

Environmental Product Declaration

In accordance with ISO 14025



Owner of the declaration: GC Rieber Salt

Product name:

Sodium chloride in bulk (NaCl) from rock salt - Stradasalt Icebreaker Rock/Norsal Rock/ Rock salt/Feed salt/Industrial salt/Fishery salt/ Water softning salt

Declared unit: 1 kg Sodium chloride in bulk (NaCl)

Product category /PCR: Basic Chemicals 2021:03 v.1.1 (Environdec 2021). **Program holder and publisher:** The Norwegian EPD foundation

Declaration number: NEPD-3858-2812-EN

Registration Number: NEPD-3858-2812-EN

Issue date: 03.11.2022

Valid to: 03.11.2027

ver-030924

The Norwegian EPD Foundation





General information

Product:

Sodium chloride in bulk (NaCl) from rock salt -Stradasalt Icebreaker Rock/Norsal Rock/ Rock salt/Feed salt/Industrial salt/Fishery salt/ Water softning 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-3858-2812-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 evidences.

Declared unit:

1 kg sodium chloride (NaCl) in bulk

Declared unit with option:

1 kg sodium chloride (NaCl) in bulk, delivered to storage, stored and transported to customer

Verification:

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

Internal 🗆

External 🖂

alexander Borg

Alexander Borg, Asplan Viak AS Independent verifier approved by EPD Norway

Owner of the declaration:

GC Rieber Salt Contact person: Phone: e-mail:

Fredrik Eide +46 706 295 165 fredrik.eide@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

Approved

Manager of EPD Norway



Product

Product description:

Sodium chloride produced from rock salt and delivered in bulk. 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:

| Materials | kg | % |
|---------------------------|----|-----|
| Sodium chloride anhydride | 1 | 100 |

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, Sweden, Denmark

LCA: Calculation rules

Declared unit:

1 kg sodium chloride delivered in bulk

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:

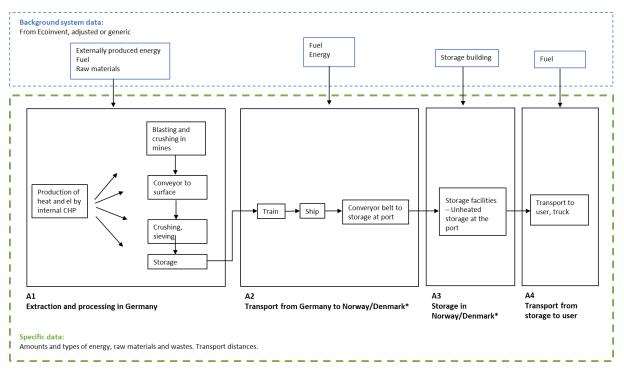
The data quality is in accordance with the guidelines for use of specific and generic data given by PCR for Basic Chemicals 2021:03 v.1.1 and EN 15804. The data used fulfils the requirements for technological, geographical and temporal representativeness/coverage of data.

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 and storage facilities | Manufacturer (GC Rieber) | Very good: Specific data for transport to storage, and storage at the different locations | 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 locations in Norway: Oslo and Trondheim. However, the product is also delivered 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 scenarios for module A4, which represents transport from storage in Norway to customer. Average transport distances from storage to customer are assumed to be 120 km and 200 km in Oslo and Trondheim, respectively.

Transport from storage in Oslo to user (A4)

| Туре | 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 |

Transport from storage in Trondheim to user (A4)

| Туре | Capacity utilisation (incl. return) % | Type of vehicle | Distance km | Fuel/Energy consumption | Value (l/tkm) |
|---------|--|-----------------|-------------|----------------------------|------------------|
| Trailer | 50 % | 30 t, Euro 6 | 200 | diesel | 0,636 |

LCA: Results

Results are shown per declared unit, 1 kg of salt. All data sets are shown both for salt delivered from storage in Oslo, then from storage in Trondheim. 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 | | | | | | | | End of life stage | | | je | 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 | С3 | C4 | D |
| Х | Х | Х | Х | MNR | MND | MNR | MNR | MNR | MNR | MND | MND | MNR | MNR | MNR | MNR | MNR |



