

# Environmental Product Declaration



In accordance with ISO 14025 and EN 15804 for:

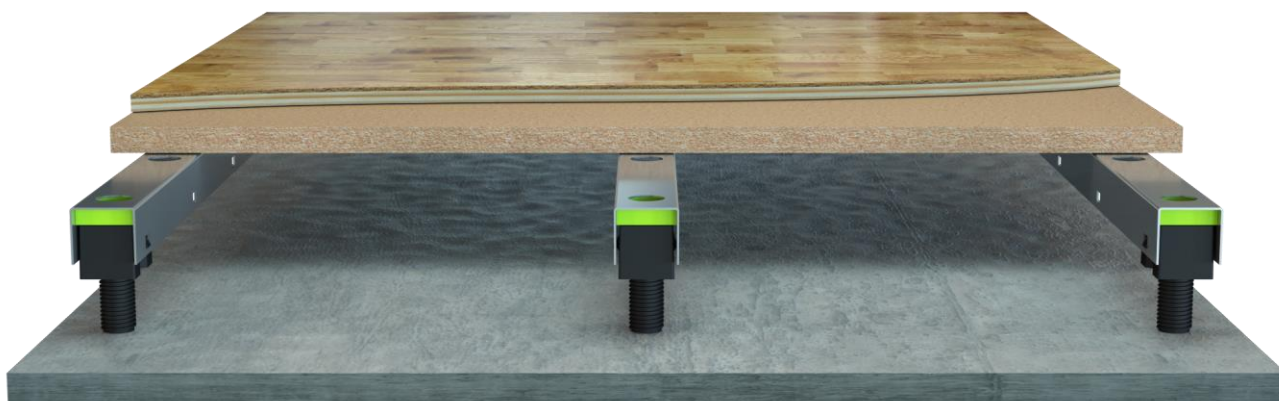
## GRANAB SUBFLOOR SYSTEM

from

**Bygg och- Miljöteknik GRANAB AB**



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	S-P-02184
Publication date:	2020-09-16
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## Programme information

<b>Programme:</b>	<p>The International EPD<sup>®</sup> System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p><a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a></p>
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Product category rules (PCR): PCR 2012:01 Construction products and construction services, Version 2.3, 2020-07-01

PCR review was conducted by: The Technical Committee of the International EPD<sup>®</sup> System.  
Chair: Massimo Marino. Contact via [info@environdec.com](mailto:info@environdec.com)

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification  EPD verification

Third party verifier: David Althoff Palm, Ramboll Sweden AB



*In case of accredited certification bodies:*

Accredited by: Not relevant

*In case of recognised individual verifiers:*

Approved by: The International EPD<sup>®</sup> System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes  No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

## Company information

### Owner of the EPD

Bygg och Miljöteknik GRANAB AB  
Post / Visiting address: Åkerigatan 2  
44723 Vårgårda  
Sweden  
Phone : +46 (0)322 66 76 50  
E-mail: [epost@granab.se](mailto:epost@granab.se)

### Description of the organisation

GRANAB manufactures subfloor systems for homes, offices, schools and public buildings.

### Name and location of production site

Bygg och Miljöteknik GRANAB AB – Production 1  
Åkerigatan 2  
44737 Vårgårda  
Sweden

Bygg och Miljöteknik GRANAB AB – Production 2  
Älgvägen 2  
53153 Lidköping  
Sweden

## Product information

### Product name

Granab Subfloor System.

### Product identification

Type Approval and decision on production control SC0296-14.

### Product description

Granab subfloor systems improves the quality of homes, offices, schools and public buildings: they are constructed with non-deformable galvanized steel floor girders, effective sound-dampening resilient suspension system and a particleboard. The subfloor system is secured to the subflooring and set at the desired height. Surface flooring made from parquet or carpet is laid over the particleboard. The surface flooring is not covered by the EPD.

### Manufacturing process

Granab systems are packed and delivered with pre-cut and dimensionadapted floor girders according to the Granab provided installation drawing with factoryfitted support blocks and dampening elements. Each girder is labelled with a room name and length that matches the information on the installation drawing for each flat or other agreed-upon space subdivision.

**UN CPC code:** 42190

### Geographical scope

Sweden

## LCA information

### Functional unit / declared unit

1 m<sup>2</sup> Subfloor System

### Time representativeness

Specific data from 2017 have been applied from the steel supplier SSAB based on a published EPD. For the particleboard, data from 2019 was used from a published EPD. Data from Granab are average values for the year 2019. Other background data applied are less than 10 years old.

### Database and LCA software used

GaBi with corresponding database was used.

### System boundaries

Cradle-to-gate with options (A1-A4)

Life cycle stage	Information module	Asset life cycle stages (EN 15804)	Cradle to gate with options	Covered by the EPD?
Upstream	Product stage	A1 Raw material supply	Mandatory	X
Core		A2 Transport		
		A3 Manufacturing		
Downstream	Construction Process stage	A4 Transport	Optional	X
	Use stage	A5 Construction installation	Optional	MND
		B1 Use	Optional	MND
		B2 Maintenance		
		B3 Repair		
		B4 Replacement		
		B5 Refurbishment		
		B6 Operational energy use		
	B7 Operational water use			
	End of life stage	C1 Deconstruction, demolition	Optional	MND
C2 Transport		Optional	MND	
C3 Waste processing				
C4 Disposal				
Benefits and loads beyond the system boundary	D Future, reuse, recycling or energy recovery potentials	Optional	MND	

### Information about the scope and data

Data for material composition and manufacturing (A3) have been collected by Granab directly from the production sites. Supplier specific data were applied for the steel production, SSAB EPD 2020 (Metal coated steel). The EPD from the supplier of the particleboard (Bygg Elit) could not be used since based on EN15804+A2, which is based on other indicator methods than required for EN15804+A1, instead EPD data from Koskisen EPD 2019 were applied. Gabi database data for minor raw materials, energy sources and transport were used. Swedish average electricity production consumed by Granab manufacturing and component suppliers, corresponds to a climate change value of 42 gram CO<sub>2</sub> eq per kWh. The electricity mix is based on ENTSO-E and includes import. No allocations have been made, since not relevant. Waste management of packaging materials has been excluded due to very small waste flows For the A4 transport an average distance of 400 km by truck was estimated by Granab. A diesel truck (Euro 6) with a load factor of 60% was applied.

