

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804 +A2

Tørket sand (dry sand), size: 0-8 mm



Owner of the declaration:

Stange Industri AS

Product name:

Tørket sand (dry sand), size – 0-8 mm

Declared unit:

1 ton of Tørket sand (dry sand) size - 0-8 mm

Product category /PCR:

NPCR 018 Part B for natural stone products, aggregates, and fillers (references to EN15804+A2)

Program operator and publisher:

The Norwegian EPD foundation

Declaration number:

NEPD-6492-5753-EN

Registration number:

NEPD-6492-5753-EN

Issue date

02.05.2024

Valid to

02.05.2029

General information

Product

Tørket sand (dry sand), size – 0-8 mm

Programme Operator

The Norwegian EPD Foundation
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Declaration Number

NEPD-6492-5753-EN

This declaration is based on Product Category Rules

NPCR 018 Part B for natural stone products, aggregates, and fillers (references to EN15804+A2)

Statements

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

Declared unit

1 ton of Tørket sand (dry sand), size - 0-8 mm

Functional unit

Not relevant

Conversion factor to mass

Not relevant

Verification

Independent verification of the declaration and data, according to ISO14025:2006

internal external



Julie Lyslo Skullestad

Independent verifier approved by EPD Norway

Owner of the declaration

Stange Industri AS
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Manufacturer

Stange Industri AS
Administrative Office Bangsgate 7, 3019 Drammen, Norway

Place of production

Follummoveien 38, 3516 Hønesfoss, Norway

Management system

N/A

Organization no

938 737 797

Issue date

02.05.2024

Valid to

02.05.2029

Year of study

2022-2023

Comparability

EPDs from other programmes than EPD-Norway may not be comparable.

The EPD has been worked out by

Modi Elisa & Johansen B.H. of Energiråd AS

Approved



Manager of EPD Norway

Product

Product description

Stange Industri AS is a significant supplier to the construction industry in Norway. We are based at Kilemoen in Hønefoss and are one of the largest sand deposits in Eastern Norway. The sand at Kilemoen is very suitable for concrete production. For the concrete in the new opera building in Bjørvika, it was chosen to use sand from this department.

At Kilemoen, we also have a large drying plant for sand, and we are the country's largest supplier of dried sand to the mortar industry. Other areas of application for our sand products are plastering and brickwork, construction of golf and football pitches as well as impact and sandbox sand for nurseries. Annual production is approx. 350,000 tons.

Product specification

Tørket sand (dry sand), size – 0-8 mm

Material (s)	tons	%
Sand	1	100.00%
Packaging	-	< 1.00%

Technical data

As a major supplier of sand and stone products, we are required to strictly control our production. We are certified in accordance with NS-EN 12620 and NS-EN 13043 and we use the state-appointed control body Kontrollrådet for concrete products to inspect and audit our systems. For more information see – [Stange Industri AS](#).

Market

Norway

Reference service life, product

Not relevant

Reference service life, building

Same as for the building

LCA: Calculation rules

Declared unit

1 ton of dry sand 0-8 mm

Data quality

Both primary and secondary data were used in the LCA. Site-specific foreground data were provided by Stange Industri AS and is based on the production activities of 2022. These data were obtained from the bill of materials. For all processes for which primary data was not available, generic data from the ecoinvent database v3.8 (2021) were assumed. All generic data used for the analysis are not older than 10 years old. Where necessary, the used generic data were modified to ensure technological, temporal, and geographical consistency. Modelling and calculations were conducted via OpenLCA equipped with v.3.8 of the Ecoinvent database with LCIA and classification factors conforming to EN 15804+A2.

Allocation

The allocation is made in accordance with the requirements of EN 15804: A2. Energy and water inputs and waste generation during production were allocated equally among all products on mass basis. Effect of primary production of recycled materials were allocated to the main product in which the material is used. No recycled materials are used in the manufacture of this product.

