are important when building the future society since aggregates is a core building material in residential buildings, offices, public buildings and infrastructure. Building a normal sized single-family house requires about 100 tonnes of aggregates (SGU, 2018).

The average yearly European demand of aggregates is about 5 tonnes per capita (UEPG, 2018). In the Nordic countries the demand is higher; 8-13 tonnes per capita and year, mainly due to a lower population density.

If aggregates are not contaminated, they may be reused many times through recycling which is key in resource efficiency. At many of our sites NCC recycle smaller amounts of aggregates, concrete, asphalt, bricks and different soils. Recycled materials can then be used again. In the end of life, aggregates are usually reused as filling material in construction projects.

When a quarry/gravel pit is opened the existing habitats changes and the area looks sterile. The soil is normally poor in nutrients and different parts of the area are often exceptionally sunlit or shady, conditions that are appreciated by many species. Within a relatively small operational area that is disrupted continuously, like the quarry/gravel pit, the natural environments are often more varied than in the pristine neighboring area. This makes many of our sites unique and creates opportunities to benefit biodiversity both during operation and when rehabilitating.

Explanatory material is given in the background report to this EPD. To read more about NCCs general sustainability work, please refer to our webpage: https://www.ncc.com/sustainability

Release of dangerous substances to indoor air, soil and water during the use stage

According to EN 15804, the EPD does not need to give this information if the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available. This criterion is fulfilled for aggregates.

Additional LCA results

For comparative reasons the results for the indicator Climate change, for product groups 1-2 is shown in Table 13 and 14. Results for the other environmental indicators and additional environmental performance data for these aggregates are available upon request.

The product groups are declared as scenario 2 in modules C1 and D for this section.

Table 13: Results of the LCA (modules A1-A3) – Climate change per 1000 kg of product group. S2=Scenario 2.

Core environmental indicators			Product group 1-2	
			1	2
Impact category		Unit	A1-A3	A1-A3
Climate change	Total	kg CO_2 eq	3.2	3.5
	Fossil	kg CO_2 eq	3.2	3.5
	Biogenic*	kg CO_2 eq	0	0
	Land use and land use change	kg CO_2 eq	7.4E-04	7.5E-04
	GWP-GHG	kg CO_2 eq	3.2	3.5

*This indicator is set to zero, due to inconsistencies in the dataset used delivered by Sphera. Though, net result over the life cycle is zero since carbon uptake and emission is zero during a life-cycle.

Table 14: Results of the LCA (modules C and D) – Climate change per 1000 kg of product group. S2=Scenario 2.

Core environmental indicators			Product group 1-2				
Impact category		Unit	C1 (S2)	C2	C3	C4	D (S2)
Climate change	Total	kg CO_2 eq	0.94	0	0	0	-2.4
	Fossil	kg CO_2 eq	0.93	0	0	0	-2.4
	Biogenic*	kg CO_2 eq	0	0	0	0	0
	Land use and land use change	kg CO_2 eq	8.2E-03	0	0	0	3.0E-03
	GWP-GHG	kg CO_2 eq	0.94	0	0	0	-2.4

*This indicator is set to zero, due to inconsistencies in the dataset used delivered by Sphera. Though, net result over the life cycle is zero since carbon uptake and emission is zero during a life-cycle.

Programme information

This EPD is developed by NCC Industry Nordic AB. It is a result from an EPD certification process verified by Bureau Veritas. The EPD is valid for five years (after which it can be revised and reissued). NCC Industry Nordic AB is the declaration owner and has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

The aim of this EPD is that it shall provide objective and reliable information on the environmental impact of the production of the declared product.

The intended use of the EPD is for business-to-business communication.

Table 15: Verification details.

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serve as the core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products, version 1.3.3
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Life cycle assessment (LCA)
LCA accountability: Markus Johansson & Rita Garção, NCC
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: ☒ EPD verification by EPD Process Certification* Internal auditor: Annika Johansson, Solveig Hestø & Sofia Dahling, NCC Third-party verification: Viktor Hakkarainen, Bureau Veritas is an approved certification body accountable for third-party verification. Third-party verifier is accredited by: SWEDAC, 1236. *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see the GPI.
Procedure for follow-up of data during EPD validity involves third-party verifier. ☒ Yes ☐ No

Address of programme operator: EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com

References

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EN 15804:2012+A2:2019/AC:2021: Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products.

EPD International (2021) General Programme Instructions for the International EPD® System, version 4.0, dated 2021-03-29. www.environdec.com

EPD process – general description (2024) NCC Industry, Division Stone Materials

General background report, Environmental Product Declarations for Aggregates. Version 2024-04-05.

Geological Survey of Sweden (2017) Grus, sand och krossberg. 2018:2.

MinBaS II (2011). Undersökning av eventuella effekter på vegetation av damning från täktverksamhet – Slutrapport. MinBaS II område nr 3, Delområde nr 3.1a, Delprojekt nr 3.1a-4. Rapport nr 3.1a-4.

Product Category Rules PCR 2019:14 Construction products, version 1.3.3 of 2024-03-01

Regulation (EU) no. 305/2011 – Construction Products Regulation (CPR), https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:088:0005:0043:EN:PDF

DS-EN 12620:2002+A1:2008 - Aggregates for Concrete

DS-EN 13043:2002/AC:2006 - Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas

SS-EN ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures (ISO 14025:2006)

SS-EN ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework (ISO 14040:2006). Including Amd 1:2020.

SS-EN ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines. Including Amd 1:2018 and Amd 2:2020.

The International EPD® System, EPD International AB, Stockholm, Sweden, http://www.environdec.com/

United Nations Statistics Division (2015). Central Product Classification, version 2.1. https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf.

UEPG (European Aggregates Association) (2018). Annual Review 2017-2018, A Sustainable Industry for a Sustainable Europe. http://www.uepg.eu/uploads/Modules/Publications/uepg-annual-review-2017-2018.pdf.

Differences versus previous versions

Table 16: Versions of this EPD.

Date of revision	Description of difference versus previous versions
2024-11-07	Original version