Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A1:2013 for:

Asphalt mixtures from mobile asphalt plant

from

Goodway Entreprenad AB

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804:2012+A1:2013 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Asphalt mixtures 2018:04 version 1.02, UN CPC 1533 & 3794
PCR review was conducted by: The Technical Committee on the International EPD ® System. Review chair: Claudia A. Peña Contact via: info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: Kristin Fransson and Linnea Svensson, AFRY, www.afry.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Pär Lindman, Miljögiraff Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No
EPD valid within the following geographical area: Sweden

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. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Goodway Entreprenad AB, Kabelvägen 4, 861 36 Timrå

Contact: Mattias Jonasson

Description of the organisation:
Goodway Entreprenad AB is a company within paving and construction of roads and infrastructure with focus on quality, environment and development of products. We manufacture and do warm and semi-warm paving for governmental, communal as private customers. With a close cooperation with customers, we create success and develop technology and products for sustainable solutions.

Product-related or management system-related certifications:
Goodway Entreprenad AB has a quality- and environmental system that ensures that the work is done according to ISO 9001, 14001 and 45001.

Name and location of production site(s):
Declared asphalt products is produces at Goodways mobile asphalt plant at different locations in Sweden from ordered projects from our clients.

Product information

Product name:
Asphalt products from Goodways mobile asphalt plant, in total 4 products.

Product identification:
Asphalt products including penetration bitumen:

- AG
- ABT
- Mjag
- Mjog

ABT is a dense asphalt concrete, AG an asphalt-bound gravel, Mjag a soft asphalt gravel and Mjog a soft oil gravel. AG is used as a base course and ABT as wearing course on high-traffic roads. Mjag and Mjog are used on low-traffic roads where Mjag is a base course and Mjog is the wearing course. The composition of the different asphalt types to be used on Swedish roads is defined by Trafikverket, the Swedish Transport Administration. In general, it can be said that the bottom layers have a lower amount of bitumen than the wear layers. Also, the products for low-traffic roads have a lower demand for bitumen.

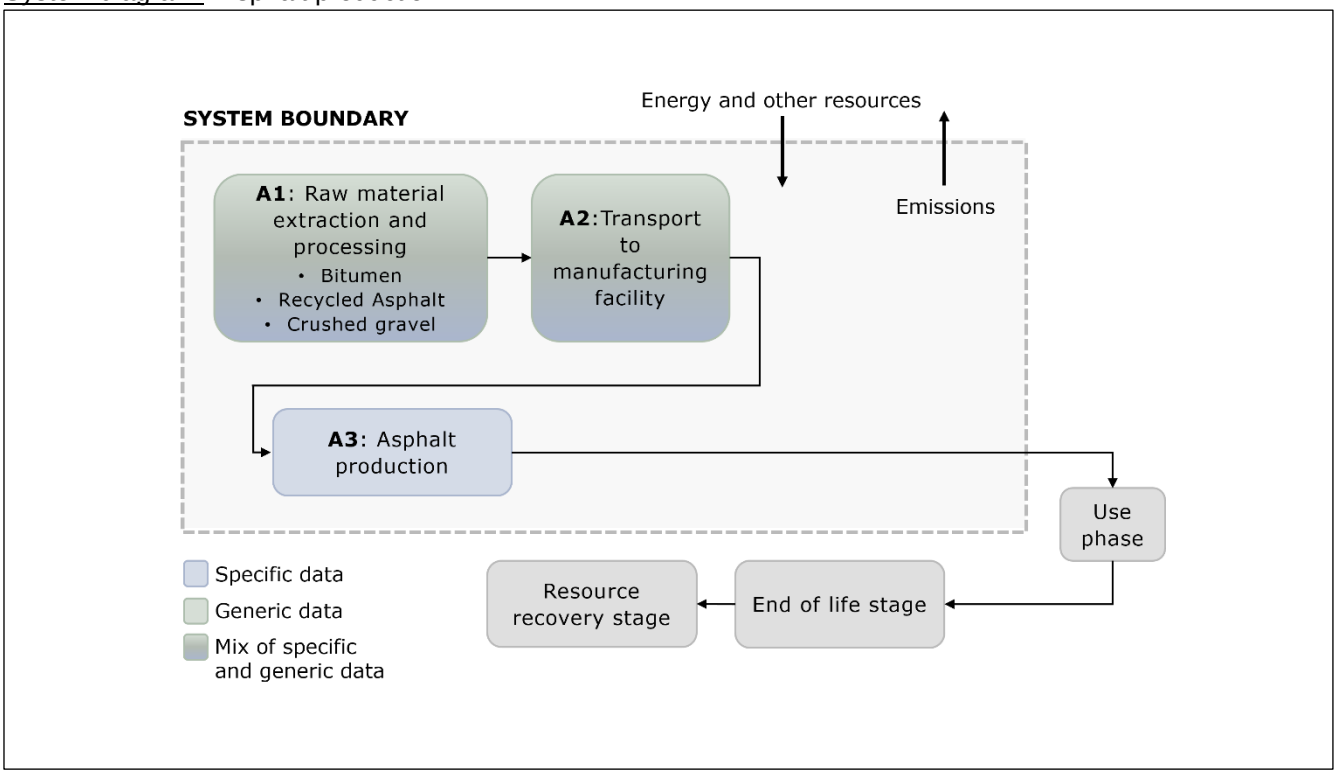
UN CPC code: 15330

LCA information

Functional unit / declared unit: 1 ton (1000 kg) of asphalt at the manufacturing gate
Reference service life: Not specified
Time representativeness: Data from production for the full year of 2021 has been used for specific inventory data.

