

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Flex BL 20 2xCAT 6



Owner of the declaration:

Orbia Building & Infrastructure (Wavin)

Product:

Flex BL 20 2xCAT 6

Declared unit:

1 m

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core

PCR

NPCR 027:2020 Part B for Electrical cables and wires

Program operator:

EPD-Global

Declaration number:

NEPD-9706-9674

Issue date:

10.04.2025

Latest revision

v Date: 18.03.2026

Valid to:

10.04.2030

EPD software:

LCAno EPD generator ID: 1481223

General information

Product

Flex BL 20 2xCAT 6

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

NEPD-9706-9674

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD-Global shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 m Flex BL 20 2xCAT 6

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. Verification of each EPD is made according to EPD-Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global'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 EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT32.

Third party verifier:

Vito D'Incognito, Take Care International

(no signature required)

Owner of the declaration:

Orbia Building & Infrastructure (Wavin)
Contact person: Lokesh Anaparathi
Phone:
e-mail: Lokesh.anaparathi@orbia.com

Manufacturer:

Wavin
Karihaugveien 89, 1086 Oslo
Norway

Place of production:

TECCON Norge AS
Mekjarvik 18
4072 Randaberg, Norway

Management system:

Eco-lighthouse: 4247

Organisation no:

Issue date:

10.04.2025

Valid to:

10.04.2030

Year of study:

2024

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 is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD-Global. Approval number: NEPDT155

Developer of EPD: Jan Vestergaard

Reviewer of company-specific input data and EPD: Jorulv Søbstad

Approved:



Håkon Hauan, CEO EPD-Global

Product

Product description:

Pre-wired corrugated, Halogen free pliable / self-recovering conduit acc. to EN 61386-1 and EN 61386-22. U/UTP cat 6 cable, unshielded, used in data communication networks with 400MHz bandwidth capacity. The cable can be used indoor, fixed installed in dry and moisty environment's, and outdoor if protected against UV. May not be buried. The cable are Halogen Free, Non Corrosive and Flame retardant, meet EN 50575 classification Dca.

Product specification

CONDUIT

Construction standards EN 611386-1; EN 61386-22

ICTA 34423

CABLE

Construction standards ISO/IEC 11801; EN 50173; IEC61156-5EN50288-1; ANS/TIA/EIA 568-C2

Materials	kg	%
Metal - Copper	0.036	24.00
Plastic - Polyethylene	0.054	36.00
Plastic - Polypropylene (PP)	0.06	40.00
Total	0.15	100.00

Packaging	kg	%
Packaging - Plastic	0.00126	100.00
Total incl. packaging	0.1513	100.00

Technical data:

Corrugated Conduit Pliable/Self recovering halogen free Polypropylene

Compression force 750N

Marking EN, Date, and meter marking: 0-100m

Temperature - operation -25 to + 90°C

Temperature - installation -5 to + 90°C

Bending Radius 8 x D

Resistant to fire performance Flame retardant, self-extinguishing, low smoke toxic emission

Insulations resistance > 100M Ω at 500V in 1 min

Test - mechanical Acc. EN 61386-1; EN 61386-22

Test - electrical Acc. EN 61386-1; >2,0kV 50HZ in 15 min

Conductor Solid copper class 1 AWG 23

Insulation - conductor PE - coloured

Conductor marking/Pairs Colours Combinations "1 White-Blue / Blue; 2 White-Orange / Orange

3 White-Green / Green; 4 White-Brown / Brown"

Conductor laying Varying short pair lay-length (4 pairs).

Pair separation PE cross

Jacket HFFR compound TS EN 50290-2-27

Marking acc. EIA/TIA-568-C.2

Voltage - nominal U_o/U 125

Voltage - test 1000

Conductor resistance Ω /km 85

Mutual capacitance / Capacitance unbalance pF/m 50/1600

Resistance insulation M Ω x m 5000

Resistant to fire performance EN 60332-1-2

CPR EN 50575 compliance Dca

DoP 17092

Temperature - operation -30 to +70°C

Temperature - installation 0 - +50 °C

Bending Radius Installation/operation 50/25mm

Market:

Nordic

Reference service life, product

25Y+

Reference service life, building or construction works

25Y+

LCA: Calculation rules

Declared unit:

1 m Flex BL 20 2xCAT 6

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.

