ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Owner of declaration	ETS Nord AS
Program operator	The Building Information Foundation RTS sr
Declaration number	RTS_289_24
Publishing date	20.3.2024
EPD valid until	20.3.2029

OZONE UNIT

LCA SUPPORT

RAKENNUSTIETO • ENVIRONMENTAL PRODUCT DECLARATION • EPD

ETS NORD

GENERAL INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPDs within the same product category but from different programmes may not be comparable.

EPD program operator
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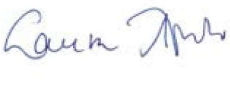

Laura Apilo
Managing Director

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Valid until
20.3.2029

Product category rules
The CEN standard EN 15804 serves as the core PCR. In addition, the RTS PCR (English version, 26.8.2020) is used.

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Verification date
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Independent verification of this EPD and data, according to ISO 14025:2010:
☐ Internal ☑ External

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ETS NORD is one of the largest companies in Northern Europe specializing in comprehensive ventilation solutions.
With significant product development and our own production, we are at the forefront of creating a new and sustainable future for indoor comfort, in a customer-oriented and responsible way.

Place of production
Tallinn, Estonia

Products
Ozone unit

Declared unit
1 kg

Mass of declared unit
1 kg

Data period
2022

PRODUCT INFORMATION

Product name	Ozone unit
Place of production	Tallinn, Estonia

PRODUCT DESCRIPTION AND APPLICATION

OZ is an integrated ozone cleaning system consisting of sheet metal body manufactured from AISI-316 stainless steel, standard fasteners, electronic components and electrical wiring components.
OZ ozone cleaning system is intended to be used together with ETS NORD professional kitchen canopies or ventilation ceilings. The devices are designed for the exhaust air systems of professional kitchens with high requirements to minimize grease and odour.

TECHNICAL SPECIFICATIONS AND PRODUCT STANDARDS

OZ 3.1 measurements: 385x170x190 mm, working temperature: -25 to +40°C, power consumption 300 W, zone capacity: 5000 mg/h, voltage 230 V. The mass of the OZ 3.1 unit is 5.4 kg.

PRODUCT RAW MATERIAL COMPOSITION PER DECLARED UNIT

Raw material category	Amount, mass- % and material origin*
Metals	70%
Minerals	0%
Fossil materials	30%**
Bio-based materials	0%
Total	100%

Product components	Amount, mass%*	Material origin	Post-consumer recycled material, mass%
Stainless steel	55%	Europe	63.6%
Electronics	45%	Europe	-
Other materials	<1%	Europe	-
Total	100%		

* Order of magnitude, not exact composition. All values are rounded.
** It is assumed that 1/3 of the electronic components and electrical wiring components are made of copper and this amount is considered under metals. All other materials are considered under fossil materials (mostly plastics).

The products do not contain any biogenic carbon. The packaging does contain biogenic carbon.

Biogenic carbon content in product	0 kg
Biogenic carbon content in packaging	<0.01 kg

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

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm).

MANUFACTURING PROCESS

Sheet metal body of OZ control unit is manufactured in ETS NORD Tallinn factory. The parts are cut out with automatic punching and shearing machine from AISI-316 stainless steel. Cut out parts are bent with die bending technology to the final geometry. Sheet metal body is assembled mechanically and transported to a subcontractor's factory where the electronical assembly and testing is done. Packaged and ready product is transported back to ETS NORD Tallinn Warehouse.

Figure 1. Manufacturing process

PRODUCT LIFE-CYCLE AND LIFE-CYCLE ASSESSMENT

Period for data	2022
Declared unit	1 kg
Mass per declared unit	1 kg
Mass of packaging	0.1 kg

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.
The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.
Co-product allocation has not been used.
The data sources for the study are Ecoinvent 3.8 (2021) and One Click LCA databases. The tools used for the study were One Click LCA and Open LCA.

