Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Asphalt mixtures from Furuby asfaltverk

from

Asfaltbolaget AB

Furuby bergtäkt

365 93 Furuby

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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Valid until:	2026-12-16

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
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): *PCR 2019:14 Construction products (EN 15804:A2) (1.11)*
PCR review was conducted by: *The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile.* *The review panel may be contacted via the Secretariat www.environdec.com/contact.*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Pär Lindman, Miljögiraff AB* Approved by: The International EPD® 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. For further information about comparability, see EN 15804 and ISO 14025.

General Programme Instructions of the International EPD® System. Version 3.01.

Company information

Owner of the EPD: Asfaltbolaget AB

Contact: Andreas Johansson

Description of the organisation:
Asfaltbolaget AB is a company that is specialized in building roads and infrastructure. They can provide asphalt products for a variaty of different purposes, ranging from highways and city streets to industrial surfaces and driveways.

Product-related or management system-related certifications:
Asfaltbolaget AB is certified according to ISO 9001, 14001 and 45001.

Name and location of production site(s):
The production site is located in Furuby, about 15 km east of Växjö.

Furuby bergtäkt
365 93 Furuby

Product information

Product name: Asphalt mixtures from Furuby asfaltverk, a total of 15 declared products

Product identification:
Asphalt mixtures including penetration bitumen:

- AG
- ABb
- ABT
- ABS
- ABT LTA
- ABS LTA
- ABT LTA kkv <7
- ABS LTA kkv <7

Asphalt mixtures including polymer bitumen:

- ABb PMB
- ABT PMB
- ABS PMB
- ABT LTA PMB
- ABS LTA PMB
- ABT LTA PMB kkv <7
- ABS LTA PMB kkv <7

Product description:
The following product types are included: AG, ABb, ABT, ABS, made with penetration bitumen and polymer-modified bitumen (PMB). The declared products are intended to be used as paving materials and other for paved surfaces. The products consist of a mixture of aggregates and binders. The most common fractures for aggregates are 0-4 mm, 4-8 mm, 8-11 mm, 11-16 mm and 16-22 mm but other fractions can also be used. The bitumen is categorized based on its penetration properties. The most common types of bitumen are 50/70, 70/100, 100/150 and 160/220.

Asfaltbolaget AB use stone aggregates from the companies own stone quarry within the production site. The crushed stone material is loaded into different compartments depending on the stone fraction. A certain amount is then transported into a dryer where the aggregates is heated to mixing temperature. The dryer is equipped with a dust filter, the dust is utilized and included in the asphalt mixtures as a filler. The heated stone aggregates are sieved and weighed and then mixed in a large blender together with bitumen, other additives, fillers, and recycled asphalt. After the asphalt mixture has been blended, the asphalt product is ready for delivery.

Asfaltbolaget AB uses reclaimed asphalt in their production of asphalt containing penetration bitumen. Approximately 5-25 % of the material used in in the production of asphalt with penetration bitumen derives from secondary materials, where the reclaimed fraction varies depending on the type of asphalt produced. The produced asphalt can be milled, crushed, sorted and then included as new raw material in the manufacturing of future asphalt. In addition to reducing the need for virgin material residual bitumen can also be reused. The share of reclaimed material is adjusted so that the customer requirements are met.

Read more: asfaltbolaget.se

UN CPC code: 15330

LCA information

Declared unit:
1 tonne (1000 kg) of asphalt mixture.