All major materials have been included. Substance representing <1% have not been included. This include folio film for packaging!

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. The allocation is made in accordance with the guidelines given in EN 15804.

Raw material - Information derived from manufactory and from a LCA generator

Processing: Derived from actual measurements during production of the individual units/stages.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Data from material supplier and the LCA generator has been accepted "As-Is"

Data from processing TECCON in-house has been repeated ongoingly without major deviations. Figures given in document are worst case values.

Materials	Source	Data quality	Year
Metal - Copper	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Plastic - Polypropylene (PP)	ecoinvent 3.6	Database	2019

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

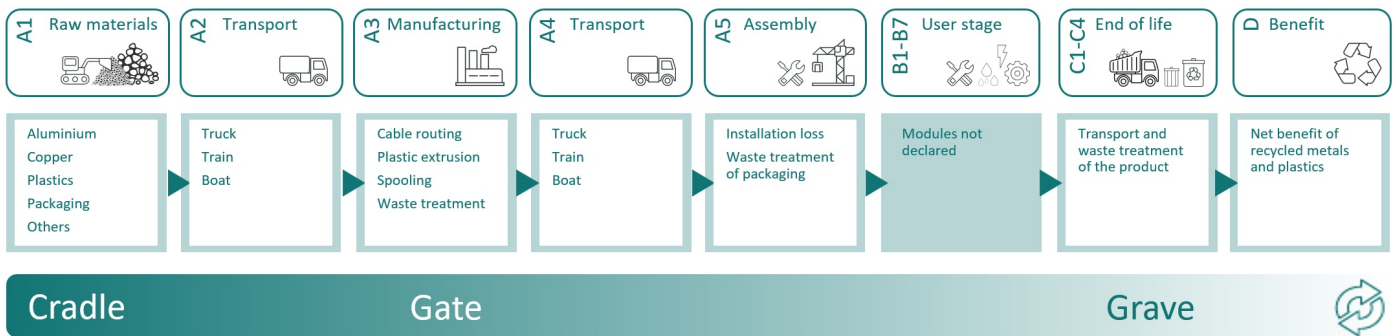
Product stage			Construction installation stage		Use stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	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	

System boundary:

Cradle to Gate.

The following stages have been declared: A1-A4

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

Article 4732022106Flex BL 20 2xCAT 6 (Wavin) 4P awg 23 EC250 represent the maximum energy consumption from the product family below - from a production volume perspective as follow:

- 4732011105 FlexPP BL 16 UTP CAT 5 L=100
- 4732022105 FlexPP BL 20 2xUTP CAT 5 L=100
- 4732022106 FlexPP BL 20 2xUTP CAT 6 L=100
- 4732022256 FlexPP BL 20 UTP CAT 6+Coax L=100
- 4732022259 FlexPP BL 20 UTP5 + SAT KO/AL L=100
- 4732211108 FlexPP GN 16 Coax RG6T L=100
- 4732211109 FlexPP GN 16 SAT KO/AL L=100
- 4732411611 FlexPP GN 16 2x0,8 DCA L=100
- 4732413211 FlexPP GN 16 4x0,8 DCA L=100
- 4730014040 FlexPP GR 16 VMVL GG/BL/BR/ZW 4x1 L=100
- 4732013210 FlexPP BL 16 2x2x0,8 KNX Dca L=100

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Module A4 = In A4, a transport distance from the production site to Elektroskandia's warehouse in Langhus was included. A distance of 300 km was also added as additional transport to market.

Modules A5 = 2 % product losses during installation are estimated by the company. No energy use has been quantified since installation in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut-off criterion of 1%.

Module C1 = de-construction in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut-off criterion of 1%.

Module C2 = 85 km is added as default transport to waste treatment in C2.














Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with and without energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals and plastics allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastics is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (kgkm) - RER	36.7 %	988.00	0.043	l/tkm	42.48
Assembly (A5)		Unit	Value		
Waste, plastic, mixture, to average treatment - A5 including transport (kg)	kg/DU	0.00252			
Product loss during installation (percentage of cable)	Units/DU	0.02			
Waste processing (C3)		Unit	Value		
Aluminium to recycling (kg)	kg/DU	0.0324			
Waste treatment of polyethylene (PE), incineration with energy recovery and fly ash extraction (kg)	kg/DU	0.081			
Waste treatment of polypropylene (PP), incineration with energy recovery and fly ash extraction (kg)	kg/DU	0.084			
Copper to recycling (kg)	kg	0.0216			
Polypropylene (PP) to recycling (kg)	kg	0.012			
Disposal (C4)		Unit	Value		
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0.004758			
Landfilling of ashes from incineration of Polypropylene (PP), process per kg ashes and residues (kg)	kg	0.004286			
Landfilling of aluminium (kg)	kg/DU	0.0036			
Landfilling of copper (kg)	kg	0.0144			
Landfilling of plastic mixture (kg)	kg	0.051			
Benefits and loads beyond the system boundaries (D)		Unit	Value		
Substitution of electricity, in Norway (MJ)	MJ	0.6927			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	7.20			
Substitution of primary copper with net scrap (kg)	kg/DU	0.03858			
Substitution of Polypropylene, PP granulate (kg)	kg	0.01177			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact												
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	5.45E-01	1.34E-02	5.94E-02	2.44E-02	3.25E+00	0	0	4.58E-01	6.59E-03	-1.61E-01	
 GWP-fossil	kg CO ₂ -eq	5.37E-01	1.34E-02	5.92E-02	2.44E-02	3.25E+00	0	0	4.58E-01	6.59E-03	-1.59E-01	
 GWP-biogenic	kg CO ₂ -eq	8.22E-03	4.95E-06	5.03E-05	1.01E-05	1.51E-03	0	0	3.74E-06	7.84E-07	-6.60E-04	
 GWP-luluc	kg CO ₂ -eq	3.28E-04	6.49E-06	7.29E-05	8.69E-06	1.16E-03	0	0	5.60E-07	2.90E-07	-1.55E-03	
 ODP	kg CFC11-eq	2.20E-08	3.11E-09	8.53E-10	5.53E-09	7.32E-07	0	0	3.55E-10	2.82E-10	-3.04E-03	
 AP	mol H ⁺ -eq	3.13E-02	1.69E-04	7.41E-05	7.02E-05	9.93E-03	0	0	5.76E-05	7.69E-06	-1.59E-02	
 EP-FreshWater	kg P -eq	3.02E-04	8.96E-08	9.03E-07	1.95E-07	3.21E-05	0	0	3.67E-08	1.67E-08	-1.08E-04	
 EP-Marine	kg N -eq	1.15E-03	3.92E-05	1.47E-05	1.39E-05	1.86E-03	0	0	2.76E-05	8.73E-06	-7.63E-04	
 EP-Terrestrial	mol N -eq	1.60E-02	4.37E-04	1.61E-04	1.55E-04	2.09E-02	0	0	2.98E-04	3.00E-05	-1.12E-02	
 POCP	kg NMVOC-eq	5.32E-03	1.21E-04	4.33E-05	5.95E-05	7.98E-03	0	0	7.16E-05	9.70E-06	-3.09E-03	
 ADP-minerals&metals ¹	kg Sb-eq	8.82E-05	2.73E-07	1.51E-07	6.74E-07	9.10E-05	0	0	1.64E-08	8.54E-09	-8.74E-05	
 ADP-fossil ¹	MJ	1.19E+01	1.92E-01	1.29E-01	3.69E-01	4.91E+01	0	0	3.05E-02	2.21E-02	-2.29E+00	
 WDP ¹	m ³	7.82E+00	1.39E-01	7.40E-01	3.57E-01	4.74E+01	0	0	6.99E-02	3.01E-01	-6.46E+00	







GWP-total = Global Warming Potential total; 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

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. 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

