epd-norge
Global program operatør

Environmental Product Declaration

In accordance with ISO 14025

GC RIEBER

The Norwegian
EPD Foundation

Owner of the declaration:
GC Rieber Salt

Product name:
Sodium chloride (NaCl) from rock salt – 25 kg bags and 1000 kg bags – Stradasalt Icebreaker Rock/Norsal Rock/ Rock salt/Feed salt/Industrial salt/Fishery salt/ Water softening salt

Declared unit:
1 kg sodium chloride (NaCl) from 25 kg or 1000 kg bags

Product category /PCR:
Basic Chemicals 2021:03 v.1.1 (Environdec 2021).

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-3859-2812-EN

Registration Number:
NEPD-3859-2812-EN

Issue date: 03.11.2022

Valid to: 03.11.2027

ver-180324

General information

Product:
Sodium chloride (NaCl) from rock salt – 25 kg bags and big bags (1000 kg) - *Stradasalt Icebreaker Rock/Norsal Rock/ Rock salt/Feed salt/Industrial salt/Fishery salt/ Water softening salt*

Program holder:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 23 08 80 00
E-mail: post@epd-norge.no

Declaration Number:
NEPD-3859-2812-EN

This declaration is based on Product Category Rules:
Basic Chemicals 2021:03 v.1.1 (Environdec 2021)

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 kg sodium chloride (NaCl) from bags (25 kg or 1000 kg)

Declared unit with option:
1 kg sodium chloride (NaCl) from bags, delivered to storage, stored, packed, and transported to customer

Verification:
Independent verification of the declaration and data, according to ISO14025:2010

Internal ☐ External ☒

Alexander Borg Asplan Viak AS
Independent verifier approved by EPD Norway

Owner of the declaration:
GC Rieber Salt
Contact person: Kvalitetsavdelingen
Phone: +47 23035090
e-mail: Quality.salt@gcrieber.com

Manufacturer:
GC Rieber Salt

Place of production:
Germany

Management system:
ISO 9001:2015

Organisation no:
914 806 828

Issue date:
03.11.2022

Valid to:
03.11.2027

Year of study:
2022

Comparability:
EPDs from other programmes than The Norwegian EPD Foundation may not be comparable.

The EPD has been worked out by:
Julie Lyslo Skullestad, Aase Teknikk AS

Julie Lyslo Skullestad

Approved

Håkon Haugay

Manager of EPD Norway

Product

Product description:

Sodium chloride produced from rock salt and delivered in 25 kg bags or 1000 kg bags. Rock salt is a natural mineral extracted from mines. The salt is used for various purposes: De-icing, fishery, industrial applications, hide & skin, animal feed and water softening.

Product specification – NaCl from 25 kg bags

Materials	kg	%
Sodium chloride anhydride	1	100
Packaging	**kg**	
Plastic	0,0026	
Euro pallets	0,025	

The table shows packaging for salt in 25 kg bags, per kg of salt. The packaging consists of plastic for the bags and euro pallets for transport. 40 bags x 25 kg require 1 pallet, meaning that 1 pallet (also weighing 25 kg) is used per ton of salt. The pallets are usually reused many times, but as a conservative approach, this is not accounted for.

Product specification – NaCl from 1000 kg bags

Materials	kg	%
Sodium chloride anhydride	1	100
Packaging	**kg**	
Plastic	0,00158	

The table shows the plastic weight for 1000 kg bags, per kg of salt.

Technical data:

	Sodium chloride anhydride
Formula	NaCl 100%
CAS	7647-14-5
CPC[1]	3424 (Basic inorganic chemicals) (Salts of metals)
HS[2]	250100
Solubility	Cold water: 36g/100 ml

1) Central product Classification, UN
2) Harmonized System customs code

Market:

Norway, Denmark

LCA: Calculation rules

Declared unit:

1 kg sodium chloride delivered in 25 kg or 1000 kg bags.

Allocation:

The allocation is made in accordance with the provisions of PCR for Basic Chemicals 2021:03 v.1.1 and EN 15804. Allocation for co products is avoided where possible. Where allocation has been necessary, incoming energy and water and waste production in-house has been 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 the user of the recycled material.

