epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Halogen-free signal control cable J-H(St)H fire alarm cable

The Norwegian EPD Foundation

Owner of the declaration:
Elis Elektro AS

Product:
Halogen-free signal control cable J-H(St)H fire alarm cable

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:
The Norwegian EPD Foundation

Declaration number:
NEPD-11451-11374

Registration number:
NEPD-11451-11374

Issue date:
18.06.2025

Valid to:
18.06.2030

EPD software:
LCAno EPD generator ID: 73272

General information

Product

Halogen-free signal control cable J-H(St)H fire alarm cable

Owner of the declaration:

Elis Elektro AS
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Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
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web: www.epd-norge.no

Manufacturer:

Elis Elektro AS
Jerikoveien 16
1067 Oslo, Norway

Declaration number:

NEPD-11451-11374

Place of production:

Elis Elektro production site Kabeltec GMBH Oberndorf (Germany)
Werkstraße 43
78727 Oberndorf am Neckar, Germany

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

Management system:

Eco-lighthouse

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.

Organisation no:

911 394 928

Declared unit:

1 m Halogen-free signal control cable J-H(St)H fire alarm cable

Issue date:

18.06.2025

Declared unit with option:

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

Valid to:

18.06.2030

Year of study:

2023

Functional unit:

Fire alarm cable J-H(St)H with grounded wire.
Signal cable for fire alarm systems.
Halogen-free signal cable, wound with grounded wire, for fixed installation indoors. Outdoors with extra protection. The cable is pre-marked.

Comparability:

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

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-Norway'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-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

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 Norway. Approval number: NEPDT159

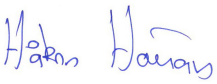
Developer of EPD: Nanna Wister

Reviewer of company-specific input data and EPD: Stig Linneberg

Verification of EPD tool:

Approved:

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. Approval number: NEPDT32.



Håkon Hauan, CEO EPD-Norge

Third party verifier:

Vito D'Incognito, Take Care International

(no signature required)

Product

Product description:

This halogen-free installation cable is used for telephone data and signal transmissions in dry and moist rooms as well as on and under plaster. The halogen-free outer sheath enables a better burning behaviour and prevents the emission of corrosive gases in case of fire as well as the extension of fire.

Product specification

General: Factory Standard

Materials	kg	%
Copper conductor, with tin	0,0046	7,75
HFFR Polyolefin	0,029	50,084
Metal - Aluminium	0,010	17,20
Metal - Copper	0,014	24,95
Total	0,059	100,00

Packaging	kg	%
Packaging - Wood	0,00	100,00
Total incl. packaging	0,06	100,00

Technical data:

- Plain copper wires, solid
- Core insulation made of halogen-free compound
- Lapped with plastic film
- Static screen made of plastics laminated metal foil and Cu tracer wire
- Outer sheath of halogen-free Polymer, red, green or white
- Flame-retardant
- Core marking: In accordance to DIN VDE 0815
- Four cores twisted as star-quad

Conductor Material: IEC60228/DIN EN 60228/EN60228 Class 1 Electrolytic Solid copper
Core insulation: Halogen-free insulation compound HFFR compound EN-50290-2-26
Core identification: Black and red cores
Stranding: Pairwise
Overall Wrapping: PES Tape
Overall screen: Tinned Copper Drain wire+ Al Pes Tape
Outer sheath: EN-50290-2-27 HFFR Compound, Sheat colr: Red,Green or White
Print on cable: Red: Brann-Nødlys, Green: Talevarsling, White: no printing
Operating voltage 300V, testing voltage 1000V
Cross-Section (mm) 1x2x1+0,80
Overall diameter (mm) 5,8 +/- 10%
Loop Resistance : 44,6 O / km
Insulation resistance 100 MO x km
Mutual Capacity : 100 nF/km
Working temp fixed [C] -30°C up to+70°C , moved [C] -5°C up to+50°C
Flame retardant test: IEC 60332-1-2,DIN EN 60332-1-2, BS EN 60332-1-2, EN 60332-1-2
Flame Propagation Test: IEC60332-3-24,Din EN 60332-3-24,BS EN 60332-3-24,EN 60332-3-24
Smoke Density Test: IEC 61034-2,VDE 0482-1034-2, EN61034-2
Corrosive Gas Test: IEC 60754-2, VDE 0485-754-1-2, EN 60754-2
Halogen-free Test: IEC 60754-1,VDE 0482-754-2,EN 60754-2

Market:

Norway/ Scandinavia

Reference service life, product

40 years. Standard lifetime for energy distribution network applications, provided in appendix 1 of PSR for wires, cables, and accessories of PEP Ecopassport.

Reference service life, building or construction works

40 years. Estimation made to match the product service life and keep the EPD environmental impact calculations at the product level.

LCA: Calculation rules

Declared unit:

1 m Halogen-free signal control cable J-H(St)H fire alarm cable

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.

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.

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.

