



# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

# Schoolair-B





The Norwegian EPD Foundation

Owner of the declaration:

**TROX Group** 

Product:

Schoolair-B

**Declared unit:** 

1 pc

This declaration is based on Product Category Rules:

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

PCR

NPCR 030:2021 Part B for ventilation components

Program operator:

The Norwegian EPD Foundation

**Declaration number:** 

NEPD-8472-8139-EN

NEPD-8472-8139-EN

Issue date: 13.12.2024

Registration number:

Valid to: 13.12.2029

**EPD** software:

LCAno EPD generator ID: 485533



## **General information**

#### **Product**

Schoolair-B

#### **Program operator:**

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway

Phone: +47 977 22 020 web: www.epd-norge.no

## **Declaration number:**

NFPD-8472-8139-FN

### This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR NPCR 030:2021 Part B for ventilation components

#### 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.

#### Declared unit:

1 pcs Schoolair-B

#### **Declared unit with option:**

A1-A3,A4,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-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

#### **Verification of EPD tool:**

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.

Third party verifier:

Alexander Borg, Asplan Viak AS

(no signature required)

#### Owner of the declaration:

TROX Group Contact person: Alina Buchner Phone: +49 2845 2020

e-mail: productsustainability-de@troxgroup.com

#### Manufacturer:

TROX Group Heinrich-Trox-Platz 1 47506 Neukirchen-Vluyn, Germany

#### Place of production:

TROX GmbH - Neukirchen-Vluyn Heinrich-Trox-Platz 1 47506 Neukirchen-Vluyn, Germany

#### Management system:

ISO 9001, ISO 14001:2015, ISO 50001:2018

#### **Organisation no:**

DE 120250070

#### Issue date:

13.12.2024

#### Valid to:

13.12.2029

## Year of study:

2023

## 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 Norway.

Developer of EPD: Jule Dallmann

Reviewer of company-specific input data and EPD: Alina Buchner

#### Approved:

Håkon Hauan

Managing Director of EPD-Norway



## **Product**

## **Product description:**

Supply and extract air unit with heat exchanger and heat recovery unit, secondary air option, for installation under the sill.

For more information see: https://www.trox.de/horizontale-bruestungsloesung/x-cube-schoolair-b-ef6e64df8cc97484.

#### **Product specification**

School ventilation unit – under sill installation – MASTER UNIT

Please note: The described under sill ventilation unit variant is equipped with a single room control system arranged in the unit. The supplied controllers contain the parameters of the standard control for operation according to our control description.

This EPD includes the environmental data of the product series Schoolair-B.

The following represents a specific dataset of the most sold variant in the declared sales year (SAB/2/KM/1590x420/C3/MA/C).

Materials	kg	%
Coating materials	0,39	0,47
Electronic - Cable	3,41	4,18
Electronic - Printed wiring board	0,10	0,12
Electronic - Sensor	0,12	0,14
Electronic - Unspecified	7,12	8,73
Filter, mineral based	0,02	0,02
Insulation, Mineral based	0,20	0,25
Metal - Galvanized Steel	57,37	70,38
Motor	1,25	1,53
Plastic - Ethylene vinyl acetate (EVA)	0,17	0,21
Plastic - Polyamide	0,45	0,55
Plastic - Polyethylene	0,03	0,03
Plastic - Polyoxymethylene (POM)	0,02	0,02
Plastic - Polypropylene (PP)	0,01	0,01
Plastic - Polyurethane (PUR)	0,01	0,01
Plastic - Polyvinyl chloride (PVC)	0,52	0,64
Polyester textile	0,15	0,19
Powder coating	2,00	2,46
Product label - supercalendered	0,14	0,17
Rubber, synthetic	0,01	0,01
Metal - Aluminium	4,95	6,07
Metal - Copper	0,07	0,09
Metal - Stainless steel	2,70	3,31
Metal - Steel	0,34	0,42
Total	81,51	100,00
Packaging	kg	%
Packaging - Cardboard	1,07	13,74
Packaging - Pallet	6,67	85,91
Packaging - Plastic	0,03	0,34
Total incl. packaging	89,28	100,00

#### Technical data:

Width: 1590 mm. Height: 646 mm. Depth: 420 mm.