Data quality:

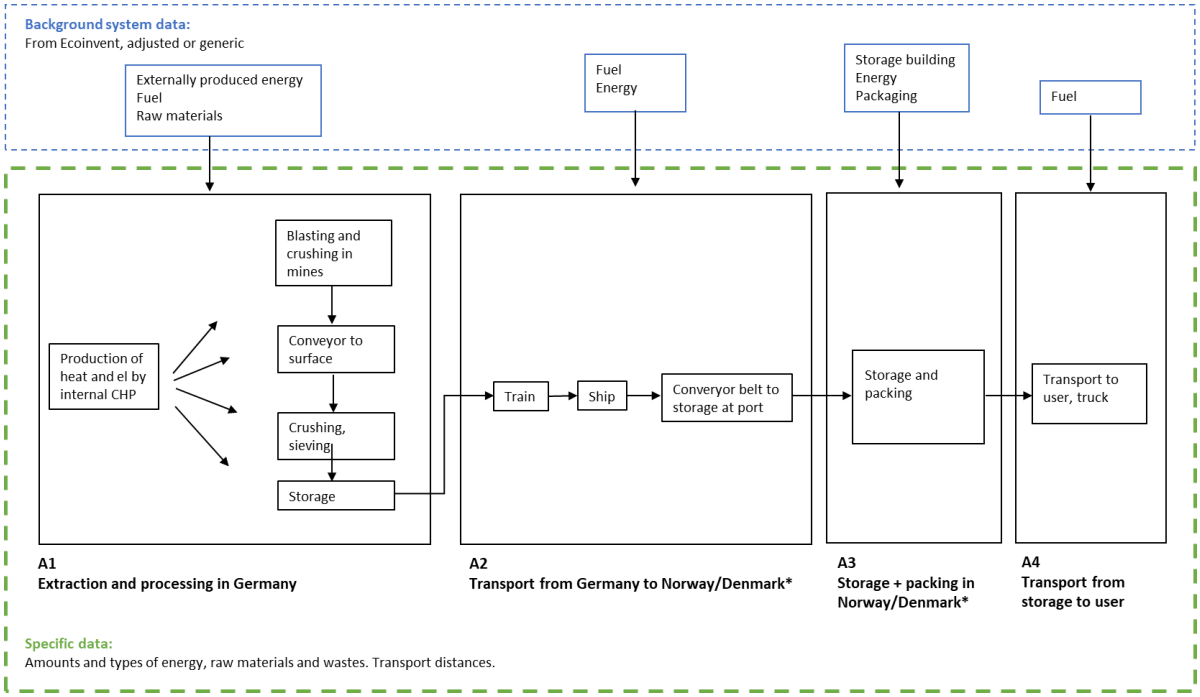
The data quality is in accordance with the guidelines for use of specific and generic data given by PCR for Basic Chemicals 2021:03 v.1.1 and EN 15804. The data used fulfils the requirements for technological, geographical, and temporal representativeness/coverage of data.

Data for resource use, waste, and transport in A1-A3 is based on specific data for the year 2019 and was collected in 2021-2022. Generic data is obtained from Ecoinvent v3.7.1 (2021) and SimaPro v9.3. All generic data is < 10 years old. Characterisation factors from EN15804:2012 + A2 2019.

Resources	Source	Data quality	Year
Foreground system data in A1: Use of energy, raw materials and other resources for extraction, processing, and internal transport	Producer in Germany and manufacturer (GC Rieber)	Very good: Specific data for salt extraction and processing	2019
Background system data in A1	Producer in Germany and manufacturer (GC Rieber) + Ecoinvent	Good to very good: Specific data where this exists, supplied with generic data from Ecoinvent, representable for or adjusted to geographic area and correct technology.	2019 for specific, Ecoinvent: v. 7.3.1 (2021)
Foreground system data in A2 and A3: Transport distances, vessel types, storage facilities, energy consumption for packing machine, packaging types	Manufacturer (GC Rieber)	Very good: Specific data for transport to storage, storage size and energy consumption	2021
Background system data in A2 and A3:	Ecoinvent	Good: Generic data from Ecoinvent, representable for or adjusted to geographic area and correct technology.	Ecoinvent: v. 7.3.1 (2021)

System boundary:

A1, A2, A3, A4



* Main results (complete data sets) are shown for storage in Oslo, Norway. However, the products are also delivered to several locations in Norway, and to locations in Denmark. Therefore, GWP total values are also calculated for several storage locations in both countries. The additional results are shown at the end of this EPD document.

Cut-off criteria:

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information

The following information describe the scenario for module A4, which represents transport from storage in Norway to customer. Average transport distance from storage to customer from the storage in Oslo is assumed to be 120 km.