SYSTEM BOUNDARY

The scope of the EPD is cradle to gate with options (A1-A4), modules C1–C4 and module D.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials.
Vehicle capacity utilization volume factor is assumed to be 1, which means full load. In reality, it may vary but as role of transportation emission in total results is small and so the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation company to serve the needs of other clients.
Fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. All fuel and energy use was allocated based on production volume. The electricity used in the plant is grid energy and this has been modelled based on Estonian residual mix for 2020-2022. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Electricity data source and quality	Modelled electricity based on Estonian residual mix for 2020-2022
Specific emissions	0.64 kg CO2e/kWh

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.
The transportation distance is defined according to RTS PCR - from the place of manufacture to Helsinki, Finland. According to the manufacturer, transportation doesn't cause losses as products are packaged properly. The final product is transported 425 km (75 km by ferry, 50 km by lorry). Vehicle capacity utilization volume factor is assumed to be 1.

Vehicle type used for transport and distance	125 km (75 km by ferry, 50 km by lorry)
Specific transport emissions	Ferry: 0.11 kg CO2e Lorry: 0.17 kg CO2e
Capacity utilisation (including empty returns)	100%
Volume capacity utilisation factor	1

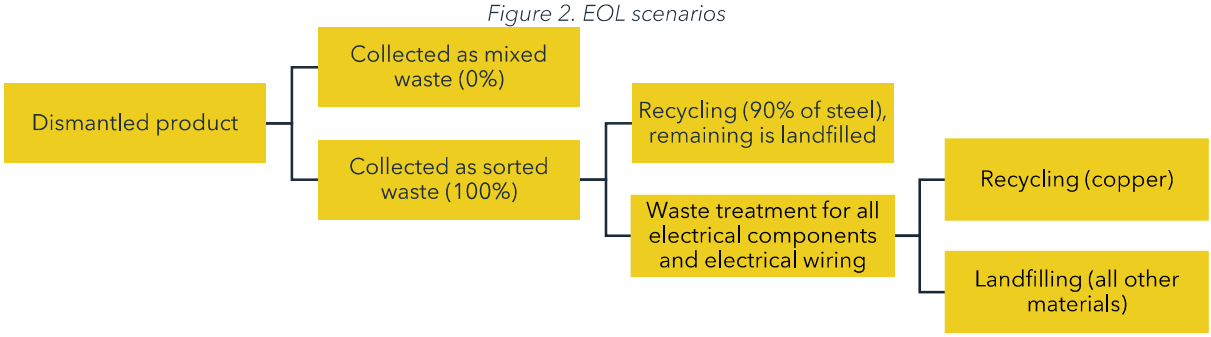
A5 has not been declared.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Figure 2. EOL scenarios



Demolition is not assumed to require any energy or resources. It is assumed that the dismantled product is transported 100 km by lorry. All waste is assumed to be collected as sorted waste. 90% of the steel body is sent to waste treatment and recycled. It is assumed that 85% of the electrical components and electrical wiring is sent to waste treatment (and are shredded) to meet with the requirements of the Waste Electrical and Electronic Equipment Directive. Copper is fully recyclable without any loss of performance and is assumed to be recycled. Around 1/3 of the electrical components and electrical wiring is assumed to be made of copper. All other materials besides steel and copper are landfilled as there are some uncertainties in the contents and amounts of the materials. Therefore, a conservative scenario was chosen.
Any material that left the product system in C3 has been considered in module D. Only net flows are considered. Waste packaging from A5 has not been considered. Module D scenario is representative of Europe.
The scrap content of the steel was 63.6%. The recycled steel can be used to produce new steel products.
The scrap content of the copper was assumed to be 0%. The recycled copper can be used to produce new copper products.

	EOL mass of product	1 kg
Collection	**Collected separately**	1 kg
	Collected with mixed waste	0 kg
Recovery	**Re-use**	0 kg
	Recycling	0.61 kg
	Incineration with energy recovery	0 kg
Disposal	**Incineration without energy**	0 kg
	Landfill	0.39 kg
	Total	1 kg
Scenario assumptions e.g. transportation		End-of-life product is transported 100 km with an average lorry

Note. All values in the table are rounded.