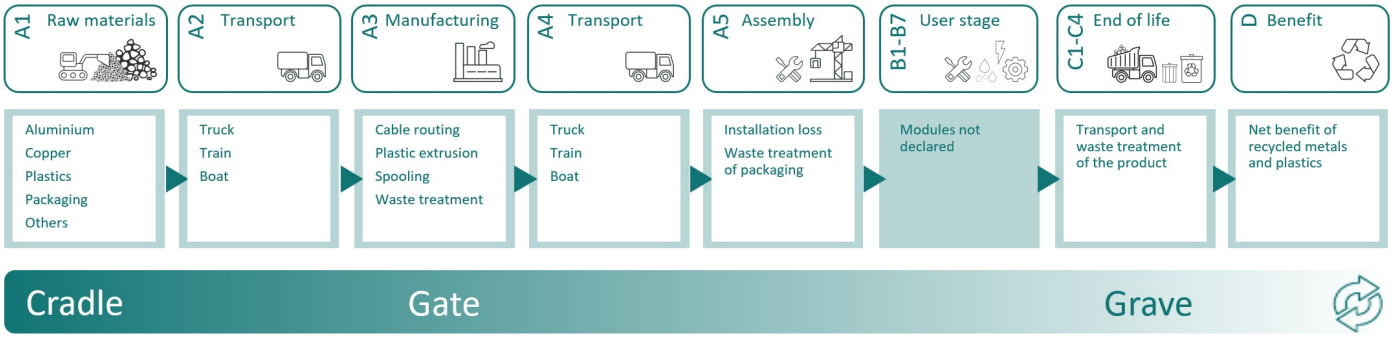
Materials	Source	Data quality	Year
Copper conductor, with tin	ecoinvent 3.6	Database	2019
HFFR Polyolefin	ecoinvent 3.6	Database	2019
Metal - Aluminium	ecoinvent 3.6	Database	2019
Metal - Copper	ecoinvent 3.6	Database	2019
Packaging - Wood	ecoinvent 3.6	Database	2019

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:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

LCA: Scenarios and additional technical information

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

Module A4 = An average distance between the factory and the market is considered.

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%. Cable drums are reused and also assumed 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 = An average distance between the market and the waste treatment facility is considered.

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 plastic insulation and other parts 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)
Ship, Ferry, Sea (km)	50,0 %	300	0,034	l/tkm	10,20
Truck, over 32 tonnes, EURO 6 (km)	53,3 %	1254	0,023	l/tkm	28,84

Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable)	Units	0,020			
Waste, packaging, wooden drums, reusable, 0% recycled content, to average treatment (kg) - A5 with average transport	kg	0,0040			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	85	0,043	l/tkm	3,66

Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0,011			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,014			
Aluminium to recycling (kg)	kg	0,0071			

Disposal (C4)	Unit	Value			
Landfilling of aluminium (kg)	kg	0,0030			
Landfilling of copper (kg)	kg	0,0077			
Landfilling of plastic mixture (kg)	kg	0,014			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00051			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0,34			
Substitution of primary aluminium with net scrap (kg)	kg	0,0036			
Substitution of electricity, in Norway (MJ)	MJ	0,022			
Substitution of primary copper with net scrap (kg)	kg	0,0082			

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	2,94E-01	2,10E-02	3,73E-02	7,26E-03	5,59E-03	0	7,09E-04	3,52E-02	1,85E-03	-5,55E-02
	GWP-fossil	kg CO_2 -eq	2,97E-01	2,10E-02	3,59E-02	7,25E-03	1,08E-04	0	7,08E-04	3,52E-02	1,85E-03	-5,45E-02
	GWP-biogenic	kg CO_2 -eq	-3,52E-03	8,55E-06	1,31E-03	2,82E-06	5,48E-03	0	2,93E-07	7,64E-07	1,52E-07	-2,47E-04
	GWP-luluc	kg CO_2 -eq	6,84E-04	7,20E-06	3,66E-05	2,74E-06	2,76E-08	0	2,52E-07	1,42E-07	9,38E-08	-7,12E-04
	ODP	kg CFC11 -eq	1,58E-08	4,79E-09	1,94E-09	1,68E-09	1,70E-11	0	1,60E-10	7,60E-11	8,90E-11	-1,46E-04
	AP	mol H+ -eq	5,70E-03	8,59E-05	1,10E-04	7,30E-05	8,65E-07	0	2,04E-06	7,70E-06	2,36E-06	-3,56E-03
	EP-FreshWater	kg P -eq	4,42E-05	1,64E-07	4,55E-06	5,07E-08	1,29E-09	0	5,66E-09	6,78E-09	4,36E-09	-2,38E-05
	EP-Marine	kg N -eq	4,78E-04	2,55E-05	2,40E-05	1,77E-05	3,71E-07	0	4,03E-07	3,68E-06	2,61E-06	-1,70E-04
	EP-Terrestial	mol N -eq	6,43E-03	2,82E-04	3,13E-04	1,96E-04	3,98E-06	0	4,50E-06	3,78E-05	9,46E-06	-2,48E-03
	POCP	kg NMVOC -eq	1,74E-03	8,69E-05	6,86E-05	5,67E-05	1,02E-06	0	1,73E-06	9,11E-06	3,05E-06	-6,94E-04
	ADP-minerals&metals[1]	kg Sb-eq	4,56E-05	5,46E-07	2,62E-07	1,11E-07	1,75E-09	0	1,96E-08	3,85E-09	2,31E-09	-1,86E-05
	ADP-fossil[1]	MJ	3,74E+00	3,17E-01	4,55E-01	1,12E-01	1,26E-03	0	1,07E-02	4,83E-03	7,01E-03	-6,22E-01
	WDP[1]	m^3	2,33E+01	2,96E-01	4,13E+00	7,35E-02	1,95E-03	0	1,04E-02	3,49E-02	1,22E-01	-1,80E+01