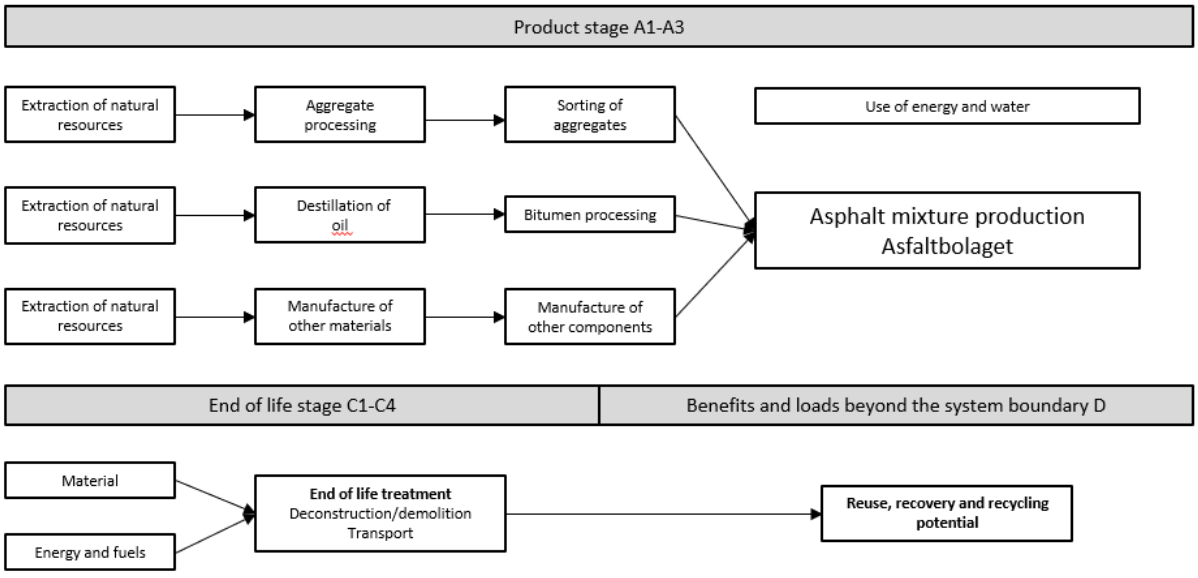
Time representativeness:
The data is from year 2020 and 2021.

Database(s) and LCA software used:
The LCA software is SimPro 9.2.0.2 and the database is EcoInvent 3.7. When modeling in Simapro, Ecoinvent data (updated December 2020) has been used for generic data. LCI data from Eurobitume (2020) is used for modelling bitumen, the dataset including infrastructure has been applied.

Description of system boundaries:
Cradle to gate with modules C1-C4 and module D. The system boundaries are described in the system diagram. The Environmental Product Declaration (EPD) shows the environmental performance of the product through its life cycle stages from cradle to end-of -life.

System diagram:

Included	Excluded
Production (A1-A3) • Infrastructure for stone quarry, asphalt plant and bitumen manufacturing. • Crushing of reclaimed asphalt • Production of all consumed raw materials and goods. • Energy and fuels • Transports of raw material and consumed goods to production site. • Production processes. • Transport to recipient and disposal of hazardous waste from production stage. • Transport to recipient of recyclable waste and spill material derived from the production stage.	
	Construction (A4-A5)
	Use (B1-B7)
End-of-life (C1-C4) • Demolition and transport for material recovery.	
Benefits and loads beyond the system boundary (D) • Material recovery	



More information:
LCA practitioners: Anna Pantze, Emanuel Lindbäck, Ida Bohlin and Ida Adolfsson at Tyréns AB

Allocations:
Allocation should be avoided as far as possible. In cases where allocation cannot be avoided, allocation of co-production and allocation for reuse and recycling have been applied. All underlying processes that are modeled follow the ISO standard and are called "cut-off" in Ecoinvent. The basis for allocation according to the cut-off is that the first primary product always carries the environmental burden for the entire production. If the product is recycled, the first product must not be credited in anly way. The recycled product will therefor only carry the environmental burden of the recycling process.

The asphalt manufacturing process does not produce any co-products. The use of energy, consumables, waste etc. has been allocated equally between the asphalt products as it has not been possible to allocate specific use to each product.