OZONE UNIT (1 kg)

ENVIRONMENTAL IMPACTS – CORE INDICATORS, EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global warming potential – total	kg CO2e	7.43E+0	1.85E-2	0.00E+0	1.70E-2	1.95E-2	4.30E-3	-6.15E-1
Global warming potential – fossil	kg CO2e	7.27E+0	1.85E-2	0.00E+0	1.70E-2	1.95E-2	4.29E-3	-6.14E-1
Global warming potential – biogenic	kg CO2e	1.53E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Global warming potential – LULUC	kg CO2e	1.35E-2	9.55E-6	0.00E+0	6.50E-6	3.58E-5	4.29E-6	-8.32E-4
Ozone depletion potential	kg CFC-11e	8.29E-7	3.92E-9	0.00E+0	3.80E-9	7.05E-10	1.25E-9	-2.90E-8
Acidification potential	mol H+e	1.35E-1	3.35E-4	0.00E+0	6.70E-5	1.09E-4	3.47E-5	-3.83E-2
Eutrophication potential - freshwater	kg Pe	1.21E-3	9.60E-8	0.00E+0	1.20E-7	1.05E-6	6.24E-8	-1.83E-4
Eutrophication potential - marine	kg Ne	1.30E-2	8.55E-5	0.00E+0	2.00E-5	1.75E-5	1.17E-5	-1.90E-3
Eutrophication potential - terrestrial	mol Ne	1.60E-1	9.49E-4	0.00E+0	2.20E-4	2.08E-4	1.29E-4	-2.80E-2
Photochemical ozone formation ("smog")	kg NMVOCe	4.69E-2	2.53E-4	0.00E+0	6.80E-5	5.35E-5	3.75E-5	-7.88E-3
Abiotic depletion potential - minerals & metals	kg Sbe	3.36E-3	4.41E-8	0.00E+0	5.90E-8	2.98E-7	1.37E-8	-8.61E-4
Abiotic depletion potential - fossil resources	MJ	1.21E+2	2.51E-1	0.00E+0	2.47E-1	2.54E-1	9.36E-2	-6.31E+0
Water use	m3e depr.	4.01E+0	9.22E-4	0.00E+0	1.10E-3	5.22E-3	5.46E-4	-4.23E-1

EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health:
the results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources as energy	MJ	1.65E+1	2.66E-3	0.00E+0	3.50E-3	3.29E-2	1.64E-3	-1.58E+0
Renewable primary energy resources as material	MJ	1.32E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	MJ	1.78E+1	2.66E-3	0.00E+0	3.50E-3	3.29E-2	1.64E-3	-1.58E+0
Non-renewable primary energy resources as energy	MJ	1.09E+2	2.51E-1	0.00E+0	2.47E-1	2.54E-1	9.36E-2	-6.31E+0
Non-renewable primary energy resources as material	MJ	8.56E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-1.13E-2	0.00E+0
Total use of non-renewable primary energy resources	MJ	1.09E+2	2.51E-1	0.00E+0	2.47E-1	2.54E-1	8.24E-2	-6.31E+0
Secondary materials	kg	6.47E-1	9.30E-5	0.00E+0	8.30E-5	5.94E-5	3.43E-5	2.59E-1
Renewable secondary fuels	MJ	1.26E-2	6.35E-7	0.00E+0	9.10E-7	1.09E-5	1.33E-6	0.00E+0
Non-renewable secondary fuels	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	m3	1.06E-1	2.39E-5	0.00E+0	3.10E-5	1.48E-4	1.01E-4	-1.37E-2

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	9.95E-1	2.95E-4	0.00E+0	2.80E-4	1.72E-3	0.00E+0	-2.23E-1
Non-hazardous waste	kg	3.49E+1	3.86E-3	0.00E+0	4.90E-3	4.61E-2	3.90E-1	-1.05E+1
Radioactive waste	kg	1.40E-3	1.75E-6	0.00E+0	1.70E-6	8.23E-7	0.00E+0	-9.74E-6

