



**Rakennustietosäätiö RTS
Building Information
Foundation RTS**

RTS EPD, No. 4
Finnfoam EPS

Scope of the declaration

This environmental product declaration covers the environmental impacts of the Finnfoam FF-EPS insulation panel. The declaration has been prepared in accordance with EN 15804:2012+A1:2013 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 2.6.2016). This declaration covers the life cycle stages from cradle-to-customer as well as the treatment and recovery of the product at its end-of-life.

RAKENNUSTIETO

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Building Information Foundation
RTS
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<http://epd.rts.fi>

Laura Sariola
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General information, declaration scope and verification (7.1)

1. Owner of the declaration, manufacturer

Finnfoam Oy
Satamakatu 5, 24100 Salo, Finland
Asso Erävuoma
+358 44 544 0612
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2. Product name and number

Finnfoam EPS

3. Place of production

Salu, Finland

4. Additional information

www.finnfoam.fi

5. Product Category Rules and the scope of the declaration

This EPD has been prepared in accordance with EN 15804:2012+A1:2013 and ISO 14025 standards together with the RTS PCR (English version, 2.6.2016). Product specific category rules have not been applied in this EPD. EPD of construction materials may not be comparable if they do not comply with EN 15804 and seen in a building context.

6. Author of the life-cycle assessment and declaration

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Noora Miilumäki

7. Verification

This EPD has been verified according to the requirements of ISO 14025:2010, EN 15804:2012 +A1:2013 and RTS PCR by a third party. The verification has been carried out by Bionova Ltd, MSc Tytti Bruce-Hyrkäs. Hämeentie 31, 00500 Helsinki, Finland, +358 500 655 020, www.bionova.fi.

8. Declaration issue date and validity

19.1.2017 - 18.1.2022

European standard EN 15804: 2014 A1 serves as the core PCR

Independent verification of the declaration and data, according to ISO14025:2010

☐ Internal

☒ External

Third party verifier:

Tytti Bruce-Hyrkäs, Bionova Ltd

Tytti Bruce-Hyrkäs

Product information

9. Product description

This EPD represents the Finnfoam FF-EPS insulation panel produced in Salo, Finland. The market area of the product is Scandinavia.

10. Technical specifications

FF-EPS insulation panels have a thermal conductivity of 0.031 W/(mK). The panels are available in nominal densities of 17 and 20 kg/m³, and thicknesses ranging from 85 and 800 mm. As the product is homogeneous, the results represent all available thicknesses. The panels are used for heat insulation of floors, walls and roofs.

11. Product standards

EN 13163:2015 Thermal insulation products for buildings. Factory made expanded polystyrene (EPS) products. Specification.

12. Physical properties

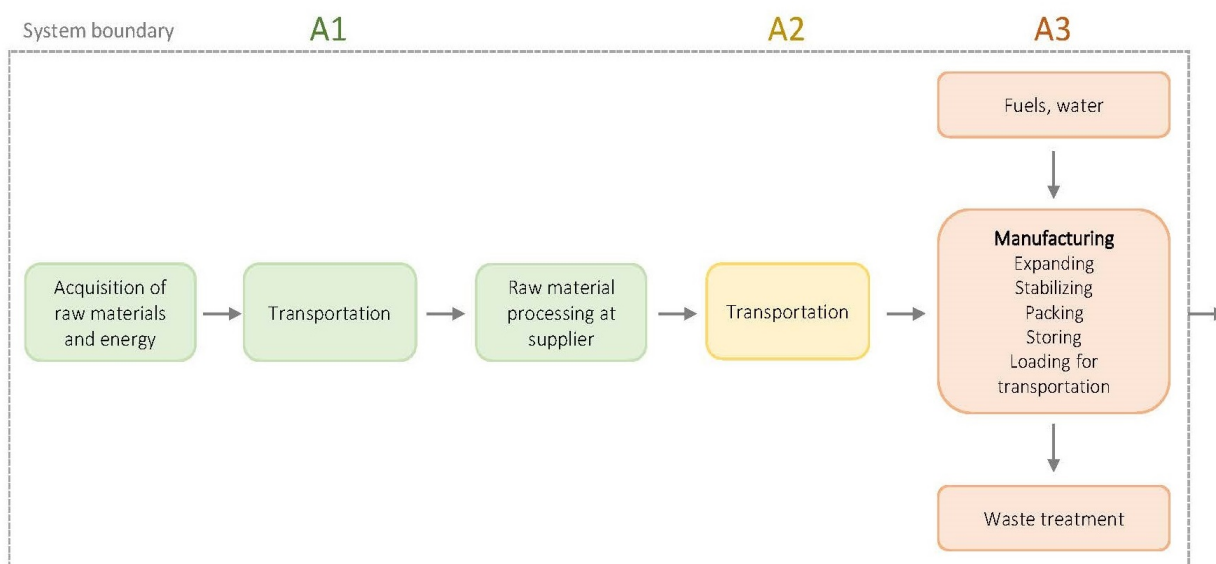
Detailed physical information can be found from the manufacturer's webpages (<http://www.finnfoam.fi/tuotteet/ff-eps/>).