Assumptions:

- The polymer used in polymer-modified bitumen is set to Ethylene-vinyl acetate (EVA).
- Asphalt mixtures from Asfaltbolaget AB is 100 % recyclable, in calculations for modul D the recycling rate is set to 95 % due to wear and tear of the asphalt surface. The remaining 5 % is assumed to leave the system in modul B. The assumption of a 95 % re-use rate is derived from estimates from Asfaltbolaget and Tyréns design team. Other references could not be found. The assumption is considered reasonable as the industry strives to recycle as much asphalt as possible due to both economical and environmental benefits.

Limitations:
A life cycle analysis (LCA) is a simplified snapshot of reality. This LCA focuses on some important environmental aspects but not all and does not consider economic or social aspects. LCA contains assumptions and delimitations. When moduling bitumen LCI data from Eurobitume (2020) is used in calculations. This data is not specific for Asfaltbolaget AB but is accepted and adopted by the industry at large.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	SE/ EU	SE/ EU	SE	ND	ND	ND	ND	ND	ND	ND	ND	ND	SE	SE	SE	SE	SE
Specific data used	> 90 %					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	N/A					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	N/A					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Material	AG	ABb	ABT	ABS	ABb PMB	ABT PMB	ABS PMB	ABT LTA	ABS LTA	ABT LTA kkv<7	ABS LTA kkv<7	ABT LTA PMB	ABS LTA PMB	ABT LTA PMB, kkv<7	ABS LTA PMB, kkv<7
	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight	% of total weight
Recycled Asphalt Pavement	20%	20%	10%	10%	0%	0%	0%	10%	10%	10%	10%	0%	0%	0%	0%
Aggregates	75,4%	75,2%	83,8%	83,2%	94,1%	93,1%	92,7%	84,2%	83,8%	29,2%	9,7%	93,7%	93,3%	38,8%	19,2%
Penetration bitumen	4,2%	4,4%	5,8%	6,1%	0%	0%	0%	5,3%	5,4%	5,3%	5,3%	0%	0%	0%	0%
Polymer-modified bitumen	0%	0%	0%	0%	5,4%	6,4%	6,5%	0%	0%	0%	0%	5,8%	5,9%	5,8%	5,8%
Fiber	0%	0%	0%	0,3%	0%	0%	0,3%	0%	0,3%	0%	0,3%	0%	0,3%	0%	0,3%
Special aggregates	0%	0%	0%	0%	0%	0%	0%	0%	0%	55%	74,3%	0%	0%	54,9%	74,2%
Cement	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Product Components	Vikt, kg	Post-consumer material, weight-%	Förnyelsebart material, vikt %
Recycled Asphalt Pavement	0-200	0-20	0
Aggregates	97-941	0	0
Penetration bitumen	0-61	0	0
Polymer-modified bitumen	0-65	0	0
Fiber (cellulose and bitumen)	0-3	0	0-2,7
Special aggregates	0-743	0	0
Cement	5	0	0

The products do not contain any substances of very high concern (SVHC) according to REACH.

