

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

| | |
|--------------------------------|-------------------------------|
| Owner of the declaration: | Saint-Gobain Sweden AB, Weber |
| Program operator: | The Norwegian EPD Foundation |
| Publisher: | The Norwegian EPD Foundation |
| Declaration number: | NEPD-3164-1806-EN |
| Registration number: | NEPD-3164-1806-EN |
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| Issue date: | 08.10.2021 |
| Valid to: | 08.10.2026 |

weber grovbetong C32/40

Saint-Gobain Sweden AB, Weber



www.epd-norge.no



General information

Product:

weber grovbetong C32/40

Program operator:

The Norwegian EPD Foundation
Pb. 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
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Declaration number:

NEPD-3164-1806-EN

ECO Platform reference number:**This declaration is based on Product Category Rules:**

CEN Standard EN 15804:2012+A1:2013 serves as core PCR.
NPCR 009:2018 Part B for Technical - Chemical products in the building and construction industry

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.

Declared unit:

1 kg weber grovbetong C32/40

Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Functional unit:**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 process is reviewed annually. 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.

Anne Rønning, Norsus AS

(no signature required)

Owner of the declaration:

Saint-Gobain Sweden AB, Weber
Contact person: Anders Anderberg
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e-mail: anders.anderberg@weber.se

Manufacturer:

Saint-Gobain Sweden AB, Weber

Place of production:

Saint-Gobain Sweden AB, Weber
Box 415 SE-19162 Sollentuna
Sweden

Management system:

ISO 9001, ISO 14001

Organisation no:

SE-556241-2592

Issue date: 08.10.2021**Valid to:** 08.10.2026**Year of study:**

2020

Comparability:

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

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:

Jenny Knutsson

Reviewer of company-specific input data and EPD:

Helene Wallgren

Approved:

Sign



Håkon Hauan, CEO EPD-Norge

Product

Product description:

weber grovbetong is used for casting works indoors and outdoors in thicker layers than 50mm, ie. for house grounds, terminals, stairs, support walls, etc. as well as when repairing and casting on concrete substrate.

Product specification

The composition of the product is described in the following table:

| Materials | % |
|-----------|-------|
| Binder | 10-30 |
| Aggregate | 50-90 |
| Packaging | 0,02 |

Technical data:

Compressive strength class 32/40
Exposure class X0 XC4 XF3 XA1 according to SS EN 206-1

For further information, see www.se.weber/

Market:

Nordic and Baltic countries

Reference service life, product

The reference service life of the product is similar to the service life of the building.

Reference service life, building

50 years

LCA: Calculation rules

Declared unit:

1 kg weber grovbetong C32/40

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.

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, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

| Materials | Source | Data quality | Year |
|-----------|------------------------|--------------|------|
| Additives | Supplier | EPD | 2016 |
| Aggregate | ecoinvent 3.4 | Database | 2017 |
| Packaging | ecoinvent 3.4 | Database | 2017 |
| Packaging | Modified ecoinvent 3.4 | Database | 2017 |
| Binder | Supplier | EPD | 2019 |