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"
*INA Indicator Not Assessed

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	2,57E-08	1,54E-09	8,49E-10	5,58E-10	1,10E-11	0	4,30E-11	3,40E-11	4,40E-11	-9,92E-09
	IRP[2]	kgBq U235 -eq	1,12E-02	1,39E-03	1,49E-03	4,88E-04	4,59E-06	0	4,68E-05	1,22E-05	4,06E-05	-2,21E-03
	ETP-fw[1]	CTUe	5,99E+01	2,33E-01	3,93E-01	7,84E-02	1,44E-03	0	7,94E-03	7,43E-02	6,70E+00	-3,12E+01
	HTP-c[1]	CTUh	1,28E-09	0,00E+00	1,00E-11	0,00E+00	0,00E+00	0	0,00E+00	2,00E-12	0,00E+00	-5,16E-10
	HTP-nc[1]	CTUh	7,92E-08	2,49E-10	4,03E-10	7,90E-11	8,00E-12	0	9,00E-12	9,30E-11	9,00E-12	-3,80E-08
	SQP[1]	dimensionless	1,94E+00	2,34E-01	1,06E-01	1,06E-01	7,09E-04	0	7,49E-03	8,82E-04	1,92E-02	-5,82E-01

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"
*INA Indicator Not Assessed

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	4,42E-03	7,45E-02	1,27E-03	2,60E-05	0	1,53E-04	2,69E-04	6,60E-04	-3,98E-01
	PERM	MJ	5,55E-02	0,00E+00	0,00E+00	0,00E+00	-5,04E-02	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	6,78E-01	4,42E-03	7,45E-02	1,27E-03	-5,03E-02	0	1,53E-04	2,69E-04	6,60E-04	-3,98E-01
	PENRE	MJ	3,32E+00	3,17E-01	4,55E-01	1,12E-01	1,26E-03	0	1,07E-02	4,83E-03	7,01E-03	-6,22E-01
	PENRM	MJ	4,16E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	-4,16E-01	0,00E+00	0,00E+00
	PENRT	MJ	3,74E+00	3,17E-01	4,55E-01	1,12E-01	1,26E-03	0	1,07E-02	-4,11E-01	7,01E-03	-6,22E-01
	SM	kg	6,82E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	5,78E-03
	RSF	MJ	1,14E-02	1,58E-04	2,31E-02	4,32E-05	7,58E-07	0	5,48E-06	5,78E-06	1,37E-05	4,57E-04
	NRSF	MJ	8,66E-04	5,61E-04	1,54E-04	1,33E-04	8,63E-06	0	1,96E-05	0,00E+00	7,18E-06	-9,07E-03
	FW	m^3	1,05E-02	3,37E-05	2,73E-04	1,13E-05	9,21E-07	0	1,14E-06	4,09E-05	8,96E-06	-1,52E-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"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	2,44E-03	1,63E-05	1,63E-03	5,82E-06	0,00E+00	0	5,52E-07	0,00E+00	4,20E-04	-8,71E-05
	NHWD	kg	6,82E-02	1,65E-02	3,63E-03	7,91E-03	4,00E-03	0	5,21E-04	0,00E+00	2,59E-02	-1,97E-02
	RWD	kg	1,02E-05	2,16E-06	1,97E-06	7,68E-07	0,00E+00	0	7,29E-08	0,00E+00	4,76E-08	-2,05E-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"
*INA Indicator Not Assessed

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	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	1,01E-03	0,00E+00	9,46E-08	0	0,00E+00	1,88E-02	1,33E-06	-2,26E-04
	MER	kg	0,00E+00	0,00E+00	7,36E-03	0,00E+00	4,00E-03	0	0,00E+00	1,49E-02	3,26E-08	-2,98E-05
	EEE	MJ	0,00E+00	0,00E+00	4,47E-03	0,00E+00	2,78E-03	0	0,00E+00	2,28E-02	2,11E-06	-7,30E-05
	EET	MJ	0,00E+00	0,00E+00	6,76E-02	0,00E+00	4,21E-02	0	0,00E+00	3,45E-01	3,20E-05	-1,10E-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"
*INA Indicator Not Assessed

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	1,65E-03

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, Germany (kWh)	ecoinvent 3.6	585,93	g CO2-eq/kWh

Dangerous substances

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

Indoor 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	3,00E-01	2,10E-02	3,94E-02	7,26E-03	1,08E-04	0	7,09E-04	3,52E-02	1,85E-03	-4,34E-02

GWP-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.

Bibliography

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