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Result per declared unit, 1 tonne asphalt mixture, for modul A1-A3																
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
GWP-fossil	kg CO2 ekv	2,20 E+01	2,25 E+01	2,60 E+01	2,74 E+01	3,18 E+01	3,53 E+01	3,63 E+01	2,46 E+01	2,55 E+01	2,54 E+01	2,63 E+01	3,29 E+01	3,40 E+01	3,37 E+01	3,46 E+01
GWP-biogenic	kg CO2 ekv	0,00 E+00	0,00 E+00	0,00 E+00	5,50 E+00	0,00 E+00	0,00 E+00	5,50 E+00	0,00 E+00	5,50 E+00	5,50 E+00	5,50 E+00	0,00 E+00	5,50 E+00	0,00 E+00	5,50 E+00
GWP-luluc	kg CO2 ekv	4,05 E-02	4,06 E-02	4,29 E-02	4,35 E-02	4,61 E-02	4,75 E-02	4,80 E-02	4,22 E-02	4,26 E-02	4,22 E-02	4,26 E-02	4,64 E-02	4,70 E-02	4,65 E-02	4,69 E-02
GWP-total	kg CO2 ekv	2,21 E+01	2,25 E+01	2,61 E+01	3,30 E+01	3,19 E+01	3,54 E+01	4,19 E+01	2,46 E+01	3,10 E+01	3,09 E+01	3,18 E+01	3,30 E+01	3,95 E+01	3,37 E+01	4,02 E+01
ODP	kg CFC-11 ekv	2,51 E-06	2,55 E-06	2,91 E-06	3,08 E-06	3,56 E-06	3,91 E-06	4,04 E-06	2,76 E-06	2,88 E-06	2,91 E-06	3,07 E-06	3,66 E-06	3,79 E-06	3,81 E-06	3,96 E-06
AP	mol H+ ekv	2,08 E-01	2,13 E-01	2,49 E-01	2,61 E-01	2,52 E-01	2,77 E-01	2,85 E-01	2,30 E-01	2,38 E-01	2,40 E-01	2,49 E-01	2,55 E-01	2,63 E-01	2,65 E-01	2,74 E-01
EP- freshwater	kg P ekv	2,82 E-03	2,88 E-03	3,35 E-03	3,62 E-03	4,95 E-03	5,57 E-03	5,81 E-03	3,12 E-03	3,33 E-03	3,15 E-03	3,34 E-03	5,12 E-03	5,37 E-03	5,15 E-03	5,34 E-03
EP- marin	kg N ekv	4,69 E-02	4,80 E-02	5,65 E-02	5,91 E-02	5,73 E-02	6,29 E-02	6,45 E-02	5,34 E-02	5,50 E-02	5,78 E-02	6,05 E-02	5,91 E-02	6,07 E-02	6,35 E-02	6,61 E-02
EP- terrestrial	mol N ekv	5,37 E-01	5,48 E-01	6,43 E-01	6,72 E-01	6,49 E-01	7,10 E-01	7,27 E-01	6,09 E-01	6,26 E-01	6,58 E-01	6,86 E-01	6,69 E-01	6,86 E-01	7,17 E-01	7,46 E-01
POCP	kg NMVOC ekv	3,48 E-01	3,52 E-01	3,82 E-01	3,91 E-01	3,88 E-01	4,09 E-01	4,15 E-01	3,71 E-01	3,76 E-01	3,84 E-01	3,92 E-01	3,95 E-01	4,01 E-01	4,08 E-01	4,16 E-01
ADP- minerals & metals*	kg Sb ekv	5,65 E-05	5,69 E-05	6,35 E-05	7,16 E-05	1,10 E-04	1,20 E-04	1,28 E-04	6,06 E-05	6,83 E-05	6,09 E-05	6,86 E-05	1,12 E-04	1,20 E-04	1,12 E-04	1,20 E-04
ADP- fossil*	MJ	2,07 E+03	2,16 E+03	2,81 E+03	2,97 E+03	2,72 E+03	3,20 E+03	3,27 E+03	2,58 E+03	2,64 E+03	2,59 E+03	2,61 E+03	2,91 E+03	2,98 E+03	2,92 E+03	2,94 E+03
WDP	m3 depriv.	2,78 E+00	2,86 E+00	3,43 E+00	3,70 E+00	6,18 E+00	7,08 E+00	7,33 E+00	3,17 E+00	3,37 E+00	3,19 E+00	3,36 E+00	6,46 E+00	6,72 E+00	6,48 E+00	6,65 E+00
Acronyms		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 marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption														