Volume flow rate: 150, 200, 250 m<sup>3</sup>/h (boost 320 m<sup>3</sup>/h).

Nominal volume flow rate: 250 m³/h. Sound power level: 29 – 43 dB(A). Heat recovery efficiency: 60 %.

Maximum operating pressure, water side: 6 bar. Maximum operating temperature: 75 °C. Supply voltage: 230 V AC  $\pm$ 10 %, 50/60 Hz.

Power rating: 238 VA.

For more technical information see: https://www.trox.de/en/horizontal-(under-sill)-units/x-cube-schoolair-b-386be99c865704bc#technical-information.

#### Market:

Europe.

#### Reference service life, product

20 years.



## Reference service life, building or construction works

60 years.

#### LCA: Calculation rules

#### **Declared unit:**

1 pcs Schoolair-B

#### **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. Energy, 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.

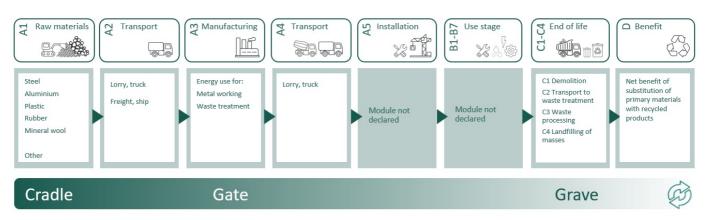
Materials	Source	Data quality	Year
Coating materials	ecoinvent 3.6	Database	2019
Electronic - Cable	ecoinvent 3.6	Database	2019
Electronic - Printed wiring board	ecoinvent 3.6	Database	2019
Electronic - Sensor	Product composition + ecoinvent 3.6	Supplier data + database	2019
Electronic - Unspecified	ecoinvent 3.6	Database	2019
Filter, mineral based	Modified ecoinvent 3.6	Database	2019
Insulation, Mineral based	ecoinvent 3.6	Database	2019
Metal - Aluminium	ecoinvent 3.6	Database	2019
Metal - Copper	ecoinvent 3.6	Database	2019
Metal - Galvanized Steel	ecoinvent 3.6	Database	2020
Metal - Galvanized Steel	Modified ecoinvent 3.6	Database	2019
Metal - Galvanized Steel	Supplier	EPD	2023
Metal - Stainless steel	ecoinvent 3.6	Database	2019
Metal - Steel	ecoinvent 3.6	Database	2019
Motor	Modified ecoinvent 3.6	Database	2019
Packaging - Cardboard	ecoinvent 3.6	Database	2019
Packaging - Pallet	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Plastic - Ethylene vinyl acetate (EVA)	ecoinvent 3.6	Database	2019
Plastic - Polyamide	ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Plastic - Polyoxymethylene (POM)	ecoinvent 3.6	Database	2019
Plastic - Polypropylene (PP)	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019
Polyester textile	ecoinvent 3.6	Database	2019
Powder coating	ecoinvent 3.6	Database	2019
Product label - supercalendered	ecoinvent 3.6	Database	2019
Rubber, synthetic	ecoinvent 3.6	Database	2019



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

Р	roduct stag	ge		uction ion stage				Use stage				End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refu <i>r</i> b ishment	Operational energy use	Operational water use	De- construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery- Recycling-potential
A1	A2	A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
Χ	Χ	Χ	Χ	MND	MND	MND	MND	MND	MND	MND	MND	X	Χ	X	Χ	X

#### System boundary:



#### Additional technical information:

Ready-to-operate decentralised ventilation unit that provides good comfort levels and is used for the ventilation of internal spaces such as classrooms or conference rooms.

Acoustically optimised EC fans with low specific fan powers, SFP-1 according to EN 13779.

Cross flow heat recovery unit (heat recovery efficiency 60 %).

Highly efficient heat exchanger for heating and cooling as 2-pipe or 4-pipe system.

Heat exchanger connected on the right-hand side of the room.

Condensate drip tray with condensate drain (on the right hand-side of the room).

Year-round use of heat recovery possible (condensate drain must be provided by others).

Reduction of fine dust and pollen contamination due to integrated filters that conform to VDI 6022 – filter class ISO ePM1 65 % and extract air ISO coarse 55 %.