| | I I I I I I I I I I I I I I I I I I I | | 0 | | | | |
|---------------|---------------------------------------|----------|----------|-----------|----------|----------|--|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | A4 | |
| GWP-total | kg CO2 eq. | 9,87E-03 | 2,47E-02 | 3,93E-04 | 3,50E-02 | 1,66E-02 | |
| GWP-fossil | kg CO2 eq. | 9,80E-03 | 2,37E-02 | 4,55E-04 | 3,39E-02 | 1,66E-02 | |
| GWP-biogenic | kg CO2 eq. | 6,49E-05 | 1,02E-03 | -6,25E-05 | 1,02E-03 | 1,93E-05 | |
| GWP-LULUC | kg CO2 eq. | 3,48E-06 | 2,61E-05 | 4,09E-07 | 3,00E-05 | 2,72E-06 | |
| ODP | kg CFC11 eq. | 1,48E-09 | 2,44E-09 | 3,36E-11 | 3,95E-09 | 2,33E-09 | |
| АР | mol H⁺ eq. | 1,73E-04 | 2,92E-04 | 4,60E-06 | 4,69E-04 | 2,89E-05 | |
| EP-freshwater | kg P eq. | 2,19E-07 | 1,82E-06 | 1,22E-08 | 2,05E-06 | 5,96E-08 | |
| EP-marine | kg N eq. | 5,53E-05 | 7,64E-05 | 6,66E-07 | 1,32E-04 | 6,36E-06 | |
| EP-terrestial | mol N eq. | 8,50E-04 | 8,51E-04 | 1,69E-05 | 1,72E-03 | 7,09E-05 | |
| РОСР | kg NMVOC eq. | 1,65E-04 | 2,24E-04 | 2,11E-06 | 3,91E-04 | 2,53E-05 | |
| ADP-M&M | kg Sb eq. | 8,49E-08 | 7,61E-08 | 9,38E-09 | 1,70E-07 | 2,81E-08 | |
| ADP-fossil | MJ | 1,41E-01 | 3,08E-01 | 4,71E-03 | 4,53E-01 | 1,52E-01 | |
| WDP | m³ | 7,64E-04 | 1,57E-03 | 1,23E-04 | 2,46E-03 | 3,37E-04 | |

Core environmental impact indicators – Bulk salt from storage in Oslo

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, 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

| | 1 | | | 0 | | | |
|---------------|--------------|----------|----------|-----------|----------|----------|--|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | A4 | |
| GWP-total | kg CO2 eq. | 9,87E-03 | 3,27E-02 | 1,05E-03 | 4,36E-02 | 2,76E-02 | |
| GWP-fossil | kg CO2 eq. | 9,80E-03 | 3,16E-02 | 1,21E-03 | 4,26E-02 | 2,76E-02 | |
| GWP-biogenic | kg CO2 eq. | 6,49E-05 | 1,02E-03 | -1,66E-04 | 9,20E-04 | 3,21E-05 | |
| GWP-LULUC | kg CO2 eq. | 3,48E-06 | 3,16E-05 | 1,09E-06 | 3,62E-05 | 4,53E-06 | |
| ODP | kg CFC11 eq. | 1,48E-09 | 4,04E-09 | 8,95E-11 | 5,61E-09 | 3,88E-09 | |
| АР | mol H⁺ eq. | 1,73E-04 | 5,51E-04 | 1,23E-05 | 7,36E-04 | 4,81E-05 | |
| EP-freshwater | kg P eq. | 2,19E-07 | 1,85E-06 | 3,26E-08 | 2,10E-06 | 9,93E-08 | |
| EP-marine | kg N eq. | 5,53E-05 | 1,40E-04 | 1,78E-06 | 1,97E-04 | 1,06E-05 | |
| EP-terrestial | mol N eq. | 8,50E-04 | 1,56E-03 | 4,49E-05 | 2,45E-03 | 1,18E-04 | |
| РОСР | kg NMVOC eq. | 1,65E-04 | 4,07E-04 | 5,61E-06 | 5,78E-04 | 4,21E-05 | |
| ADP-M&M | kg Sb eq. | 8,49E-08 | 8,67E-08 | 2,50E-08 | 1,97E-07 | 4,69E-08 | |
| ADP-fossil | MJ | 1,41E-01 | 4,10E-01 | 1,26E-02 | 5,63E-01 | 2,54E-01 | |

Core environmental impact indicators - Bulk salt from storage in Trondheim



| WDP | m³ | 7,64E-04 | 1,73E-03 | 3,28E-04 | 2,83E-03 | 5,61E-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, 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