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Result per declared unit, 1 tonne asphalt mixture, for modul C1-C4					
Parameter	Unit	Same scenario for all asphalt mixtures			
		C1	C2	C3	C4
GWP-fossil	**kg CO2 ekv**	1,69E+00	3,54E+00	0,00E+00	0,00E+00
GWP-biogenic	**kg CO2 ekv**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-luluc	**kg CO2 ekv**	1,49E-04	1,22E-03	0,00E+00	0,00E+00
GWP-total	**kg CO2 ekv**	1,69E+00	3,54E+00	0,00E+00	0,00E+00
ODP	**kg CFC-11 ekv**	3,49E-07	8,49E-07	0,00E+00	0,00E+00
AP	**mol H+ ekv**	2,17E-02	1,20E-02	0,00E+00	0,00E+00
EP- freshwater	**kg P ekv**	5,97E-05	2,84E-04	0,00E+00	0,00E+00
EP- marin	**kg N ekv**	9,89E-03	2,91E-03	0,00E+00	0,00E+00
EP- terrestrial	**mol N ekv**	1,08E-01	3,17E-02	0,00E+00	0,00E+00
POCP	**kg NMVOC ekv**	2,96E-02	1,24E-02	0,00E+00	0,00E+00
ADP- minerals & metals	**kg Sb ekv**	7,89E-07	1,05E-05	0,00E+00	0,00E+00
ADP- fossil	**MJ**	2,25E+01	5,74E+01	0,00E+00	0,00E+00
WDP	**m3 depriv.**	3,52E-02	2,23E-01	0,00E+00	0,00E+00
Acronyms	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 marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption				

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Result per declared unit, 1 tonne asphalt mixture, for modul D																
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
GWP-fossil	**kg CO2 ekv**	-1,11 E+01	-1,14 E+01	-1,49 E+01	-1,55 E+01	-1,49 E+01	-1,71 E+01	-1,73 E+01	-1,39 E+01	-1,41 E+01	-1,46 E+01	-1,50 E+01	-1,5 8E+01	-1,60 E+01	-1,65 E+01	-1,70 E+01
GWP-biogenic	**kg CO2 ekv**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
GWP-luluc	**kg CO2 ekv**	-1,05 E-02	-1,07 E-02	-1,29 E-02	-1,31 E-02	-1,37 E-02	-1,45 E-02	-1,46 E-02	-1,24 E-02	-1,25 E-02	-1,25 E-02	-1,26 E-02	-1,40 E-02	-1,40 E-02	-1,40 E-02	-1,42 E-02
GWP-total	**kg CO2 ekv**	-1,11 E+01	-1,14 E+01	-1,49 E+01	-1,55 E+01	-1,49 E+01	-1,71 E+01	-1,73 E+01	-1,39 E+01	-1,41 E+01	-1,46 E+01	-1,50 E+01	-1,58 E+01	-1,60 E+01	-1,65 E+01	-1,70 E+01
ODP	**kg CFC-11 ekv**	-1,16 E-06	-1,20 E-06	-1,87 E-06	-1,60 E-06	-1,56 E-06	-1,77 E-06	-1,79 E-06	-1,45 E-06	-1,47 E-06	-1,58 E-06	-1,65 E-06	-1,64 E-06	-1,66 E-06	-1,79 E-06	-1,87 E-06
AP	**mol H+ ekv**	-1,12 E-01	-1,16 E-01	-1,75 E-01	-1,57 E-01	-1,51 E-01	-1,74 E-01	-1,76 E-01	-1,41 E-01	-1,43 E-01	-1,49 E-01	-1,55 E-01	-1,60 E-01	-1,62 E-01	-1,69 E-01	-1,75 E-01
EP- freshwater	**kg P ekv**	-1,48 E-03	-1,52 E-03	-2,17 E-03	-2,06 E-03	-1,99 E-03	-2,28 E-03	-2,31 E-03	-1,85 E-03	-1,88 E-03	-1,88 E-03	-1,91 E-03	-2,10 E-03	-2,13 E-03	-2,13 E-03	-2,17 E-03
EP- marin	**kg N ekv**	-2,82 E-02	-2,90 E-02	-4,61 E-02	-3,86 E-02	-3,77 E-02	-4,27 E-02	-4,32 E-02	-3,50 E-02	-3,54 E-02	-3,88 E-02	-4,07 E-02	-3,97 E-02	-4,01 E-02	-4,39 E-02	-4,61 E-02
EP- terrestrial	**mol N ekv**	-3,20 E-01	-3,29 E-01	-5,19 E-01	-4,37 E-01	-4,28 E-01	-4,83 E-01	-4,88 E-01	-3,97 E-01	-4,01 E-01	-4,38 E-01	-4,59 E-01	-4,49 E-01	-4,54 E-01	-4,95 E-01	-5,19 E-01
POCP	**kg NMVOC ekv**	-9,75 E-02	-1,00 E-01	-1,57 E-01	-1,35 E-01	-1,31 E-01	-1,49 E-01	-1,51 E-01	-1,22 E-01	-1,23 E-01	-1,33 E-01	-1,39 E-01	-1,38 E-01	-1,40 E-01	-1,51 E-01	-1,57 E-01
ADP- minerals & metals*	**kg Sb ekv**	-3,63 E-05	-3,66 E-05	-4,81 E-05	-4,34 E-05	-4,67 E-05	-4,85 E-05	-4,85 E-05	-4,21 E-05	-4,21 E-05	-4,24 E-05	-4,29 E-05	-4,72 E-05	-4,73 E-05	-4,76 E-05	-4,81 E-05
ADP- fossil*	**MJ**	-1,76 E+03	-1,82 E+03	-2,63 E+03	-2,58 E+03	-2,40 E+03	-2,84 E+03	-2,88 E+03	-2,26 E+03	-2,30 E+03	-2,27 E+03	-2,31 E+03	-2,57 E+03	-2,62 E+03	-2,58 E+03	-2,63 E+03
WDP	**m3 depriv.**	-1,83 E+00	-1,88 E+00	-2,65 E+00	-2,54 E+00	-2,45 E+00	-2,80 E+00	-2,83 E+00	-2,28 E+00	-2,31 E+00	-2,30 E+00	-2,34 E+00	-2,59 E+00	-2,62 E+00	-2,60 E+00	-2,65 E+00
Acronyms		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 marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption														