Transport from storage in Oslo to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/tkm)
Trailer	50 %	30 t, Euro 6	120	diesel	0,636

LCA: Results

Results are shown per declared unit, 1 kg of salt. All data sets are shown both for salt delivered in 25 kg bags, then in 1000 kg bags. In addition, GWP values for several storage locations are shown at the end of this EPD document, in the paragraph “Additional information”.

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	MNR	MND	MNR	MNR	MNR	MNR	MND	MND	MNR	MNR	MNR	MNR	MNR

Core environmental impact indicators – NaCl from 25 kg bags

Indicator	Unit	A1	A2	A3	A1-A3	A4
GWP-total	kg CO2 eq.	9,87E-03	2,47E-02	7,92E-03	4,25E-02	1,66E-02
GWP-fossil	kg CO2 eq.	9,80E-03	2,37E-02	7,89E-03	4,13E-02	1,66E-02
GWP-biogenic	kg CO2 eq.	6,49E-05	1,02E-03	-4,60E-06	1,08E-03	1,93E-05
GWP-LULUC	kg CO2 eq.	3,48E-06	2,61E-05	3,84E-05	6,79E-05	2,72E-06
ODP	kg CFC11 eq.	1,48E-09	2,44E-09	1,10E-09	5,02E-09	2,33E-09
AP	mol H^+ eq.	1,73E-04	2,92E-04	4,76E-05	5,12E-04	2,89E-05
EP-freshwater	kg P eq.	2,19E-07	1,82E-06	4,58E-07	2,50E-06	5,96E-08
EP-marine	kg N eq.	5,53E-05	7,64E-05	1,28E-05	1,44E-04	6,36E-06
EP-terrestial	mol N eq.	8,50E-04	8,51E-04	1,55E-04	1,86E-03	7,09E-05
POCP	kg NMVOC eq.	1,65E-04	2,24E-04	5,19E-05	4,41E-04	2,53E-05
ADP-M&M	kg Sb eq.	8,49E-08	7,61E-08	1,36E-07	2,97E-07	2,81E-08
ADP-fossil	MJ	1,41E-01	3,08E-01	1,37E-01	5,86E-01	1,52E-01
WDP	m^3	7,64E-04	1,57E-03	4,98E-03	7,31E-03	3,37E-04

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;* ***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*

Core environmental impact indicators – NaCl from 1000 kg bags

Indicator	Unit	A1	A2	A3	A1-A3	A4
GWP-total	kg CO2 eq.	9,87E-03	2,47E-02	1,24E-03	3,58E-02	1,66E-02
GWP-fossil	kg CO2 eq.	9,80E-03	2,37E-02	1,26E-03	3,47E-02	1,66E-02
GWP-biogenic	kg CO2 eq.	6,49E-05	1,02E-03	-2,23E-05	1,06E-03	1,93E-05
GWP-LULUC	kg CO2 eq.	3,48E-06	2,61E-05	2,18E-06	3,17E-05	2,72E-06
ODP	kg CFC11 eq.	1,48E-09	2,44E-09	8,50E-11	4,00E-09	2,33E-09
AP	mol H^+ eq.	1,73E-04	2,92E-04	8,11E-06	4,73E-04	2,89E-05
EP-freshwater	kg P eq.	2,19E-07	1,82E-06	3,99E-08	2,08E-06	5,96E-08
EP-marine	kg N eq.	5,53E-05	7,64E-05	1,48E-06	1,33E-04	6,36E-06
EP-terrestial	mol N eq.	8,50E-04	8,51E-04	2,64E-05	1,73E-03	7,09E-05
POCP	kg NMVOC eq.	1,65E-04	2,24E-04	4,92E-06	3,94E-04	2,53E-05
ADP-M&M	kg Sb eq.	8,49E-08	7,61E-08	5,94E-08	2,20E-07	2,81E-08
ADP-fossil	MJ	1,41E-01	3,08E-01	1,80E-02	4,67E-01	1,52E-01
WDP	m^3	7,64E-04	1,57E-03	6,32E-04	2,97E-03	3,37E-04

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;* ***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– NaCl from 25 kg bags

Indicator	Unit	A1	A2	A3	A1-A3	A4
PM	Disease incidence	1,63E-09	8,34E-10	6,54E-10	3,11E-09	9,89E-10
IRP	kBq U235 eq.	1,96E-04	1,13E-03	5,53E-04	1,87E-03	6,68E-04
ETP-fw	CTUe	9,16E+00	2,60E-01	1,86E-01	9,61E+00	1,18E-01
HTP-c	CTUh	3,78E-12	2,31E-11	4,85E-11	7,54E-11	3,77E-12
HTP-nc	CTUh	8,45E-11	2,03E-10	1,64E-10	4,52E-10	1,65E-10
SQP	Dimensionless	3,11E-02	1,42E-01	2,98E+00	3,15E+00	8,46E-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*