13. Raw-materials of the product

Product structure / composition / raw-material	Amount %
Polystyrene, non-renewable, Germany	100

14. Substances under European Chemicals Agency's REACH, SVHC restrictions

Name	EC Number	CAS Number
The product does not contain REACH SVHC substances.		



Scope of the Life-Cycle Assessment (7.2.1-2)

Mark all the covered modules of the EPD with X. Mandatory modules are marked with blue in the table below. This declaration covers "cradle-to-gate with options". For other fields mark MND (module not declared) or MNR (module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	MNR	x	MNR
A1	A2	A3	A4	A5	B2	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
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

Mandatory modules
 Scenario based optional modules

Environmental impacts and raw-material use (7.2.3-7.2.4)

19. Environmental impacts

The global warming potential (GWP) of the manufacturing process (A1-A3) is mainly caused by the manufacturing of the raw materials, i.e. polystyrene. Of the studied modules, the product stage (A1-A3) has the largest impacts on the GWP.

Environmental impact									
Parameter	Unit	A1	A2	A3	A1-A3	A4	C3	C4	D
Global warming potential	kg CO ₂ -eqv	2,38E0	1,66E-1	7,51E-1	3,3E0	7,58E-3	2,38E0	0E0	-2,36E0
Depletion of stratospheric ozone layer	kg CFC11-eqv	4,2E-8	3,1E-8	9,61E-8	1,69E-7	1,51E-9	5,52E-9	0E0	-1,49E-7
Formation of photochemical ozone	kg C ₂ H ₄ -eqv	8,8E-4	3,28E-5	2,42E-4	1,16E-3	7,58E-7	8,9E-6	0E0	-6,45E-4
Acidification	kg SO ₂ -eqv	6E-3	1,43E-3	5,58E-3	1,3E-2	3,53E-5	4,01E-3	0E0	-1,35E-2
Eutrophication	kg PO ₄ 3--eqv	5,86E-4	2,42E-4	1,66E-3	2,49E-3	7,49E-6	2,8E-4	0E0	-2,06E-3
Abiotic depletion of non fossil resources	kg Sb-eqv	9,78E-7	9,15E-9	8,92E-7	1,88E-6	4,45E-10	9,54E-8	0E0	-4,85E-7
Abiotic depletion of fossil resources	MJ	7,63E1	4,26E0	9,04E0	8,96E1	2,1E-1	3,95E-1	0E0	-2,62E1

20. Use of natural resources

Resource use									
Parameter	Unit	A1	A2	A3	A1-A3	A4	C3	C4	D
Renewable primary energy resources used as energy carrier	MJ	1,88E0	6,98E-3	1,61E1	1,8E1	3,3E-4	1,84E-2	0E0	-1,71E1
Renewable primary energy resources used as raw materials	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Total use of renewable primary energy resources	MJ	1,88E0	6,98E-3	1,61E1	1,8E1	3,3E-4	1,84E-2	0E0	-1,71E1
Nonrenewable primary energy resources used as energy carrier	MJ	4,01E1	5,78E-1	1,14E1	5,21E1	2,17E-1	4,46E-1	0E0	-2,86E1
Nonrenewable primary energy resources used as materials	MJ	4,68E1	3,83E0	0E0	5,06E1	0E0	0E0	0E0	0E0
Total use of nonrenewable primary energy resources	MJ	8,69E1	4,41E0	1,14E1	1,03E2	2,17E-1	4,46E-1	0E0	-2,86E1
Use of secondary materials	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Use of renewable secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Use of nonrenewable secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m³	1,38E-2	5,97E-5	1,12E-2	2,51E-2	2,88E-6	3,85E-3	0E0	-1,18E-3

21. End of life - Waste

Waste									
Parameter	Unit	A1	A2	A3	A1-A3	A4	C3	C4	D
Hazardous waste	kg	8,9E-7	6,4E-7	1,93E-5	2,09E-5	2,98E-8	1,35E-6	0E0	-1,24E-5
Non-hazardous waste	kg	2,19E-2	5,56E-4	8,56E-2	1,08E-1	2,69E-5	6,08E-2	0E0	-8,81E-2
Radioactive waste	kg	5,85E-4	1,75E-5	6,79E-5	6,71E-4	8,54E-7	1,4E-6	0E0	-5,69E-5