Database(s) and LCA software used: The LCA model was created using SimaPro 9.3.0.3 software. Generic data comes from Ecoinvent, 3.8 (Wernet, o.a., 2019) and Eurobitume (Eurobitume, 2020).
Description of system boundaries: Cradle to gate (A1–A3)

System diagram: Asphalt production



Modules declared:

Tabell 1: X=declared module; MND = module not declared

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Geographical scope	SE	SE	SE	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

A1: Raw Material
This stage includes raw material extraction and refining. The raw materials for all asphalt products are bitumen, gravel and recycled asphalt. The mobile asphalt plant is transported to different gravel quarries where gravel is extracted and crushed. Recycled asphalt is taken from nearby roads and is crushed at the gravel quarry before it can be used as input to new asphalt production. For bitumen, LCI data from Eurobitume (2020) is used in calculations. This data is not specific for Goodways but is accepted and adopted by the industry at large as a good representation of bitumen production in Europe.

A2: Transport
This stage includes transportation of raw materials to production sites and of components to final site of assembly.

A3: Manufacturing
In the mobile asphalt plant, the raw materials are mixed and heated to wanted temperature to get the desired product. This stage includes resource use in the mobile asphalt production plant.

Content information

Material	ABT	AG	Mjag	Mjog
	% of total weight	% of total weight	% of total weight	% of total weight
Stones	79.6	81.0	86.7	86.3
Recycled asphalt (RC)	15.0	15.0	10.0	10.0
Bitumen	5.4	3.9	3.3	3.7
TOTAL	100	100	100	100

The declared products do not contain any substances listed as SVHC (Substances if Very High Concern) according to the European Chemicals Agency (ECHA).

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804:2012+A1:2013

Results per functional or declared unit					
Indicator	**Unit**	**ABT**	**AG**	**Mjag**	**Mjog**
		A1-A3	**A1-A3**	**A1-A3**	**A1-A3**
GWP-fossil	kg CO_2 eq.	2.40E+01	1.99E+01	1.72E+01	1.82E+01
GWP-biogenic	kg CO_2 eq.	8.14E+00	7.45E+00	6.16E+00	6.27E+00
GWP-luluc	kg CO_2 eq.	4.32E-02	4.00E-02	3.58E-02	3.64E-02
GWP-total	kg CO_2 eq.	3.21E+01	2.74E+01	2.34E+01	2.45E+01
ODP	kg CFC 11 eq.	2.08E-06	1.75E-06	1.53E-06	1.61E-06
AP	kg SO2 eq.	3.84E-01	3.35E-01	2.82E-01	2.93E-01
EP	kg PO_4^{3-} eq.	8.32E-02	7.40E-02	6.23E-02	6.43E-02
POCP	kg C_2H_4 eq.	9.38E-03	7.97E-03	6.80E-03	7.14E-03
ADP-elements	kg Sb eq.	1.28E-04	1.21E-04	1.13E-04	1.15E-04
ADP-fossil	MJ, net calorific value	2.61E+03	1.92E+03	1.63E+03	1.81E+03
Acronyms	GWP-fossil = Global Warming Potential fossil; 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= Eutrophication potential; POCP = Formation potential of tropospheric ozone; ADP-elements = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential.				

Use of resources

Results per functional or declared unit					
Indicator	**Unit**	**ABT**	**AG**	**Mjag**	**Mjog**
		A1-A3	**A1-A3**	**A1-A3**	**A1-A3**
PERE	MJ	3.05E+02	2.79E+02	2.33E+02	2.37E+02
PERM	MJ	0	0	0	0
PERT	MJ	3.05E+02	2.79E+02	2.33E+02	2.37E+02
PENRE	MJ	2.82E+03	2.07E+03	1.76E+03	1.96E+03
PENRM	MJ.	2.60E+03	1.88E+03	1.52E+03	1.70E+03
PENRT	MJ	5.42E+03	3.95E+03	3.28E+03	3.66E+03
SM	kg	1.50E+02	1.50E+02	1.00E+02	1.00E+02
RSF	MJ	2.87E+02	2.74E+02	2.24E+02	2.30E+02
NRSF	MJ	0	0	0	0
FW	m^3	1.49E+00	1.44E+00	1.42E+00	1.43E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water				

Waste production and output flows

Waste production

Results per functional or declared unit					
Indicator	Unit	ABT	AG	Mjag	Mjog
		A1-A3	A1-A3	A1-A3	A1-A3
Hazardous waste disposed	kg	0	0	0	0
Non-hazardous waste disposed	kg	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0

Output flows

Results per functional or declared unit					
Indicator	Unit	ABT	AG	Mjag	Mjog
		A1-A3	A1-A3	A1-A3	A1-A3
Components for re-use	kg	0	0	0	0
Material for recycling	kg	0	0	0	0
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

References

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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 - Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

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