Easy filter change, no tools required.

Motorised shut-off dampers, normally closed (NC).

Installation without interruption to the operations of the respective school.

Optional equipment and accessories:

Modular control system FSL-CONTROL III, especially for decentralised ventilation systems.

Wood panelling as a room solution in diverse colours including TROX grilles for supply air and extract air (self-assembly kit).



# LCA: Scenarios and additional technical information

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

Transport from production place to user (A4)	Capacity utilisation	Distance (km)	Fuel/Energy Consumption	Unit	Value
	(incl. return) %				(Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	800	0,043	l/tkm	34,40
De-construction demolition (C1)  Demolition of building per kg of ventilation	Unit	Value			
product (kg)	kg	81,51			
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 %	50	0,043	l/tkm	2,15
Waste processing (C3)	Unit	Value			
Materials to recycling (kg)	kg	62,18			
Waste treatment per kg Hazardous waste, incineration (kg)	kg	1,57			
Waste treatment per kg Plastics, incineration (kg)	kg	0,39			
Waste treatment per kg Electronic scrap, incineration (kg)	kg	7,23			
Waste treatment per kg Polyethylene (PE), incineration (kg)	kg	0,01			
Waste treatment per kg of waste cable, manual treatment (kg)	kg	3,41			
Waste treatment per kg Polyethylene					
terephthalate (PET), incineration with fly ash extraction (kg)	kg	1,15			
Waste treatment per kg Polyoxymethylene (POM), incineration with fly ash extraction (kg)	kg	0,01			
Waste treatment per kg Bulk iron waste, excluding reinforcement, sorting plant (kg)	kg	1,25			
Waste treatment per kg Polyvinylchloride (PVC), incineration with fly ash extraction (kg)	kg	0,26			
Waste treatment per kg Rubber, municipal incineration with fly ash extraction (kg)	kg	0,01			
Waste treatment per kg Polypropylene (PP), incineration (kg)	kg	0,00			
Disposal (C4)	Unit	Value			
Waste, scrap steel, to landfill (kg)	kg	6,01			
Landfilling of ashes from incineration per kg Hazardous waste, from incineration (kg)	kg	0,30			
Waste, hazardous waste, to landfill (kg)	kg	1,05			
Landfilling of ashes from incineration of Plastics, process per kg ashes and residues (kg)	kg	0,01			
Waste, plastic, mixture, to landfill (kg)	kg	0,68			
Waste, aluminium, to landfill (kg)	kg	0,48			
Landfilling of ashes from incineration of Electronic scrap, process of ashes and residues (kg)	kg	5,08			
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Polyethylene terephthalate (PET), process per kg ashes and residues (kg)	kg	0,03			
Waste treatment per kg Copper slag, to landfill, residual material landfill (kg)	kg	0,25			
Landfilling of ashes from incineration of Polyoxymethylene (POM), process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Polyvinylchloride (PVC), process per kg ashes and residues (kg)	kg	0,04			
Waste, mineral wool, to landfil (kg)	kg	0,20			
Waste, inert waste, to landfill (kg)  Landfilling of ashes from incineration of Rubber,	kg	0,02			
municipal incineration with fly ash extraction (kg)	kg	0,00			
Landfilling of ashes from incineration of Polypropylene (PP), process per kg ashes and residues (kg)	kg	0,00			



Benefits and loads beyond the system boundaries (D)	Unit	Value		
Substitution of primary steel with net scrap (kg)	kg	14,75		
Substitution of electricity (MJ)	MJ	1,53		
Substitution of thermal energy, district heating (MJ)	MJ	23,10		
Substitution of primary copper with net scrap (kg)	kg	0,14		
Substitution of primary aluminium with net scrap (kg)	kg	4,66		