Additional environmental impact indicators– NaCl from 1000 kg bags

Indicator	Unit	A1	A2	A3	A1-A3	A4
PM	Disease incidence	1,63E-09	8,34E-10	9,42E-11	2,55E-09	9,89E-10
IRP	kBq U235 eq.	1,96E-04	1,13E-03	1,20E-04	1,44E-03	6,68E-04
ETP-fw	CTUe	9,16E+00	2,60E-01	3,57E-02	9,46E+00	1,18E-01
HTP-c	CTUh	3,78E-12	2,31E-11	2,50E-12	2,94E-11	3,77E-12
HTP-nc	CTUh	8,45E-11	2,03E-10	2,61E-11	3,14E-10	1,65E-10
SQP	Dimensionless	3,11E-02	1,42E-01	2,52E-02	1,98E-01	8,46E-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*

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD type / level 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 / level 2	Acidification potential, Accumulated Exceedance (AP)	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 / level 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

Resource use - NaCl from 25 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
RPEE	MJ	4,99E-03	2,60E-02	5,99E-01	6,30E-01	1,65E-03
RPEM	MJ	0,00E+00	0,00E+00	3,75E-02	3,75E-02	0,00E+00
TPE	MJ	4,99E-03	2,60E-02	6,36E-01	6,67E-01	1,65E-03
NRPE	MJ	1,41E-01	3,08E-01	1,58E-02	4,65E-01	1,52E-01
NRPM	MJ	1,09E-06	0,00E+00	1,22E-01	1,22E-01	0,00E+00
TRPE	MJ	1,41E-01	3,08E-01	1,37E-01	5,86E-01	1,52E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	3,50E-05	1,08E-04	8,24E-04	9,68E-04	1,29E-05

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

Resource use - NaCl from 1000 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
RPEE	MJ	4,99E-03	2,60E-02	6,61E-02	9,70E-02	1,65E-03
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	4,99E-03	2,60E-02	6,61E-02	9,70E-02	1,65E-03
NRPE	MJ	1,41E-01	3,08E-01	-5,53E-02	3,94E-01	1,52E-01
NRPM	MJ	1,09E-06	0,00E+00	7,33E-02	7,33E-02	0,00E+00
TRPE	MJ	1,41E-01	3,08E-01	1,80E-02	4,67E-01	1,52E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	3,50E-05	1,08E-04	8,20E-04	9,64E-04	1,29E-05

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 – NaCl from 25 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
HW	kg	2,80E-07	3,39E-07	2,99E-07	9,18E-07	4,01E-07
NHW	kg	4,99E-04	3,17E-03	3,49E-03	7,16E-03	5,59E-03
RW	kg	2,80E-07	1,56E-06	5,62E-07	2,40E-06	1,05E-06

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

End of life – Waste – NaCl from 1000 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
HW	kg	2,80E-07	3,39E-07	7,75E-08	6,96E-07	4,01E-07
NHW	kg	4,99E-04	3,17E-03	1,06E-03	4,72E-03	5,59E-03
RW	kg	2,80E-07	1,56E-06	7,92E-08	1,92E-06	1,05E-06

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

End of life – Output Flows – NaCl from 25 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	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

End of life – Output Flows – NaCl from 1000 kg bags

Parameter	Unit	A1	A2	A3	A1-A3	A4
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	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 E-03 = $9{,}0*10^{-3}$ = 0,009

Biogenic carbon content at the factory gate – NaCl from 25 kg bags

Innhold av biogent karbon	Enhet	Verdi
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging (not included in calculation of GWP bio)*	kg C	0,012

* The 25 kg bags are transported on Euro pallets, which contain biogenic carbon. However, the biogenic CO2 uptake caused by this biogenic carbon is not included in the calculation of the GWP values. The reason for this is that the EPD does only contain A1-A4 phases, thus the biogenic CO2 emission from waste treatment of the pallets will not be accounted for. Also, the Euro pallets are often used several times, hence it could be wrong to allocate the whole uptake to the salt production. As a conservative approach, none of the biogenic carbon uptake by the wood in the pallets is included. The only biogenic CO2 emissions that are included are thus the result of the GWP bio characterisation method for biogenic flows in the background system/upstream Ecoinvent processes.