Cut-off criteria

All major raw materials and essential energy are included. The production processes for raw materials and energy flows with less than 1% contributions are excluded. This cut-off criteria do not apply for hazardous materials and substances. Machines and facilities or capital goods required to produce the declared unit are excluded.

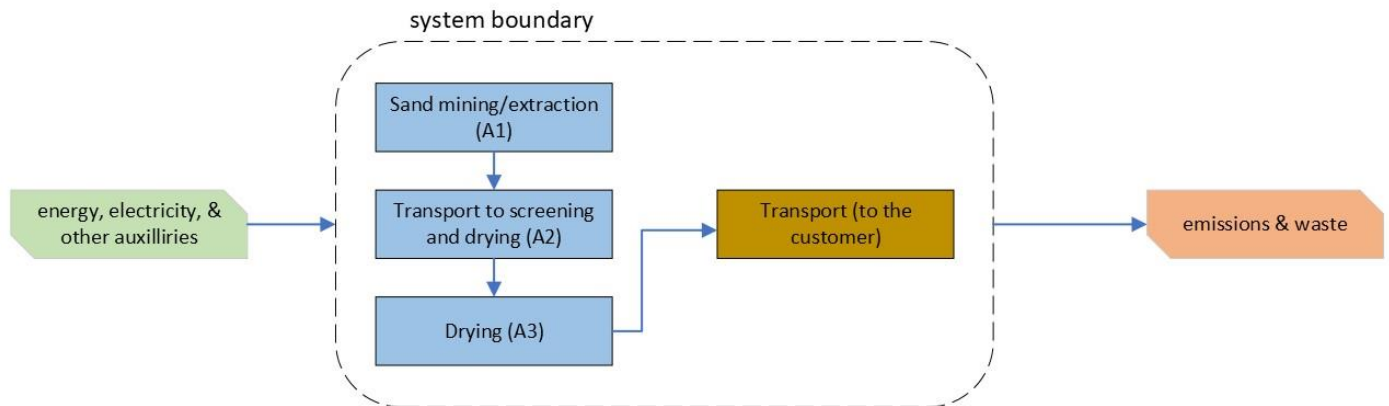
Variation in environmental impacts

This EPD is an average EPD representative for Tørket sand (dry sand) of sizes 0/0.5 mm, 0.5/1mm, 1/2 mm and 2/4 mm produced by Stange Industri AS at Kilemoen drying plant in Hønefoss, Norway. The presented results are valid for an average order of Tørket sand (dry sand). The three types of sand are produced similarly, and energy consumption are similarly as well. The variation in the environmental impacts of the three types of sand is therefore insignificant and is expected to with within the 10% threshold.

System boundary

The scope of this analysis is cradle-to-grave. The modules covered include extraction and semi-processing or raw required raw materials (A1), transportation of the materials to production site and within the mining area (A2), processing/drying of the studied products (A3), and transportation of the dried sand to potential customers (A4).

Figure 1 System boundaries (cradle-to-fate with options)



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

Product stage			Assembly stage		Use stage								End of life stage				Benefits & loads beyond system boundary
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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

LCA scenarios and additional technical information

The product stage is reported in a cumulative format i.e., A1-A3. The scenario describing the delivery of the produced sand to potential customers are as follows – it is assumed that the sand is transported by truck to a potential customer located 300 km away from the site of production. See table below for details.

Transport from production site to potential customer (A4)	Capacity (%)	Distance (km)	Fuel/Energy efficiency	Unit	Value (L/t)
truck, over 32 tons, EURO 5	53.33%	300	0.023	l/tkm	6.90

LCA: Results

The LCA results per 1 ton of Tørket sand (dry sand) produced.