### More information

The EPD and underlying LCA study has been prepared by Lisa Hallberg and Julia Lindholm at IVL Swedish Environmental Research Institute.

## Content declaration

### Product

#### *Content of substances*

The subfloor product does not contain substances of very high concern (SVHC) as defined and listed in the European Chemicals Agency (ECHA) Candidate List of substances of very high concern for Authorization, in levels above 0.01% by weight for the products.

#### *Composition*

Parts	Raw material	Amount [kg per m <sup>2</sup> ]	Composition [% of total]
Profiles	Galvanized steel	2.9	16%
Support block	Polypropylene (PP)	0.2	1%
Expandable screw	Steel	0.05	0.2%
Damping element	Polyurethane (PUR)	0.05	0.3%
Particleboard	Particleboard	15.0	82%
		<b>18.2</b>	<b>100%</b>

### Packaging

The distribution packaging is mainly wood based packaging, corrugated board, steel band and plastic. In total the packaging corresponds to 0.04 kg per m<sup>2</sup>.

## Environmental performance

### Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	A4	TOTAL A1-A4
Global warming potential (GWP), excl biogenic carbon	kg CO <sub>2</sub> eq	1.39E+01	3.28E-01	1.56E-02	5.51E-01	1.48E+01
Global warming potential (GWP)	kg CO <sub>2</sub> eq	-1.12E+01	3.29E-01	1.56E-02	5.53E-01	-1.03E+01
Ozone depletion potential (ODP)	kg R11 eq	4.42E-06	5.31E-17	4.87E-16	8.98E-17	4.42E-06
Acidification potential (AP)	kg SO <sub>2</sub> eq	7.96E-02	4.27E-04	3.77E-05	4.36E-04	8.05E-02
Eutrophication potential (EP)	kg PO <sub>4</sub> eq	1.40E-02	9.03E-05	9.66E-06	8.13E-05	1.42E-02
Photochemical ozone creation potential (POCP)	kg Ethene eq	1.01E-02	1.51E-05	7.07E-06	-5.61E-06	1.01E-02
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.07E+02	2.33E-08	2.04E-08	4.02E-08	1.07E+02
Abiotic depletion potential for fossil resources (ADPF)	MJ, net calorific value	1.03E+02	4.44E+00	1.71E-01	7.44E+00	1.15E+02

### Use of resources

PARAMETER	UNIT	A1	A2	A3	A4	TOTAL A1-A4
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ, net calorific value	1.15E+02	2.39E-01	1.34E+00	4.19E-01	1.17E+02
Use of renewable primary energy resources used as raw materials (PERM)	MJ, net calorific value	2.53E-01	0.00E+00	0.00E+00	0.00E+00	2.53E-01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ, net calorific value	1.16E+02	2.39E-01	1.34E+00	4.19E-01	1.18E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ, net calorific value	2.35E+02	4.45E+00	1.51E+00	7.47E+00	2.48E+02
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ, net calorific value	2.05E-01	0.00E+00	0.00E+00	0.00E+00	2.05E-01
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ, net calorific value	2.36E+02	4.45E+00	1.51E+00	7.47E+00	2.49E+02
Use of secondary material (SM)	kg	7.52E-02	0.00E+00	0.00E+00	0.00E+00	7.52E-02
Use of renewable secondary fuels (RSF)	MJ, net calorific value	2.45E-22	0.00E+00	0.00E+00	0.00E+00	2.45E-22
Use of non renewable secondary fuels (NRSF)	MJ, net calorific value	5.98E-06	0.00E+00	0.00E+00	0.00E+00	5.98E-06
Net use of fresh water (FW)	m <sup>3</sup>	6.14E-02	2.78E-04	3.12E-03	4.86E-04	6.52E-02

### Waste and output flows

#### Waste

PARAMETER	UNIT	A1	A2	A3	A4	TOTAL A1-A4
Hazardous waste disposed (HWD)	kg	2.10E-01	1.98E-07	6.93E-10	3.47E-07	2.10E-01
Non-hazardous waste disposed (NHWD)	kg	1.41E+00	6.71E-04	4.53E-04	1.14E-03	1.41E+00
Radioactive waste disposed (RWD)	kg	2.80E-03	5.48E-06	5.58E-04	9.24E-06	3.37E-03

#### Output flows

PARAMETER	UNIT	A1	A2	A3	A4	TOTAL A1-A4
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MFR)	kg	1.11E-04	0.00E+00	6.10E-02	0.00E+00	6.11E-02
Material for energy recovery (MER)	kg	2.00E-03	0.00E+00	9.33E-03	0.00E+00	1.13E-02
Exported electrical energy (EEE)	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (EET)	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

### Other environmental indicators

The biogenic carbon (as CO<sub>2</sub>) stored in the subfloor system is 25 kg per m<sup>2</sup> and is entirely originating from the particleboard.

The energy content of the subfloor system is 235 MJ per m<sup>2</sup>. The dominating part with energy content is the particleboard.

## References

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ISO (2006c). ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines.

Koskisen EPD, KoskiPan, uncoated chipboard, Koskisen, OneClick, RTS PCR/EN15804+A1, 2019.

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