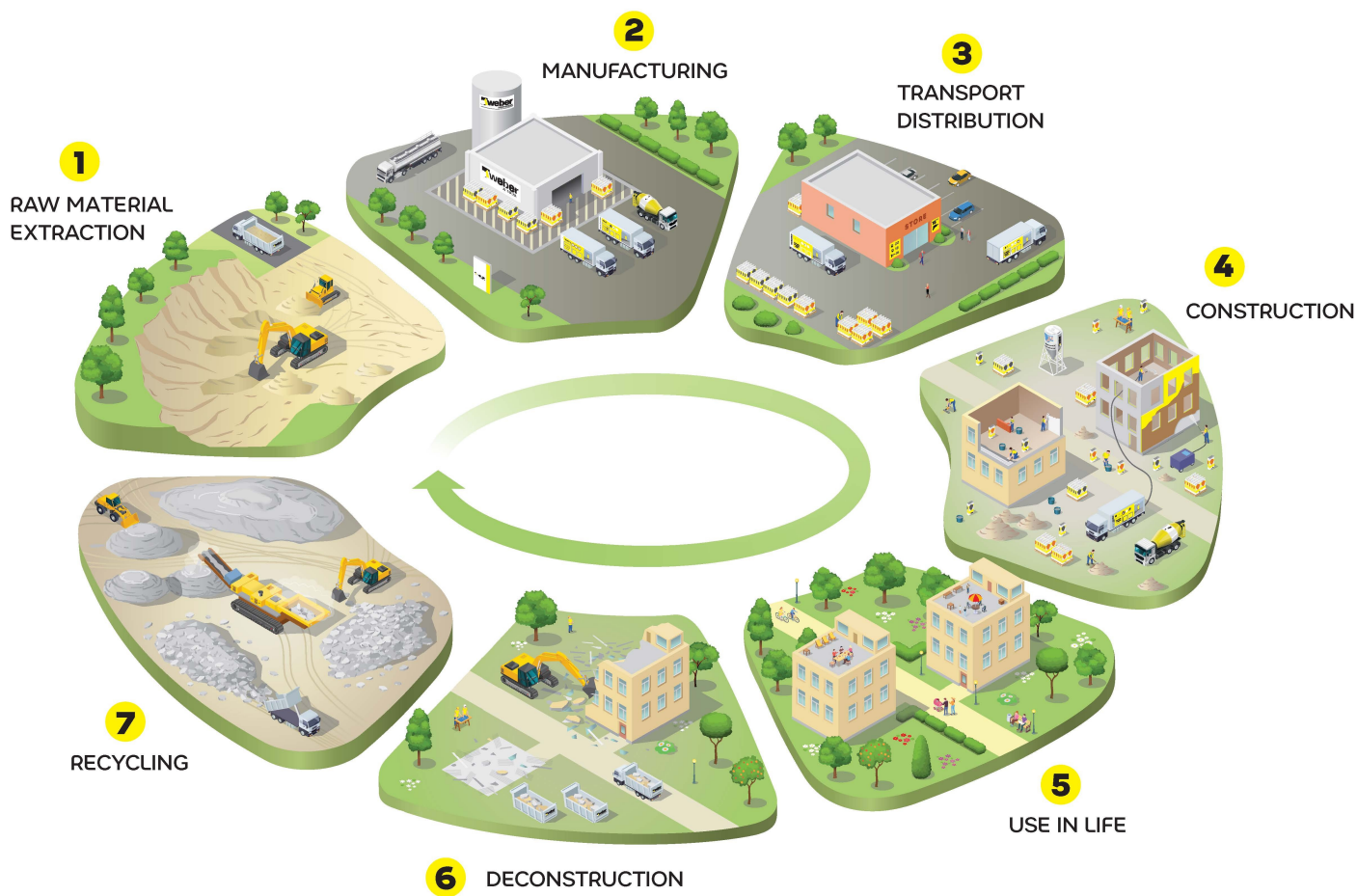
Allocation:

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.

System boundary:

All processes from raw material extraction, product transport, the construction site, assembly, end of product life and beyond the system boundaries are included in the analysis. The basic production process involves mixing of various raw materials. Ready mixed product is then packed into small bags for delivery.

The flow chart below illustrates the system boundaries for the full life cycle analysis.



Additional technical information:

The remaining powder is classified as hazardous waste. Cured material is inactive and not classified as hazardous waste and may be disposed as construction waste to disposal or recycling.

The packaging properly emptied is not classified as hazardous waste.

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 % | Truck, lorry over 32 tonnes, EURO 5 | 300 | 0,022823 | l/tkm | 6,85 |
| Railway | | | | | l/tkm | |
| Boat | | | | | l/tkm | |
| Other Transportation | | | | | l/tkm | |

| Additional A4 information | Unit/Range | Value |
|---|------------------------------|-------|
| Lilleström, Norway (truck / truck to jobsite: 798 km) | Multiplication factor GWP/A4 | 1,86 |
| Karlsunde, Denmark (truck / truck to jobsite: 960 km) | Multiplication factor GWP/A4 | 2,15 |
| Helsinki, Finland (truck / truck to jobsite: 800 km) | Multiplication factor GWP/A4 | 1,87 |

Assembly (A5)

| . | Unit | Value |
|---------------------------------------|----------------|--------|
| Auxiliary | kg | |
| Water consumption | m ³ | 0,0002 |
| Electricity consumption | kWh | 0,0020 |
| Other energy carriers | MJ | |
| Material loss | kg | |
| Output materials from waste treatment | kg | 0,0303 |
| Dust in the air | kg | |
| VOC emissions | kg | |

End of Life (C1, C3, C4)

| . | Unit | Value |
|---------------------------------------|------|--------|
| Hazardous waste disposed | kg | |
| Collected as mixed construction waste | kg | |
| Reuse | kg | |
| Recycling | kg | 0,9170 |
| Energy recovery | kg | |
| To landfill | kg | 0,1000 |

Transport to waste processing (C2)

| Type | Capacity utilisation (incl. return) % | Type of vehicle | Distance km | Fuel/Energy consumption | Unit | Value (l/t) |
|----------------------|---------------------------------------|-----------------------------------|-------------|-------------------------|-------|-------------|
| Truck | 38,8 % | Truck, lorry 16-32 tonnes, EURO 5 | 50 | 0,044606 | l/tkm | 2,23 |
| Railway | | | | | l/tkm | |
| Boat | | | | | l/tkm | |
| Other Transportation | | | | | l/tkm | |

..