Potential environmental impact – additional mandatory and voluntary indicators

Result per declared unit, 1 tonne asphalt mixture, for modul A1-A3																
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
GWP-GHG	kg CO2 ekv	2,17 E+01	2,22 E+01	2,57 E+01	2,71 E+01	3,13 E+01	3,47 E+01	3,58 E+01	2,43 E+01	2,52 E+01	2,50 E+01	2,60 E+01	3,24 E+01	3,35 E+01	3,32 E+01	3,41 E+01

Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

Result per declared unit, 1 tonne asphalt mixture, for modul C1-C4					
Parameter	**Unit**	**Same scenario for all asphalt mixtures**			
		C1	**C2**	**C3**	**C4**
GWP-GHG	**kg CO2 ekv**	3,49E-07	8,49E-07	0,00E+00	0,00E+00

Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

Result per declared unit, 1 tonne asphalt mixture, for modul D																
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
GWP-GHG	kg CO2 ekv	-1,09 E+01	-1,12 E+01	-1,67 E+01	-1,52 E+01	-1,46 E+01	-1,68 E+01	-1,70 E+01	-1,37 E+01	-1,38 E+01	-1,43 E+01	-1,47 E+01	-1,55 E+01	-1,57 E+01	-1,62 E+01	-1,67 E+01

Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

Use of resources

Result per declared unit, 1 tonne asphalt mixture, for modul A1-A3																
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
PERE	**MJ**	62	62	64	66	69	71	72	64	65	64	65	70	71	70	71
PERM	**MJ**	0	0	0	52	0	0	52	0	52	0	52	0	52	0	52
PERT	**MJ**	62	62	64	118	69	71	124	64	117	64	117	70	123	70	123
PENRE	**MJ**	2202	2300	2989	3160	2894	3401	3476	2737	2811	2748	2776	3090	3165	3101	3129
PENRM	**MJ**	2102	2186	2600	2726	2223	2634	2675	2391	2433	2391	2391	2387	2428	2387	2387
PENRT	**MJ**	4304	4486	5589	5886	5117	6035	6152	5128	5243	5139	5167	5477	5593	5488	5516
SM	**kg**	200	200	100	100	0	0	0	100	100	100	100	0	0	0	0
RSF	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	**m^3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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													