Core environmental impacts

Indicator	Unit	A1-A3	A4
GWP - total	kg CO2 eq	1.53E+01	2.61E+01
GWP - fossil	kg CO2 eq	1.53E+01	2.61E+01
GWP - biogenic	kg CO2 eq	2.59E-02	4.06E-02
GWP - luluc	kg CO2 eq	1.36E-03	7.82E-03
ODP	kg CFC11 eq	1.23E-06	6.51E-06
AP	molc H+ eq	6.23E-02	8.31E-02
EP- freshwater	kg P eq	3.67E-04	1.71E-03
EP -marine	kg N eq	2.33E-02	1.87E-02
EP - terrestrial	molc N eq	2.55E-01	2.03E-01
POCP	kg NMVOC eq	6.97E-02	7.83E-02
ADP - M&M	kg Sb-Eq	8.31E-06	6.02E-05
ADP - fossil	MJ	8.17E+01	4.27E+02
WDP	m3	1.02E+01	2.17E+00

GWP-total: Global Warming Potential; **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; See “additional Norwegian requirements” for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4
PM	Disease incidence	1.11E-06	2.28E-06
IRP	kBq U235 eq.	4.92E-01	2.15E+00
ETP-fw	CTUe	5.72E-01	1.79E+01
HTP-c	CTUh	1.42E-09	7.71E-09
HTP-nc	CTUh	5.92E-08	4.89E-07
SQP	Dimensionless	-3.73E-01	6.40E+02

PM: Particulate matter emissions; **IRP:** Ionising radiation, human health; **ETP-fw:** Ecotoxicity (freshwater); **ETP-c:** Human toxicity, cancer effects; **HTP-nc:** Human toxicity, non-cancer effects; **SQP:** Land use related impacts / soil quality

Resource use

Indicator	Unit	A1-A3	A4
RPEE	MJ	3.23E+01	4.19E+00
RPEM	MJ	3.83E-01	1.21E+00
TPE	MJ	3.27E+01	5.40E+00
NRPE	MJ	9.86E+00	4.01E+01
NRPM	MJ	7.18E+01	3.87E+02
TRPE	MJ	8.17E+01	4.27E+02
SM	kg	1.17E-01	3.74E-01
RSF	MJ	2.53E-02	1.05E-01
NRSF	MJ	1.22E-01	3.20E-01
W	m3	2.37E-01	5.18E-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

End-of-life waste

Parameter	Unit	A1-A3	A4
HW	kg	1.84E+00	8.60E+00
NHW	kg	2.36E-01	3.95E+01
RW	kg	2.15E-03	7.94E-03

HW Hazardous waste disposed; **NHW** Non-hazardous waste disposed; **RW** Radioactive waste disposed.

End-of-life outflows

Parameter	Unit	A1-A3	A4
CR	kg	0.00E+00	0.00E+00
MR	kg	6.21E-02	2.94E-01
MER	kg	2.11E-02	9.18E-02
EEE	MJ	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00

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

Reading example: $9,0 \text{ E-03} = 9,0 * 10^{-3} = 0,009$

Biogenic carbon content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	Kg C	0.00E+00
Biogenic carbon content in packaging	Kg C	0.00E+00

Note – 1 kg of carbon is equivalent to 44/12 kg CO₂.

Additional Norwegian requirements

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

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

National electricity grid	Unit	Value
Norwegian mix (market for electricity, ecoinvent 3.8)	g CO ₂ -eq/kWh	28.53

Dangerous substances

The products contain no substances from the REACH list or the Norwegian priority list.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- The product contains no substances given by the REACH Candidate list or the Norwegian priority list.
- The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- The product contains dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskriften, Annex III), see table.

Indoor environment

Not relevant






Additional environmental information

Indicator	Unit	A1-A3	A4
GWP-IOBC	kg CO ₂ eq	1.54E+01	2.61E+01

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. To increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation

Bibliography

ISO 14025:2006	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+A2:2019	Sustainability of construction works - 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 and services
NPCR PART A	Construction products and services
NPCR 018	Part B for natural stone products, aggregates, and fillers

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