

ENVIRONMENTAL PRODUCT DECLARATION

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



STEEL PROFILES

Favor As



GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Favor As
Address	Loovälja road 11, Liivamäe, 74207 Jõelähtme Parish
Contact details	info@favor.ee
Website	https://favor.ee/

PRODUCT IDENTIFICATION

Product name	Steel profiles
Place(s) of production	Jõelähtme, Estonia

Jessica Karhu
RTS EPD Committee secretary

Laura Apilo
Managing Director



EPD 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.

EPD program operator	Building Information Foundation RTS / Building Information Ltd. Malminkatu 16 A, A00100 Helsinki, Finland http://cer.rts.fi
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the RTS PCR (Finnish version, 26.8.2020) is used.
EPD author	Valtteri Kainila, One Click LCA Ltd, Suvilahdenkatu 10 B, www.oneclicklca.com
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Verification date	14.07.2021
EPD verifier	Anni Oviir, Rangi Maja OÜ, Tondi 22-4, Tallinn Estonia, www.lcasupport.com
EPD number	RTS_147_21
ECO Platform nr.	
Publishing date	26.8.2021
EPD valid until	26.8.2026



PRODUCT INFORMATION

PRODUCT DESCRIPTION

The studied product is a partition wall steel profile. The profiles are made from thin sheet metal (0,45 -1,2 mm) by roll-forming technology.

PRODUCT APPLICATION

The product is used as framing and support component for non-load bearing partition walls and ceilings made from drywall.

TECHNICAL SPECIFICATIONS

The different profile types and their respective weights per meter are given in annex 2.

PRODUCT STANDARDS

The product complies with the European standards: EN 13964:2014; EN 14195:2014.

PHYSICAL PROPERTIES OF THE PRODUCT

The product is made from galvanized steel sheets (DX51D ZN100) and is provided in sheet thicknesses of 0.45 mm, 0,50 m, 0,55 mm, 0,6 mm, 0,7 mm, and 1,2 mm. However, the most commonly used thicknesses are within a range of 0,45-0,55 mm. The sheets are galvanized with a zinc layer of 7 µm.

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at <https://favor.ee/>.



PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Galvanized steel sheets	1	70	-	EU
Pallet	<0,01	-	100	EU
Plastic wrapping	<0,01	-	-	EU

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass [%]	Material origin
Metals	100 %	EU
Fossil materials	-	-
Minerals	-	-
Bio-based materials	-	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The steel profile manufacturing starts with the galvanized steel sheet coils arriving at the facility. The sheets are first slit into strips of the required width. From these strips, the required product is then formed on a roll-forming line, and at the same time, the prescribed openings are punched, and a surface treatment is carried out. Eventually, the Steel profiles are packaged, moved out and transported to the construction site.

Manufacturing (A3) process flow chart



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. Average distance of transportation from production plant to building site is assumed as 250 km and the transportation method is assumed to be lorry (16-32 ton, Euro 5). Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible.

FAVOR

Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly. Also, volume capacity utilisation factor is assumed to be 100 % for the nested packaged products.

A loss of 2 % is assumed for the product in installation. Energy consumption is assumed negligible

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)

Demolition is assumed to take 0,01 kWh/kg of product. It is assumed that 100 % of the demolition waste is collected as mixed construction waste (C1). Distance for transportation to treatment is assumed as 100 km and the transportation method is assumed to be lorry (7,5-16 ton, Euro 5) (C2).

The steel separated from the construction waste (85 %) is recycled (C3). It is assumed that the steel that could not be separated at the waste treatment facility (15 %) is taken to landfill for final disposal (C4). Due to the recycling process the end-of-life product is converted into recycled steel which replaces virgin raw materials (D).



