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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	DC Eikefet Aggregates AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3259-1900-EN
Registration number:	NEPD-3259-1900-EN
ECO Platform reference number:	-
Issue date:	06.12.2021
Valid to:	06.12.2026

Crushed stones and aggregates, produced DC Halsvik Aggregates AS

DC Eikefet Aggregates AS

www.epd-norge.no

General information

Product:

Crushed stones and aggregates, produced DC Halsvik Aggregates AS

Owner of the declaration:

DC Eikefet Aggregates AS
Contact person:: Marion van Eck Ederveen
Phone: +47 41 42 94 86
e-mail: marion.vaneck@dcresources.no

Program operator:

The Norwegian EPD Foundation
Pb. 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer:

DC Halsvik Aggregates AS, Org.nr. 977 213 630

Declaration number:

NEPD-3259-1900-EN

Place of production:

DC Halsvik Aggregates AS, Org.nr. 977 213 630
Sløvågen 1 5960 Dalsøyra
Norway

ECO Platform reference number:

Management system:

ISO 9001 2015, ISO 14001:2015

This declaration is based on Product Category Rules:

EN 15804:2012+A1:2013 and NPCR Part A serves as core PCR
NPCR Part A: Construction products and services. Ver. 1.0. April 2017

Organisation no:

932 307 952

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Issue date: 06.12.2021

Valid to: 06.12.2026

Declared unit:

1 tonne Crushed stones and aggregates, produced DC Halsvik Aggregates AS

Year of study:

2020

Declared unit with option:

A1,A2,A3,A4

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Functional unit:

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Marion van Eck Ederveen

Reviewer of company-specific input data and EPD:

Ingrid Elisabeth Sætre

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Martin Erlandsson, IVL, Swedish Environmental Research Institute

(no signature required)

Approved:

Sign

Håkon Hauan, CEO EPD-Norge

Product

Product description:

Crushed stones and aggregates produced from solid rock by blasting, primary crushing, secondary crushing and sieving

Product specification

Approved according to the following standard:
EN 13043, EN 12620, EN 13242, EN 13450, EN 13383

Materials	kg	%
Stein	1000,00	100,00
Total:	1000,00	

Technical data:

This EPD is valid for crushed masses from blasted stones in a number of fractions.

A Declaration of Performance and CE documentation is prepared for all products.
Technical data appears in this documentation.

Market:

Local markeet and export to Europe

Reference service life, product

Reference service life depends on the area of use.
Crushed rock / aggregates has an almost unlimited lifespan.

Reference service life, building

Depening on the area of use.

LCA: Calculation rules

Declared unit:

1 tonne Crushed stones and aggregates, produced DC Halsvik Aggregates AS

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases (2015 – 2017), ecoinvent v3.3 Allocation, recycled content (2016) and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Finknusing Halsvik	Owner of EPD	Database	
Grovknusing Halsvik	Owner of EPD	Database	
Sprengstein, Halsvik	Owner of EPD	Database	
Vasking Halsvik	Owner of EPD	Database	

System boundaries and Additional technical information:

fraction in mm	normal use / application	crushing stages
blasted rock	filling, coarse fundaments, erosion protection	0
0/200	ubunden bruk, oppfylling, vei,-plass,- og banefundament	1
20/125	ubunden bruk, oppfylling, vei,-plass,- og banefundament	1
armour 1-3"	armourstone	1
armour 1-5"	armourstone	1
armour 3-5"	armourstone	1
armour 5"	armourstone	1
subbus 0/32	unbound use, road foundation, base layer	1
subbus 0/16	unbound use, road foundation, base layer	2
aggregate 2/5	asphalt, concrete, unboud use	3
aggregates 5/8	asphalt, concrete, unboud use	3
aggregate 8/11	asphalt, concrete, unboud use	3
aggregate 11/16	asphalt, concrete, unboud use	3
aggregate 16/22	asphalt, concrete, unboud use	3
aggregates 16/32	asphalt, concrete, unboud use	3
ballast 31,5/50	railway ballast, unbound use	2
ballast 31,5-63	railway ballast, unbound use	2
crushed washed sand 0/2	unbound use	3
crushed dry sieved sand 0/5	asphalt, concrete, unboud use	3
2/5 washed	winter maintenance with scattering of slippery roads and squares	3

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	55,0 %	Lastebil med henger, EURO6	50	0,022606	l/tkm	1,13
Railway					l/tkm	
Boat	71,0 %	Ship, Coastal Barge (250 - 3000t load)	150	0,011179	l/tkm	1,68
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials fr ste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

Use (B1)

.	Unit	Value

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle*		
Auxiliary		
Other resources		
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
VOC emissions	kg	

Replacement (B4)/Refurbishment (B5)

.	Unit	Value
Replacement cycle*		
Electricity consumption	kWh	
Replacement of worn parts		

* Described above if relevant

Operational energy (B6) and water consumption (B7)

.	Unit	Value
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Power output of equipment	kW	

End of Life (C1, C

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction wa	kg	
Reuse	kg	
Recycling		
Energy recovery		
To landfill	kg	

Scenarios after A1-A4 are not included

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck					l/tkm	
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage				Construction installation stage	User stage							End of life stage				.	Beyond the system bondaries
Raw materials	Transport	Manufacturing	Transport	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
X	X	X	X													.	