Benefits and loads beyond the system boundaries (D)

| . | Unit | Value |
|---|-------|-------|
| Substitution of primary aggregates with crushed recycled cement-based products (kg) | kg/DU | 0,90 |

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 boundaries |
|---------------|-----------|---------------|---------------------------------|----------|------------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------------|
| 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 | X | MND | MND | MND | MND | MND | MND | MND | X | X | X | X | X |

Environmental impact

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|--------------------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP | kg CO ₂ -eq | 1,51E-01 | 2,62E-02 | 1,10E-03 | 3,96E-03 | 8,13E-03 | 6,87E-04 | 5,18E-04 | -3,57E-03 |
| ODP | kg CFC11 -eq | 5,97E-09 | 5,10E-09 | 2,03E-10 | 6,86E-10 | 1,50E-09 | 1,36E-10 | 1,72E-10 | -4,62E-10 |
| POCP | kg C ₂ H ₄ -eq | 2,43E-05 | 4,23E-06 | 2,40E-07 | 6,63E-07 | 1,33E-06 | 1,26E-07 | 1,58E-07 | -9,30E-07 |
| AP | kg SO ₂ -eq | 2,52E-04 | 8,51E-05 | 5,87E-06 | 2,99E-05 | 2,59E-05 | 3,47E-06 | 3,78E-06 | -2,07E-05 |
| EP | kg PO ₄ ³⁻ -eq | 7,68E-05 | 1,43E-05 | 1,46E-06 | 6,53E-06 | 4,30E-06 | 6,16E-07 | 6,67E-07 | -3,67E-06 |
| ADPM | kg Sb -eq | 1,07E-07 | 5,91E-08 | 2,92E-09 | 1,70E-11 | 2,48E-08 | 4,20E-11 | 1,00E-11 | -1,91E-10 |
| ADPE | MJ | 6,67E-01 | 4,11E-01 | 1,25E-02 | 5,47E-02 | 1,23E-01 | 6,68E-03 | 1,46E-02 | -3,81E-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 | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|----------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| RPEE | MJ | 9,57E-01 | 7,42E-03 | 2,87E-01 | 3,00E-04 | 1,79E-03 | 8,96E-03 | 1,19E-04 | -1,28E-02 |
| RPEM | MJ | 5,29E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| TPE | MJ | 1,49E+00 | 7,42E-03 | 2,87E-01 | 3,00E-04 | 1,79E-03 | 8,96E-03 | 1,19E-04 | -1,28E-02 |
| NRPE | MJ | 8,28E-01 | 4,23E-01 | 2,58E-02 | 5,52E-02 | 1,25E-01 | 1,75E-02 | 1,48E-02 | -5,25E-02 |
| NRPM | MJ | 4,27E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| TRPE | MJ | 8,71E-01 | 4,23E-01 | 2,58E-02 | 5,52E-02 | 1,25E-01 | 1,75E-02 | 1,48E-02 | -5,25E-02 |
| SM | kg | 2,11E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| RSF | MJ | 1,50E-01 | 0,00E+00 | 5,34E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| NRSF | MJ | 1,83E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| W | m ³ | 2,26E-03 | 9,98E-05 | 2,21E-04 | 4,75E-06 | 2,35E-05 | 4,39E-06 | 1,60E-05 | -1,04E-03 |

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 | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HW | kg | 1,63E-04 | 2,25E-07 | 2,25E-08 | 1,50E-07 | 7,33E-08 | 1,62E-08 | 2,20E-08 | -2,10E-07 |
| NHW | kg | 1,30E-01 | 3,84E-02 | 1,02E-03 | 2,50E-04 | 6,60E-03 | 1,97E-04 | 1,00E-01 | -1,85E-03 |
| RW | kg | INA* | INA* | INA* | INA* | INA* | INA* | INA* | 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 | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|
| CR | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| MR | kg | 4,68E-05 | 0,00E+00 | 5,98E-03 | 0,00E+00 | 0,00E+00 | 7,90E-01 | 0,00E+00 | 0,00E+00 |
| MER | kg | 4,20E-04 | 0,00E+00 | 2,43E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| EEE | MJ | INA* | INA* | INA* | INA* | INA* | INA* | INA* | INA* |
| ETE | MJ | INA* | INA* | INA* | INA* | INA* | INA* | INA* | 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).

| Electricity mix | Data source | Amount | Unit |
|---|------------------------|--------|---------------|
| Renewable electricity with Guarantee of Origin from LOS (kWh) | Modified ecoinvent 3.4 | 60,20 | g CO2-ekv/kWh |

Dangerous substances

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 | CASNo | Amount |
|-----------------|------------|--------|
| Portland cement | 65997-15-1 | 10-20% |

Indoor environment

The product has no impact on the indoor environment.

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 Saint-Gobain Weber and Scanspac - Background information and LCA data, LCA.no report number 05.18
 NPCR Part A: Construction products and services. Ver. 1.0. April 2017, EPD-Norge.
 NPCR 009 Part B for technical-chemical products. Ver. 1.0 June 2018, EPD-Norge.

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