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data Calendar year 2020

DECLARED AND FUNCTIONAL UNIT

Declared unit 1 kg

Mass per declared unit 1 kg

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C -

Biogenic carbon content in packaging, kg C 0.009

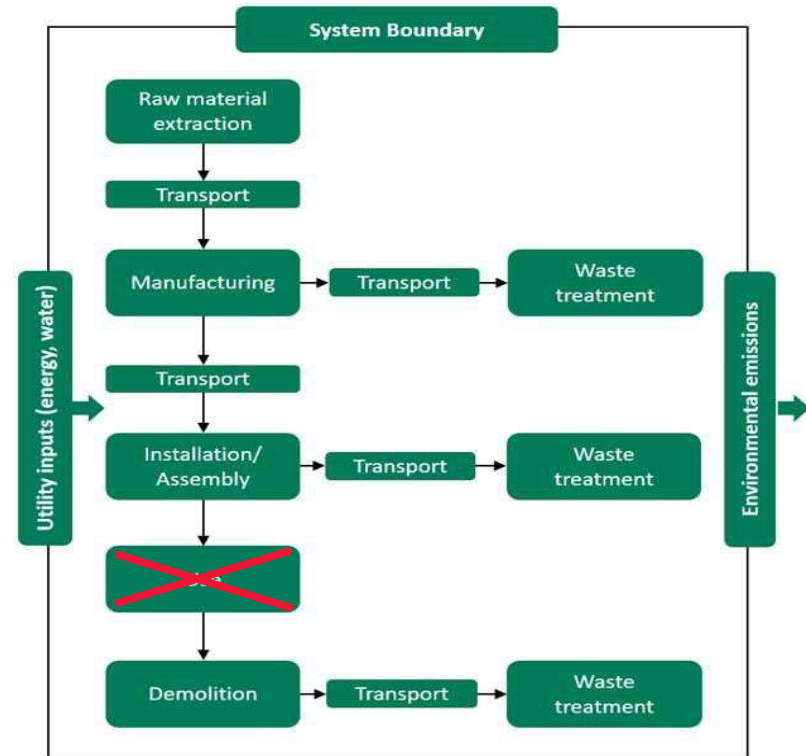
SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options* scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.



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	x	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	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

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





CUT-OFF CRITERIA

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.

The following processes are excluded from the study:

- The packaging of raw materials (A1) is cut-off as it is less than 1 % of the raw material mass.
- The energy consumption, ancillary material, and packaging production for the material loss during installation (A5) are cut-off due to them being less than 1 % of energy and material consumption.
- Waste processing for ancillary materials, <1 % of mass and very low contribution to emissions
- The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are also excluded.

FAVOR

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

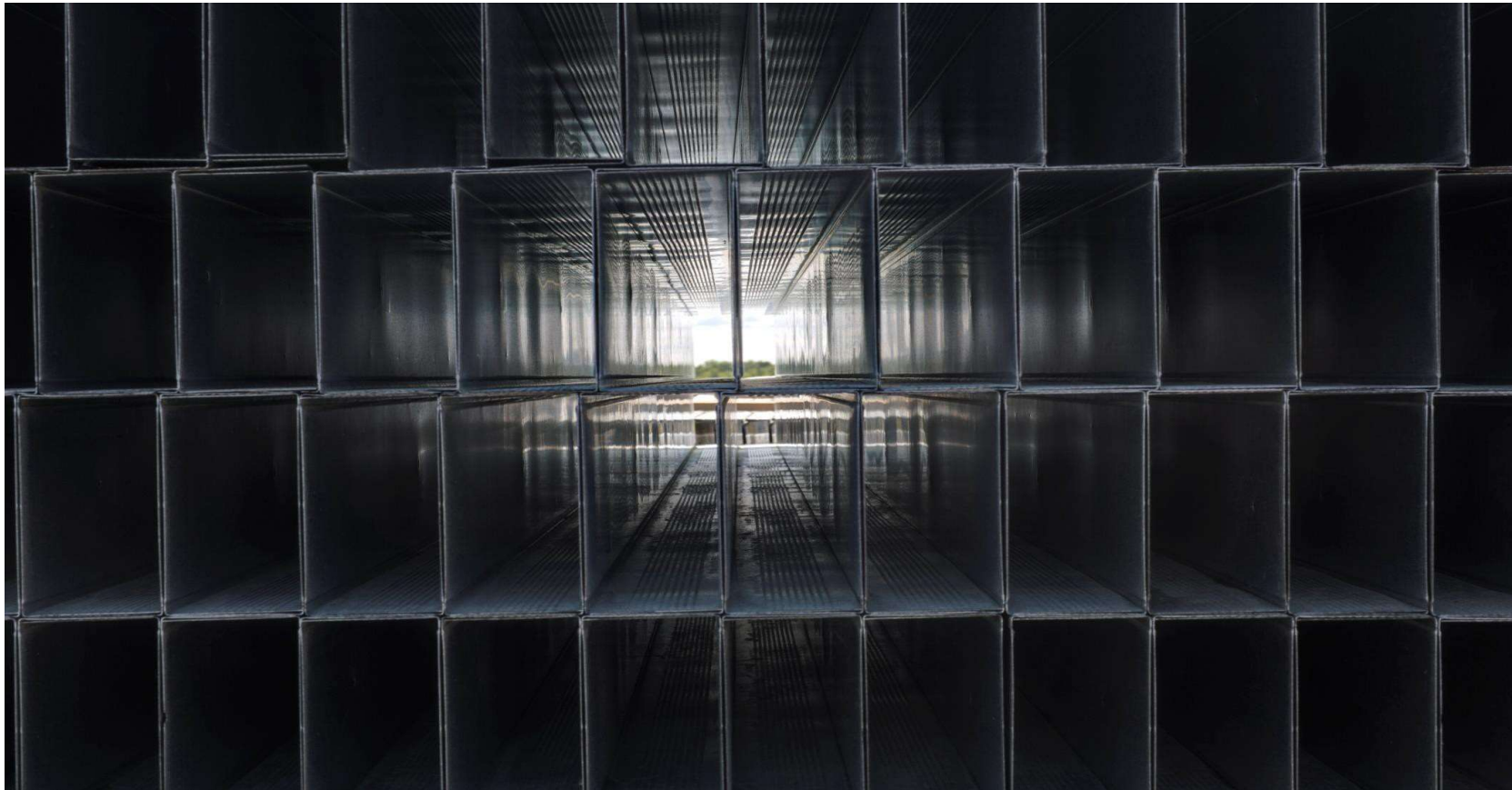
1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