Environmental impact

Parameter	Unit	Sprengstein, Halsvik	Grovknusing Halsvik	Finknusing Halsvik	Vasking Halsvik
GWP	kg CO_2 -eq	8,43E+00	8,43E+00	8,43E+00	8,43E+00
ODP	kg CFC11 -eq	1,29E-06	1,29E-06	1,29E-06	1,29E-06
POCP	kg C_2H_4-eq	2,27E-03	2,27E-03	2,27E-03	2,27E-03
AP	kg SO_2 -eq	1,14E-01	1,14E-01	1,14E-01	1,14E-01
EP	kg PO_4^{3-} -eq	2,80E-02	2,80E-02	2,80E-02	2,80E-02
ADPM	kg Sb -eq	1,97E-05	1,97E-05	1,97E-05	1,97E-05
ADPE	MJ	1,18E+02	1,18E+02	1,18E+02	1,18E+02

Parameter	Unit	A4
GWP	kg CO_2 -eq	1,13E+01
ODP	kg CFC11 -eq	1,90E-06
POCP	kg C_2H_4-eq	1,82E-03
AP	kg SO_2 -eq	6,25E-02
EP	kg PO_4^{3-} -eq	1,25E-02
ADPM	kg Sb -eq	1,39E-05
ADPE	MJ	1,59E+02

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009
*INA Indicator Not Assessed

Resource use

Parameter	Unit	Sprengstein, Halsvik	Grovknusing Halsvik	Finknusing Halsvik	Vasking Halsvik
RPEE	MJ	1,91E+01	1,91E+01	1,91E+01	1,91E+01
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,91E+01	1,91E+01	1,91E+01	1,91E+01
NRPE	MJ	1,19E+02	1,19E+02	1,19E+02	1,19E+02
NRPM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,21E+02	1,21E+02	1,21E+02	1,21E+02
SM	kg	4,30E-06	4,30E-06	4,30E-06	4,30E-06
RSF	MJ	2,97E-03	2,97E-03	2,97E-03	2,97E-03
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	5,04E+00	5,04E+00	5,04E+00	5,04E+00

Parameter	Unit	A4
RPEE	MJ	3,24E+00
RPEM	MJ	0,00E+00
TPE	MJ	3,24E+00
NRPE	MJ	1,65E+02
NRPM	MJ	0,00E+00
TRPE	MJ	1,65E+02
SM	kg	0,00E+00
RSF	MJ	0,00E+00
NRSF	MJ	0,00E+00
W	m^3	3,89E-02

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009
*INA Indicator Not Assessed

End of life - Waste

Parameter	Unit	Sprengstein, Halsvik	Grovknusing Halsvik	Finknusing Halsvik	Vasking Halsvik
HW	kg	1,11E-04	1,11E-04	1,11E-04	1,11E-04
NHW	kg	1,84E+00	1,84E+00	1,84E+00	1,84E+00
RW	kg	INA*	INA*	INA*	INA*

Parameter	Unit	A4
HW	kg	1,12E-04
NHW	kg	7,68E+00
RW	kg	INA*

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009
*INA Indicator Not Assessed

End of life - Output flow

Parameter	Unit	Sprengstein, Halsvik	Grovknusing Halsvik	Finknusing Halsvik	Vasking Halsvik
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	1,23E-01	1,23E-01	1,23E-01	1,23E-01
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*

Parameter	Unit	A4
CR	kg	0,00E+00
MR	kg	0,00E+00
MER	kg	0,00E+00
EEE	MJ	INA*
ETE	MJ	INA*

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009
*INA Indicator Not Assessed

Additional Norwegian requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

Indoor environment

Not applicable

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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Iversen et al., (2019) EPD-generator for Norsk Bergindustri, Bakgrunnsrapport for bransjeapplikasjon og datagrunnlag, LCA.no report number 07.19.
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epd-norge.no The Norwegian EPD Foundation	**Program operator and publisher** The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo,Norway	Phone: e-mail: web:	+47 23 08 80 00 post@epd-norge.no www.epd-norge.no
GROUP DC DC Resources	**Owner of the declaration** DC Eikefet Aggregates AS Eikemovegen 3 5994 Vikanes	Phone: e-mail: web:	+47 41 42 94 86 marion.vaneck@dcresources.no www.dcresources.no
LCA.no	**Author of the Life Cycle Assessment** LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no
LCA.no	**Developer of EPD generator** LCA.no AS Dokka 1C,1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no