Result per declared unit, 1 tonne asphalt mixture, for modul C1-C4					
Parameter	**Unit**	**Same scenario for all asphalt mixtures**			
		C1	**C2**	**C3**	**C4**
PERE	**MJ**	1,36E-01	8,26E-01	0,00E+00	0,00E+00
PERM	**MJ**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	**MJ**	1,36E-01	8,26E-01	0,00E+00	0,00E+00
PENRE	**MJ**	2,39E+01	6,09E+01	0,00E+00	0,00E+00
PENRM	**MJ**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	**MJ**	2,39E+01	6,09E+01	0,00E+00	0,00E+00
SM	**kg**	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
NRSF	**MJ**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	**m3**	0,00E+00	0,00E+00	0,00E+00	0,00E+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				

Result per declared unit, 1 tonne asphalt mixture, for modul D															
Parameter	**Enhet**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
PERE	**MJ**	-13	-13	-16	-16	-17	-18	-18	-15	-15	-16	-16	-17	-17	-17	-18
PERM	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	**MJ**	-13	-13	-16	-16	-17	-18	-18	-15	-15	-16	-16	-17	-17	-17	-18
PENRE	**MJ**	-1863	-1936	-2610	-2735	-2546	-3010	-3057	-2402	-2444	-2411	-2457	-2731	-2778	-2742	-2792
PENRM	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	**MJ**	-1863	-1936	-2610	-2735	-2546	-3010	-3057	-2402	-2444	-2411	-2457	-2731	-2778	-2742	-2792
SM	**kg**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	**MJ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	**m3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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

Result per declared unit, 1 tonne asphalt mixture, for modul A1-A3															
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
Hazardous waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Non-hazardous waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Radioactive waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Result per declared unit, 1 tonne asphalt mixture, for modul C1-C4					
Parameter	**Unit**	**Same scenario for all asphalt mixtures**			
		C1	**C2**	**C3**	**C4**
Hazardous waste disposed	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	**kg**	0,00E+00	0,00E+00	9,50E+02	0,00E+00
Radioactive waste disposed	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Result per declared unit, 1 tonne asphalt mixture, for modul D															
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
Hazardous waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Non-hazardous waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Radioactive waste disposed	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Output flows

Result per declared unit, 1 tonne asphalt mixture, for modul A1-A3															
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
Components for re-use	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Materials for recycling	**kg**	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02	1,30 E-02
Materials for energy recovery	**kg**	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02	4,22 E-02
Exported energy	**MJ**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Result per declared unit, 1 tonne asphalt mixture, for modul C					
Parameter	**Unit**	**Same scenario for all asphalt mixtures**			
		C1	**C2**	**C3**	**C4**
Components for re-use	**kg**	0,00E+00	0,00E+00	9,50E+02	0,00E+00
Materials for recycling	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	**MJ**	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Result per declared unit, 1 tonne asphalt mixture, for modul D															
Parameter	**Unit**	**AG**	**ABb**	**ABT**	**ABS**	**ABb PMB**	**ABT PMB**	**ABS PMB**	**ABT LTA**	**ABS LTA**	**ABT LTA kkv<7**	**ABS LTA kkv<7**	**ABT LTA PMB**	**ABS LTA PMB**	**ABT LTA PMB, kkv<7**	**ABS LTA PMB, kkv<7**
Components for re-use	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Materials for recycling	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Materials for energy recovery	**kg**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Exported energy	**MJ**	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Information on biogenic carbon content

In accordance with EN 15804, the biogenic carbon content of asphalt mixtures containing cellulose has not been calculated due to the amount being less than 5% of the mass of the final product.

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