There was no need to conduct allocation for any material or energy flows as all of the information was available on a production line level. The production line only produces single type of product with some difference to its form. However, these differences have a minimal impact on the manufacturing process. As the processes for all variations of the products produced at the production line are very similar regardless of the end dimensions, the raw materials, packaging, ancillary materials, energy consumption and waste streams are all calculated by dividing the total inputs flows by the total output of the production line.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

AVERAGES AND VARIABILITY

Only a single product manufactured at a single production line with some variations in its dimensions is assessed in this study. Therefore, no variations in emissions per declared unit are reported.



ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO2e	2E0	6,51E-2	-1,25E-2	2,05E0	4,3E-2	1,18E-1	MND	MND	MND	MND	MND	MND	MND	3,3E-3	9,1E-3	1,98E-2	1,99E-3	-2,62E-1
GWP – fossil	kg CO2e	1,99E0	6,5E-2	2,76E-2	2,08E0	4,33E-2	7,8E-2	MND	MND	MND	MND	MND	MND	MND	3,3E-3	9,09E-3	2,1E-2	7,9E-4	-2,35E-1
GWP – biogenic	kg CO2e	3,78E-3	9,78E-15	-4,01E-2	-3,63E-2	2,31E-5	4E-2	MND	MND	MND	MND	MND	MND	MND	9,17E-7	6,6E-6	-1,2E-3	1,2E-3	-2,75E-2
GWP – LULUC	kg CO2e	2,64E-3	3,96E-5	3,8E-5	2,71E-3	1,54E-5	9,64E-5	MND	MND	MND	MND	MND	MND	MND	2,79E-7	2,74E-6	2,38E-5	2,35E-7	3,65E-6
Ozone depletion pot.	kg CFC11e	1,28E-7	1,23E-8	4,44E-9	1,44E-7	9,85E-9	5,13E-9	MND	MND	MND	MND	MND	MND	MND	7,12E-10	2,14E-9	3,01E-9	3,25E-10	-7,14E-9
Acidification potential	mol H+e	2,2E-2	1,45E-3	2,02E-4	2,36E-2	1,77E-4	6,54E-4	MND	MND	MND	MND	MND	MND	MND	3,45E-5	3,82E-5	2,54E-4	7,5E-6	-9,33E-4
EP-freshwater ²⁾	kg Pe	1,11E-4	6,19E-7	7,58E-7	1,12E-4	3,63E-7	4,39E-6	MND	MND	MND	MND	MND	MND	MND	1,33E-8	7,39E-8	1,45E-6	9,54E-9	-9,21E-6
EP-marine	kg Ne	2,41E-3	4,13E-4	4,05E-5	2,86E-3	5,26E-5	8,81E-5	MND	MND	MND	MND	MND	MND	MND	1,52E-5	1,15E-5	5,61E-5	2,58E-6	-1,81E-4
EP-terrestrial	mol Ne	7,51E-2	4,58E-3	4,36E-4	8,01E-2	5,81E-4	2,03E-3	MND	MND	MND	MND	MND	MND	MND	1,67E-4	1,27E-4	6,51E-4	2,84E-5	-1,92E-3
POCP (“smog”)	kg NMVOCe	8,61E-3	1,2E-3	1,58E-4	9,96E-3	1,78E-4	3,26E-4	MND	MND	MND	MND	MND	MND	MND	4,59E-5	4,08E-5	1,78E-4	8,26E-6	-1,22E-3
ADP-minerals & metals	kg Sbe	1,91E-3	4,67E-7	2,85E-7	1,91E-3	1,17E-6	4,31E-5	MND	MND	MND	MND	MND	MND	MND	5,03E-9	1,55E-7	1,16E-6	7,22E-9	-2,19E-7
ADP-fossil resources	MJ	2,4E1	8,38E-1	4,29E-1	2,52E1	6,54E-1	9,35E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	1,41E-1	2,91E-1	2,21E-2	-1,77E0
Water use ³⁾	m3e depr.	1,22E0	3,66E-3	5,24E-3	1,23E0	2,1E-3	4,2E-2	MND	MND	MND	MND	MND	MND	MND	8,46E-5	5,26E-4	4,13E-3	1,02E-3	-3,19E-2