#### **LCA: Results**

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

Environ	mental impact								
	Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
	GWP-total	kg CO <sub>2</sub> -eq	6,38E+02	1,17E+01	1,08E-01	7,30E-01	1,55E+01	1,08E+00	-5,90E+01
	GWP-fossil	kg CO <sub>2</sub> -eq	6,29E+02	1,17E+01	1,07E-01	7,29E-01	1,54E+01	1,08E+00	-5,80E+01
	GWP-biogenic	kg CO <sub>2</sub> -eq	6,82E+00	4,83E-03	2,01E-05	3,02E-04	4,70E-02	1,23E-03	-2,01E-01
	GWP-luluc	kg CO <sub>2</sub> -eq	1,54E+00	4,15E-03	8,47E-06	2,60E-04	1,99E-03	2,24E-03	-7,98E-01
Ö	ODP	kg CFC11 -eq	5,93E-05	2,64E-06	2,32E-08	1,65E-07	4,81E-07	6,32E-08	-9,76E-03
CET .	АР	mol H+ -eq	6,61E+00	3,35E-02	1,12E-03	2,10E-03	1,11E-02	2,83E-03	-4,18E-01
<del></del>	EP-FreshWater	kg P -eq	6,01E-02	9,32E-05	3,91E-07	5,83E-06	1,19E-04	1,93E-05	-2,99E-03
<del></del>	EP-Marine	kg N -eq	7,37E-01	6,63E-03	4,96E-04	4,15E-04	2,98E-03	7,80E-04	-5,47E-02
<del></del>	EP-Terrestial	mol N -eq	1,46E+01	7,42E-02	5,45E-03	4,64E-03	3,20E-02	7,73E-03	-5,99E-01
	POCP	kg NMVOC -eq	2,68E+00	2,84E-02	1,50E-03	1,78E-03	8,38E-03	2,65E-03	-2,23E-01
	ADP-minerals&metals <sup>1</sup>	kg Sb-eq	3,29E-01	3,22E-04	1,65E-07	2,01E-05	1,81E-05	4,61E-06	-5,31E-04
	ADP-fossil <sup>1</sup>	MJ	8,87E+03	1,76E+02	1,48E+00	1,10E+01	2,50E+01	7,11E+00	-6,67E+02
<u>%</u>	WDP <sup>1</sup>	m <sup>3</sup>	5,20E+04	1,71E+02	3,14E-01	1,07E+01	1,01E+02	3,37E+01	-2,29E+04

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

## **Remarks to environmental impacts**

<sup>&</sup>quot;Reading example: 9,0 E-03 = 9,0\*10-3 = 0,009"

<sup>\*</sup>INA Indicator Not Assessed

<sup>1.</sup> 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



Additional	Additional environmental impact indicators												
lı	ndicator	Unit	A1-A3	A4	C1	C2	C3	C4	D				
	PM	Disease incidence	4,87E-05	7,14E-07	2,98E-08	4,46E-08	1,17E-07	4,02E-08	-4,41E-06				
()°()	IRP <sup>2</sup>	kgBq U235 -eq	3,60E+01	7,71E-01	6,34E-03	4,82E-02	1,10E-01	2,50E-02	-2,24E+00				
40	ETP-fw <sup>1</sup>	CTUe	4,06E+04	1,31E+02	8,08E-01	8,17E+00	1,37E+02	3,28E+02	-2,05E+03				
42.2	HTP-c <sup>1</sup>	CTUh	2,47E-06	0,00E+00	0,00E+00	0,00E+00	4,31E-09	7,08E-09	-1,90E-07				
48° <u>d</u>	HTP-nc <sup>1</sup>	CTUh	4,88E-05	1,43E-07	7,34E-10	8,93E-09	1,00E-07	4,18E-07	-1,54E-07				
	SQP <sup>1</sup>	dimensionless	4,06E+03	1,23E+02	1,88E-01	7,71E+00	8,29E+00	1,39E+01	-3,40E+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)

<sup>&</sup>quot;Reading example: 9,0 E-03 = 9,0\*10-3 = 0,009" \*INA Indicator Not Assessed