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.10E-1	0.00E+0	0.00E+0
Materials for energy recovery	kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported energy	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	kg CO2e	7.76E+0	1.79E-2	0.00E+0	1.60E-2	1.91E-2	3.90E-3	-5.92E-1
Ozone depletion potential	kg CFC-11e	6.75E-7	3.06E-9	0.00E+0	3.00E-9	5.91E-10	9.75E-10	-2.69E-8
Acidification	kg SO2e	1.10E-1	2.69E-4	0.00E+0	5.20E-5	9.04E-5	2.61E-5	-3.34E-2
Eutrophication	kg PO43e	4.24E-2	3.31E-5	0.00E+0	1.20E-5	3.94E-5	8.58E-6	-1.15E-2
Photochemical ozone formation ("smog")	kg C2H4e	4.96E-3	7.20E-6	0.00E+0	2.10E-6	3.72E-6	1.05E-6	-1.39E-3
Abiotic depletion potential - elements	kg Sbe	3.48E-3	4.28E-8	0.00E+0	5.80E-8	9.06E-4	1.33E-8	-1.17E-3
Abiotic depletion potential - fossil	MJ	1.06E+2	2.51E-1	0.00E+0	2.47E-1	8.91E+0	9.36E-2	-8.90E+0

KEY INFORMATION PER KG

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global warming potential – total	kg CO2e	7.43E+0	1.85E-2	0.00E+0	1.70E-2	1.95E-2	4.30E-3	-6.15E-1
Global warming potential – fossil	kg CO2e	7.27E+0	1.85E-2	0.00E+0	1.70E-2	1.95E-2	4.29E-3	-6.14E-1
Global warming potential – biogenic	kg CO2e	1.53E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Abiotic depletion potential - minerals & metals	kg Sbe	3.36E-3	4.41E-8	0.00E+0	5.90E-8	2.98E-7	1.37E-8	-8.61E-4
Abiotic depletion potential - fossil	MJ	1.21E+2	2.51E-1	0.00E+0	2.47E-1	2.54E-1	9.36E-2	-6.31E+0
Water use	m3e depr.	4.01E+0	9.22E-4	0.00E+0	1.10E-3	5.22E-3	5.46E-4	-4.23E-1
Secondary materials	kg	6.47E-1	9.30E-5	0.00E+0	8.30E-5	5.94E-5	3.43E-5	2.59E-1
Biogenic carbon in product (A3)	kg C	0.00E+0	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic carbon in packaging (A3)	kg C	4.19E-2	N/A	N/A	N/A	N/A	N/A	N/A

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ANNEX

The mass of the OZ 3.1 unit is 5.4 kg. The following table includes the key information per 1 unit (5.4 kg).

KEY INFORMATION PER KG

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global warming potential – total	kg CO2e	4.01E+1	9.99E-2	0.00E+0	9.18E-2	1.05E-1	2.32E-2	-3.32E+0
Global warming potential – fossil	kg CO2e	3.92E+1	9.98E-2	0.00E+0	9.18E-2	1.05E-1	2.32E-2	-3.31E+0
Global warming potential – biogenic	kg CO2e	8.29E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Abiotic depletion potential - minerals & metals	kg Sbe	1.82E-2	2.38E-7	0.00E+0	3.19E-7	1.61E-6	7.37E-8	-4.65E-3
Abiotic depletion potential - fossil	MJ	6.54E+2	1.35E+0	0.00E+0	1.33E+0	1.37E+0	5.06E-1	-3.40E+1
Water use	m3e depr.	2.16E+1	4.98E-3	0.00E+0	5.94E-3	2.82E-2	2.95E-3	-2.28E+0
Secondary materials	kg	3.49E+0	5.02E-4	0.00E+0	4.48E-4	3.21E-4	1.85E-4	1.40E+0
Biogenic carbon in product (A3)	kg C	0.00E+0	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic carbon in packaging (A3)	kg C	2.26E-1	N/A	N/A	N/A	N/A	N/A	N/A