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) 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. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2,56E-7	4,05E-9	2,54E-9	2,62E-7	3,02E-9	8,31E-9	MND	MND	MND	MND	MND	MND	MND	9,14E-10	8,22E-10	3,2E-9	1,46E-10	-1,65E-8
Ionizing radiation ³⁾	kBq U235e	7,13E-2	3,52E-3	1,99E-3	7,69E-2	2,86E-3	2,85E-3	MND	MND	MND	MND	MND	MND	MND	1,94E-4	6,18E-4	1,45E-3	9,06E-5	2,21E-3
Ecotoxicity (freshwater)	CTUe	7,39E1	6,98E-1	4,95E-1	7,51E1	5,05E-1	3,12E0	MND	MND	MND	MND	MND	MND	MND	2,66E-2	1,08E-1	1,24E0	1,39E-2	-7,51E0
Human toxicity, cancer	CTUh	1,51E-8	4,24E-11	5,04E-11	1,52E-8	1,46E-11	5,38E-10	MND	MND	MND	MND	MND	MND	MND	9,53E-13	2,76E-12	3,04E-11	3,3E-13	-3,1E-11
Human tox. non-cancer	CTUh	2,74E-7	6,94E-10	4,42E-10	2,75E-7	5,71E-10	9,13E-9	MND	MND	MND	MND	MND	MND	MND	2,35E-11	1,28E-10	1,45E-9	1,02E-11	3,93E-8
SQP	-	4,44E0	2,3E-1	4,16E-2	4,71E0	5,44E-1	1,78E-1	MND	MND	MND	MND	MND	MND	MND	1,16E-3	2,13E-1	7,24E-2	3,75E-2	-4,06E-1

4) SQP = Land use related impacts/soil quality.5) EN 15804+A2 disclaimer for ionizing radiation, human health. 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.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	2,05E0	1,39E-2	1,44E-1	2,21E0	9,22E-3	8,17E-2	MND	MND	MND	MND	MND	MND	MND	2,45E-4	1,78E-3	4,56E-2	1,79E-4	9,4E-3
Renew. PER as material	MJ	0E0	0E0	3,9E-1	3,9E-1	0E0	-3,9E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	2,05E0	1,39E-2	5,34E-1	2,6E0	9,22E-3	-3,08E-1	MND	MND	MND	MND	MND	MND	MND	2,45E-4	1,78E-3	4,56E-2	1,79E-4	9,4E-3
Non-re. PER as energy	MJ	2,4E1	8,38E-1	4,16E-1	2,52E1	6,54E-1	9,35E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	1,41E-1	2,91E-1	2,21E-2	-1,77E0
Non-re. PER as material	MJ	0E0	0E0	1,34E-2	1,34E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	2,4E1	8,38E-1	4,29E-1	2,52E1	6,54E-1	9,35E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	1,41E-1	2,91E-1	2,21E-2	-1,77E0
Secondary materials	kg	6,97E-1	0E0	4,69E-4	6,97E-1	0E0	2,37E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1,09E-1
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m3	2,28E-2	1,47E-4	1,29E-4	2,31E-2	1,12E-4	9,01E-4	MND	MND	MND	MND	MND	MND	MND	4,01E-6	2,94E-5	1,19E-4	2,42E-5	-1,52E-3