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | A4 |
|-----------|----------------------|----------|----------|----------|----------|----------|
| РМ | Disease incidence | 1,63E-09 | 8,34E-10 | 5,33E-11 | 2,51E-09 | 9,89E-10 |
| IRP | kBq U235 eq. | 1,96E-04 | 1,13E-03 | 1,31E-05 | 1,34E-03 | 6,68E-04 |
| ETP-fw | CTUe | 9,16E+00 | 2,60E-01 | 1,06E-02 | 9,43E+00 | 1,18E-01 |
| НТР-с | CTUh | 3,78E-12 | 2,31E-11 | 1,06E-12 | 2,79E-11 | 3,77E-12 |
| HTP-nc | CTUh | 8,45E-11 | 2,03E-10 | 8,10E-12 | 2,96E-10 | 1,65E-10 |
| SQP | Dimensionless | 3,11E-02 | 1,42E-01 | 2,06E-02 | 1,94E-01 | 8,46E-02 |

Additional environmental impact indicators – Bulk salt from storage in Oslo

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 en | vironmental ii | mpact indica | tors– Bulk sa | alt from stor | age in Trond | heim |
|---------------|----------------|--------------|---------------|---------------|--------------|------|
| | | | | | | |

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | A4 |
|-----------|----------------------|----------|----------|----------|----------|----------|
| РМ | Disease incidence | 1,63E-09 | 1,07E-09 | 1,42E-10 | 2,84E-09 | 1,65E-09 |
| IRP | kBq U235 eq. | 1,96E-04 | 1,57E-03 | 3,49E-05 | 1,80E-03 | 1,11E-03 |
| ETP-fw | CTUe | 9,16E+00 | 3,21E-01 | 2,83E-02 | 9,51E+00 | 1,97E-01 |
| НТР-с | CTUh | 3,78E-12 | 2,84E-11 | 2,83E-12 | 3,50E-11 | 6,29E-12 |
| HTP-nc | CTUh | 8,45E-11 | 2,40E-10 | 2,16E-11 | 3,46E-10 | 2,75E-10 |
| SQP | Dimensionless | 3,11E-02 | 1,56E-01 | 5,49E-02 | 2,42E-01 | 1,41E-01 |

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 |
|------------------------|--|------------|
| | Global warming potential (GWP) | None |
| ILCD type / level 1 | Depletion potential of the stratospheric ozone layer (ODP) | None |
| | Potential incidence of disease due to PM emissions (PM) | None |



| | Acidification potential, Accumulated Exceedance (AP) | None | |
|------------------------|---|------|--|
| | Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine) | | |
| ILCD type / level 2 | Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | None | |
| | Formation potential of tropospheric ozone (POCP) | None | |
| | Potential Human exposure efficiency relative to U235 (IRP) | 1 | |
| | 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 | |
| ILCD type / level 3 | 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

| Parameter | Unit | A1 | A2 | A3 | A1-A3 | A4 |
|-----------|----------------|----------|----------|----------|----------|----------|
| RPEE | MJ | 4,99E-03 | 2,60E-02 | 1,52E-03 | 3,25E-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 | 1,52E-03 | 3,25E-02 | 1,65E-03 |
| NRPE | MJ | 1,41E-01 | 3,08E-01 | 4,71E-03 | 4,54E-01 | 1,52E-01 |
| NRPM | MJ | 1,09E-06 | 0,00E+00 | 0,00E+00 | 1,09E-06 | 0,00E+00 |
| TRPE | MJ | 1,41E-01 | 3,08E-01 | 4,71E-03 | 4,54E-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 | 3,79E-06 | 1,47E-04 | 1,29E-05 |

Resource use - Bulk salt from storage in Oslo

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



| Parameter | Unit | A1 | A2 | A3 | A1-A3 | A4 |
|-----------|----------------|----------|----------|----------|----------|----------|
| RPEE | MJ | 4,99E-03 | 2,66E-02 | 4,06E-03 | 3,57E-02 | 2,74E-03 |
| RPEM | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| TPE | MJ | 4,99E-03 | 2,66E-02 | 4,06E-03 | 3,57E-02 | 2,74E-03 |
| NRPE | MJ | 1,41E-01 | 4,10E-01 | 1,26E-02 | 5,63E-01 | 2,54E-01 |
| NRPM | MJ | 1,09E-06 | 0,00E+00 | 0,00E+00 | 1,09E-06 | 0,00E+00 |
| TRPE | MJ | 1,41E-01 | 4,10E-01 | 1,26E-02 | 5,63E-01 | 2,54E-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 | 3,79E-06 | 1,47E-04 | 1,29E-05 |