22. End of life - Output flow

Output flow									
Parameter	Unit	A1	A2	A3	A1-A3	A4	C3	C4	D
Components for reuse	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Materials for energy recovery	kg	0E0	0E0	2,64E-2	2,64E-2	0E0	1E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0

Scenarios and additional technical information (7.3)

23. Electricity in the manufacturing phase (7.3.A3)

A3 data quality of electricity and CO2 emission kg CO2 eq. / kWh	0,185	The emissions of Finnish electricity are based on electricity production fuel mix from Statistics Finland for the year 2014. The benefit sharing method has been used in the calculation. The emissions of the fuels are based on ecoinvent 3.3 (cut-off allocation).
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*The most recent country electricity mix has been used instead of supplier specific data for the production year. This is a reasonable estimation as the impacts of electricity are only a few percentages of A3, and the impacts of A3 are minor compared to A1.

24. Transport from production place to user (7.3.2A4)

Variable	Amount	Data quality
Fuel type and consumption in liters / 100 km	50	Trailer combination, diesel
Transportation distance km	200	FI average
Transport capacity utilization %	100	Transportation of a full load to production site
Bulk density of transported products kg/m³	17 and 20	Manufacturer product information
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	1	

25. End-of-life process description(7.3.4)

Processes	Unit (expressed per functional unit or per declared unit of components products or materials and by type of material)	Amount kg/kg Data quality
Collection process specified by type	kg collected separately	1*
	kg collected with mixed construction waste	-
Recovery system specified by type	kg for re-use	-
	kg for recycling	-
	kg for energy recovery	1*
Disposal specified by type	kg product or material for final deposition	-
Assumptions for scenario development, e.g. transportation	units as appropriate	Transportation distance estimation 200 km based on incinerator locations

*These values are based on the manufacturer's information regarding the end-of-life treatment of the product.

Tuote	Koko	kpl/pkt	m ² /pkt	λ_D	Puristus 10 %	Paloluokka	Taivutuslujuus
					kPa		kPa
FF-EPS 100/85 mm	600 x 1200 mm	42	30,24	0,031	100	F	150
FF-EPS 100/100 mm	600 x 1200 mm	36	25,92	0,031	100	F	150
FF-EPS 100/120 mm	600 x 1200 mm	30	21,60	0,031	100	F	150
FF-EPS 100/150 mm	600 x 1200 mm	24	17,28	0,031	100	F	150
FF-EPS 100/170 mm	600 x 1200 mm	21	15,12	0,031	100	F	150
FF-EPS 100/180 mm	600 x 1200 mm	21	15,12	0,031	100	F	150
FF-EPS 100/200 mm	600 x 1200 mm	18	12,96	0,031	100	F	150
FF-EPS 100S/85 mm	600 x 1200 mm	42	30,24	0,031	100	E	150
FF-EPS 100S/100 mm	600 x 1200 mm	36	25,92	0,031	100	E	150
FF-EPS 100S/120 mm	600 x 1200 mm	30	21,60	0,031	100	E	150
FF-EPS 100S/150 mm	600 x 1200 mm	24	17,28	0,031	100	E	150
FF-EPS 100S/170 mm	600 x 1200 mm	21	15,12	0,031	100	E	150
FF-EPS 100S/180 mm	600 x 1200 mm	21	15,12	0,031	100	E	150
FF-EPS 100S/200 mm	600 x 1200 mm	18	12,96	0,031	100	E	150
FF-EPS 60S/100 mm	600 x 1200 mm	36	25,92	0,031	60	E	150
FF-EPS 60S/120 mm	600 x 1200 mm	30	21,60	0,031	60	E	150
FF-EPS 60S/150 mm	600 x 1200 mm	24	17,28	0,031	60	E	150
FF-EPS 60S/170 mm	600 x 1200 mm	21	15,12	0,031	60	E	150
FF-EPS 60S/180 mm	600 x 1200 mm	21	15,12	0,031	60	E	150
FF-EPS 60S/200 mm	600 x 1200 mm	18	12,96	0,031	60	E	150
FF-EPS 60S/250 mm	600 x 1200 mm	15	10,80	0,031	60	E	150
FF-EPS 60S/300 mm	600 x 1200 mm	12	8,64	0,031	60	E	150

Kaikki FF-EPS tuotteet ovat joka reunalta lukkopontattuja.

28. Additional information (7.4)

Air, soil and water impacts during the use phase have not been studied

29. Bibliography

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

EN 15804:2012+A1 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

RTS PCR 2.6.2016 RTS PCR protocol: EPDs published by the Building Information Foundation RTS sr. PT 18 RT EPD Committee. (English version).