Remarks to environmental impacts











Additional environmental impact indicators

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	6.14E-08	5.51E-10	4.47E-10	1.50E-09	1.99E-07	0	0	2.46E-10	1.35E-10	-5.26E-08
 IRP ²	kgBq U235 -eq	1.23E-02	8.34E-04	3.89E-04	1.61E-03	2.14E-01	0	0	5.23E-05	1.18E-04	-5.60E-03
 ETP-fw ¹	CTUe	2.32E+02	1.33E-01	2.58E-01	2.74E-01	4.12E+01	0	0	9.06E-02	1.12E+01	-1.46E+02
 HTP-c ¹	CTUh	5.60E-09	0.00E+00	7.00E-12	0.00E+00	1.16E-10	0	0	1.10E-11	0.00E+00	-2.08E-09
 HTP-nc ¹	CTUh	4.95E-07	1.07E-10	2.92E-10	2.99E-10	4.98E-08	0	0	3.87E-10	3.30E-11	-1.76E-07
 SQP ¹	dimensionless	3.20E+00	1.05E-01	3.48E-02	2.58E-01	3.42E+01	0	0	3.77E-03	6.70E-02	-5.83E+00

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)




"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. 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
2. 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.

Resource use												
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
 PERE	MJ	6.22E-01	2.30E-03	1.53E-01	5.28E-03	7.15E-01	0	0	9.10E-04	1.64E-03	-4.28E+00	
 PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	
 PERT	MJ	6.22E-01	2.30E-03	1.53E-01	5.28E-03	7.15E-01	0	0	9.10E-04	1.64E-03	-4.28E+00	
 PENRE	MJ	7.81E+00	1.92E-01	1.29E-01	3.69E-01	4.90E+01	0	0	3.05E-02	2.21E-02	-1.93E+00	
 PENRM	MJ	4.47E+00	0.00E+00	0.00E+00	0.00E+00	-4.82E-02	0	0	-4.26E+00	0.00E+00	-3.86E-01	
 PENRT	MJ	1.23E+01	1.92E-01	1.29E-01	3.69E-01	4.89E+01	0	0	-4.23E+00	2.21E-02	-2.32E+00	
 SM	kg	8.34E-03	0.00E+00	0.00E+00	0.00E+00	1.74E-04	0	0	0.00E+00	1.80E-05	2.70E-02	
 RSF	MJ	9.64E-03	7.74E-05	7.39E-04	1.89E-04	2.52E-02	0	0	2.54E-05	3.52E-05	1.06E-03	
 NRSF	MJ	6.34E-03	3.81E-04	3.87E-04	6.76E-04	8.95E-02	0	0	0.00E+00	1.02E-03	-2.14E-01	
 FW	m ³	7.78E-03	1.75E-05	1.12E-03	3.95E-05	5.40E-03	0	0	8.52E-05	2.65E-05	-8.81E-03	






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 resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

End of life - Waste												
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
	HWD	kg	3.63E-03	9.46E-06	5.69E-04	1.90E-05	2.76E-03	0	0	0.00E+00	8.33E-03	-1.10E-03
	NHWD	kg	9.76E-02	6.92E-03	3.90E-02	1.80E-02	2.38E+00	0	0	0.00E+00	7.35E-02	-6.07E-02
	RWD	kg	1.16E-05	1.32E-06	3.20E-07	2.51E-06	3.33E-04	0	0	0.00E+00	1.46E-07	-4.58E-06

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

End of life - Output flow												
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	1.29E-01	0.00E+00	2.74E-03	0	0	6.60E-02	4.61E-06	-1.06E-03
	MER	kg	0.00E+00	0.00E+00	2.07E-02	0.00E+00	3.30E-03	0	0	1.65E-01	5.67E-07	-1.67E-04
	EEE	MJ	0.00E+00	0.00E+00	3.18E-02	0.00E+00	5.91E-03	0	0	2.94E-01	1.13E-05	-3.90E-04
	EET	MJ	0.00E+00	0.00E+00	4.82E-01	0.00E+00	8.94E-02	0	0	4.44E+00	1.71E-04	-5.90E-03

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional 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	Source	Amount	Unit
Electricity, Turkey (kWh)	ecoinvent 3.6	667.02	g CO ₂ -eq/kWh
Electricity, Norway (kWh)	ecoinvent 3.6	24.33	g CO ₂ -eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

No effect on in-door environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	5.30E-01	1.34E-02	5.93E-02	2.44E-02	3.25E+00	0	0	4.58E-01	6.62E-03	-1.10E-01

GWPI-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

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