Biogenic carbon content at the factory gate – NaCl from 1000 kg bags

Innhold av biogent karbon	Enhet	Verdi
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	0

Additional Norwegian requirements

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

The direct electricity usage in A3 is limited to the packing machine, as the salt is stored in an unheated storage. Since A1 is a part of the foreground system, the emission factor used in A1 is also shown in this section.

A1 takes place in Germany. The salt extraction company covers a large share of their energy consumption with internally produced energy from their own combined heat and power plant. The rest is bought externally. For this externally produced energy, an average German national grid mix including import is used. For the internally produced energy, emission factors are calculated based on specific data for the CHP plant provided by the salt extraction company. The resulting average electricity mix applied for all electricity consumption in A1 is shown in the table below.

A3 storage and packing is located in Norway. Hence, an average national consumption mix is used.

Stage	Description	Data source	GWP total	Unit
A1 (DE)	Average electricity mix applied in A1	Average of internally produced electricity (specific data) and bought electricity from the grid (Ecoinvent, national German average consumption mix)	448	g CO_2 eq./kWh
A3 (NO)	Norwegian consumption mix	Electricity, low voltage {NO}| market for | Cut-off, U (Ecoinvent)	26	g CO_2 eq./kWh

All emission factors used include production of transmission grid, in addition to direct emissions and distribution losses.

Hazardous substances

☒ 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.

Name	CAS no.	Amount

Indoor environment

Not relevant

Additional information

GWP total values for 1 kg of sodium chloride delivered in 25 kg bags or 1000 kg bags from additional storage locations are shown in the tables below, respectively.

Greenhouse gas emissions for 1 kg NaCl from 25 kg bags delivered from additional storage locations

Storage location (25 kg bags)	Unit	GWP values A1-A3			
		GWP-total	GWP-fossil	GWP-biogenic	GWP-LULUC
Fredericia, Denmark	kg CO2 eq.	4,53E-02	4,23E-02	2,88E-03	7,72E-05
Køge, Denmark	kg CO2 eq.	4,47E-02	4,17E-02	2,88E-03	7,68E-05

Greenhouse gas emissions for 1 kg NaCl from 1000 kg bags delivered from additional storage locations

Storage location (1000 kg)	Unit	GWP values A1-A3			
		GWP-total	GWP-fossil	GWP-total	GWP-LULUC
Bergen, Norway	kg CO2 eq.	3,94E-02	3,84E-02	9,60E-04	3,45E-05
Harstad, Norway	kg CO2 eq.	5,10E-02	5,00E-02	9,61E-04	4,25E-05
Trondheim, Norway	kg CO2 eq.	4,44E-02	4,34E-02	9,61E-04	3,79E-05
Ålesund, Norway	kg CO2 eq.	4,19E-02	4,09E-02	9,60E-04	3,62E-05
Fredericia, Denmark	kg CO2 eq.	3,65E-02	3,42E-02	2,30E-03	3,73E-05
Køge, Denmark	kg CO2 eq.	3,59E-02	3,35E-02	2,30E-03	3,68E-05

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+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
Environdec 2021.	Basic Chemicals 2021:03 v.1.1.
ISO 9001:2015	Quality management systems – Requirements
Skullestad, Julie Lyslo (2022)	LCA-report for sodium chloride from rock salt, Aase Teknikk AS

epd-norway Global Program Operator	**Program Operator**		
	The Norwegian EPD Foundation	phone	+47 23 08 80 00
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail	post@epd-norge.no
	Norway	web	www.epd-norge.no
epd-norway Global Program Operator	**Publisher**		
	The Norwegian EPD Foundation	phone	+47 23 08 80 00
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail	post@epd-norge.no
	Norway	web	www.epd-norge.no
GC RIEBER	**Owner of the declaration**		
	GC Rieber Salt	phone	+46 706 295 165
	Cort Adlers gate 17, 0265 Oslo	e-mail	salt@gcrieber.com
	0254 Oslo	web	www.gcrieber-salt.com
aase	**Author of the life cycle assessment**		
	Julie Lyslo Skullestad	phone	+47 988 19 843
	Aase Teknikk AS	e-mail	julie.skullestad@aase.no
	Fyrstikkalleen 7, 0661 Oslo, Norge	web	www.aase.no
ECO PLATFORM EPD VERIFIED	ECO Platform ECO Portal	web web	www.eco-platform.org ECO Portal

EPD for the best environmental decision