Resource use - Bulk salt from storage in Trondheim

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 – Bulk salt from storage in Oslo

| Parameter | Unit | A1 | A2 | A3 | A1-A3 | A4 |
|-----------|------|----------|----------|----------|----------|----------|
| HW | kg | 2,80E-07 | 3,39E-07 | 5,64E-08 | 6,75E-07 | 4,01E-07 |
| NHW | kg | 4,99E-04 | 3,17E-03 | 5,56E-04 | 4,22E-03 | 5,59E-03 |
| RW | kg | 2,80E-07 | 1,56E-06 | 1,54E-08 | 1,86E-06 | 1,05E-06 |

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

Parameter Unit A1 A2 A3 A1-A3 A4 HW kg 2,80E-07 4,29E-07 1,50E-07 8,59E-07 6,68E-07 NHW kg 4,99E-04 3,41E-03 1,48E-03 5,39E-03 9,32E-03 RW 2,80E-07 2,27E-06 4,11E-08 2,59E-06 1,76E-06 kg

End of life - Waste - Bulk salt from storage in Trondheim

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

End of life - Output Flows - Bulk salt from storage in Oslo

| | 0 0.00 0.0 | | | 0- | | |
|-----------|------------|----------|----------|----------|----------|----------|
| 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

| | 0 000 000 | | | | | |
|-----------|-----------|----------|----------|----------|----------|----------|
| 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 |

End of life – Output Flows – Bulk salt from storage in Trondheim

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

Information describing the biogenic carbon content at the factory gate

| Innhold av biogent karbon | Enhet | Verdi |
|---|-------|---------------|
| Biogenic carbon content in product | kg C | 0 |
| Biogenic carbon content in the accompanying packaging | kg C | Not relevant* |

*The product is transported in bulk, with no packaging

Additional Norwegian requirements

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

Since the main part of the energy consumption and environmental impacts related to this salt product is stemming from the A1 module – extraction and processing, the emission factor used for electricity consumption is A1 is shown below. There is no direct energy usage in A3, as the salt is stored at cold storages.

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

The table shows the resulting average electricity mix applied for all electricity consumption in A1:

| Electricity mix | Data source | GWP total | Value |
|--|---|-----------|---------------|
| 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 CO2 eq./kWh |



Hazardous substances

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

 \Box The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.

 \Box The product contain 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 (Avfallsforskiften, Annex III), see table.

| Name | CAS no. | Amount |
|------|---------|--------|
| | | |
| | | |

Indoor environment

Not relevant

Additional information

GWP values for 1 kg of sodium chloride delivered in bulk from additional storage locations are shown in the table below.

| Stoward logation | Unit | GWP values A1-A3 | | | |
|--------------------|------------|------------------|------------|--------------|-----------|
| Storage location | Unit | GWP-total | GWP-fossil | GWP-biogenic | GWP-LULUC |
| Arendal, Norway | kg CO2 eq. | 3,47E-02 | 3,38E-02 | 9,19E-04 | 3,00E-05 |
| Bergen, Norway | kg CO2 eq. | 3,86E-02 | 3,76E-02 | 9,20E-04 | 3,27E-05 |
| Harstad, Norway | kg CO2 eq. | 5,02E-02 | 4,92E-02 | 9,21E-04 | 4,08E-05 |
| Larvik, Norway | kg CO2 eq | 3,49E-02 | 3,40E-02 | 9,19E-04 | 3,02E-05 |
| Skien, Norway | kg CO2 eq | 3,50E-02 | 3,41E-02 | 9,19E-04 | 3,02E-05 |
| Ålesund, Norway | kg CO2 eq. | 4,11E-02 | 4,01E-02 | 9,20E-04 | 3,44E-05 |
| Stockholm, Sweden | kg CO2 ekv | 3,81E-02 | 3,72E-02 | 9,20E-04 | 3,24E-05 |
| Fredricia, Denmark | kg CO2 eq. | 3,10E-02 | 2,99E-02 | 1,02E-03 | 2,72E-05 |
| Köge, Denmark | kg CO2 eq. | 3,03E-02 | 2,93E-02 | 1,02E-03 | 2,67E-05 |
| Aarhus, Denmark | kg CO2 ekv | 3,11E-02 | 3,00E-02 | 1,02E-03 | 2,73E-05 |



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