<sup>1.</sup> 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

<sup>2.</sup> 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									
	ndicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
	PERE	MJ	1,12E+03	2,53E+00	8,00E-03	1,58E-01	3,63E+00	1,20E+00	-2,14E+02
	PERM	MJ	1,06E+00	0,00E+00	0,00E+00	0,00E+00	-1,06E+00	0,00E+00	0,00E+00
Ţ,	PERT	MJ	1,12E+03	2,53E+00	8,00E-03	1,58E-01	2,57E+00	1,20E+00	-2,14E+02
	PENRE	MJ	8,78E+03	1,76E+02	1,48E+00	1,10E+01	2,50E+01	7,12E+00	-6,67E+02
Å	PENRM	MJ	9,80E+01	0,00E+00	0,00E+00	0,00E+00	-4,70E+01	0,00E+00	0,00E+00
IA	PENRT	MJ	8,88E+03	1,76E+02	1,48E+00	1,10E+01	-2,20E+01	7,12E+00	-6,67E+02
	SM	kg	5,44E+01	0,00E+00	7,26E-04	0,00E+00	1,38E-05	2,27E-02	9,75E-02
2	RSF	MJ	2,53E+01	9,03E-02	1,97E-04	5,65E-03	8,27E-02	9,27E-03	5,16E-01
	NRSF	MJ	1,31E+02	3,23E-01	2,90E-03	2,02E-02	-4,51E-03	2,16E-01	1,67E+01
%	FW	m <sup>3</sup>	8,18E+00	1,89E-02	7,61E-05	1,18E-03	5,07E-02	1,71E-02	-1,10E+00

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

<sup>&</sup>quot;Reading example: 9,0 E-03 = 9,0\*10-3 = 0,009" \*INA Indicator Not Assessed



End of life - Waste											
Inc	dicator	Unit	A1-A3	A4	C1	C2	C3	C4	D		
	HWD	kg	4,47E+00	9,10E-03	4,35E-05	5,69E-04	2,40E-02	1,23E+00	8,60E-02		
	NHWD	kg	1,65E+02	8,58E+00	1,75E-03	5,36E-01	4,99E+00	1,15E+01	-1,89E+01		
8	RWD	kg	3,14E-02	1,20E-03	1,03E-05	7,51E-05	1,39E-05	1,43E-05	-2,12E-03		

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 flo	w								
Indicate	or	Unit	A1-A3	A4	C1	C2	C3	C4	D
<b>∅&gt;</b>	CRU	kg	0,00E+00						
\$>	MFR	kg	6,34E-01	0,00E+00	7,13E-04	0,00E+00	6,22E+01	8,21E-05	-3,81E-03
DØ	MER	kg	1,34E-01	0,00E+00	2,21E-06	0,00E+00	3,02E+00	1,98E-06	-5,02E-04
5₽	EEE	MJ	9,29E-02	0,00E+00	7,58E-06	0,00E+00	5,60E+00	9,83E-05	-1,23E-03
DB	EET	MJ	1,41E+00	0,00E+00	1,15E-04	0,00E+00	8,47E+01	1,49E-03	-1,86E-02

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										
Unit	At the factory gate									
kg C	3,56E-02									
kg C	0,00E+00									
	kg C									

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

#### **Dangerous substances**

The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List, see table:

Name	CASNo	Amount
Lead	7439-92-1	> 0.1% w/w
Lead monoxide (lead oxide)	1317-36-8	> 0.1% w/w
Potassium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonate	29420-49-3	> 0.1% w/w
Diboron trioxide	1303-86-2	> 0.1% w/w
Lead titanium trioxide	12060-00-3	> 0.1% w/w

#### **Indoor environment**

### **Additional Environmental Information**

Additional environmental impact indicators required in NPCR Part A for construction products										
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D		
GWPIOBC	kg CO <sub>2</sub> -eq	6,37E+02	1,17E+01	1,08E-01	7,30E-01	1,55E+01	1,09E+00	-6,50E+01		

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**

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 + A2:2019 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.

ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.

Iversen et al., (2021) eEPD v2021.09 Background information for EPD generator tool system verification, LCA.no Report number: 07.21 Graafland and Iversen (2022) EPD generator for NPCR 030 Ventilation components, Background information for EPD generator application and LCA data, LCA.no report number: 12.22

NPCR Part A: Construction products and services. Ver. 2.0. April 2021, EPD-Norge.

NPCR 030 Part B for Ventilation components, Ver. 1.0, 18.05.2021, EPD Norway.

EN ISO 9001:2015 - Quality management systems.

EN ISO 14001:2015 - Environmental management systems.

EN ISO 50001:2018 - Energy management systems.

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