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	Kg	5,25E-1	1,77E-3	1,39E-3	5,28E-1	6,64E-4	1,95E-2	MND	MND	MND	MND	MND	MND	MND	4,88E-5	1,37E-4	0E0	2,06E-5	-2,73E-2
Non-hazardous waste	Kg	5,54E0	3,15E-2	2,72E-2	5,6E0	4,56E-2	2,07E-1	MND	MND	MND	MND	MND	MND	MND	5,22E-4	1,52E-2	0E0	1,5E-1	-3,29E-1
Radioactive waste	Kg	5,45E-5	5,54E-6	2,16E-6	6,22E-5	4,48E-6	2,3E-6	MND	MND	MND	MND	MND	MND	MND	3,18E-7	9,7E-7	0E0	1,46E-7	8,24E-7

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	Kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	Kg	0E0	0E0	8,43E-3	8,43E-3	0E0	2E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8,5E-1	0E0	0E0
Materials for energy rec	Kg	0E0	0E0	0E0	0E0	0E0	1,99E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	8,7E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO2e	2E0	6,5E-2	-1,25E-2	2,05E0	4,34E-2	1,18E-1	MND	MND	MND	MND	MND	MND	MND	3,3E-3	9,1E-3	1,98E-2	1,99E-3	-2,62E-1
ADP-minerals & metals	kg Sbe	1,91E-3	4,67E-7	2,85E-7	1,91E-3	1,17E-6	4,31E-5	MND	MND	MND	MND	MND	MND	MND	5,03E-9	1,55E-7	1,16E-6	7,22E-9	-2,19E-7
ADP-fossil	MJ	2,4E1	8,38E-1	4,29E-1	2,52E1	6,54E-1	9,35E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	1,41E-1	2,91E-1	2,21E-2	-1,77E0
Water use	m3e depr.	1,22E0	3,66E-3	5,24E-3	1,23E0	2,1E-3	4,2E-2	MND	MND	MND	MND	MND	MND	MND	8,46E-5	5,26E-4	4,13E-3	1,02E-3	-3,19E-2
Secondary materials	kg	6,97E-1	0E0	4,69E-4	6,97E-1	0E0	2,37E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1,09E-1
Biog. C in product	kg C	N/A	N/A	0E0	0E0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	N/A	N/A	9E-3	9E-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7) Biog. C in product = Biogenic carbon content in product

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Grid Electricity data source and quality	Market for electricity, medium voltage (Reference product: electricity, medium voltage), Estonia, Ecoinvent 3.6, year: 2019
Electricity CO2e / kWh	0.85
Solar power data source and quality	Electricity production, photovoltaic, 3kwp slanted-roof installation, multi-si, panel, mounted (Reference product: electricity, low voltage), Finland, Ecoinvent 3.6, year: 2019
PV CO2e / kWh	0.0738
Heating data source and quality	Heat production, natural gas, at boiler atmospheric non-modulating <100kw (Reference product: heat, central or small-scale, natural gas), World, Ecoinvent 3.6, year: 2019
Heating CO2e / kWh	0.268
Fuel data source and quality	Diesel, burned in building machine (Reference product: diesel, burned in building machine)
Fuel CO2e / kWh	0.327

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed waste	1.00
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0.85
Recovery process – kg for energy recovery	-
Disposal (total) – kg for final deposition	0.15
Scenario assumptions e.g. transportation	End-of-life product

Transport scenario documentation

Scenario parameter	Value
A4 specific transport CO2e emissions, kg CO2e / tkm	0,17
A4 average transport distance, km	250
A4 Capacity utilization (including empty return) %	100%
A4 Bulk density of transported products kg/m ³	282
A4 Volume capacity utilization factor %	100%



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ABOUT THE MANUFACTURER

Favor is an Estonian metalworking company established 1990. Today Favor is the largest enterprise in the region specialised on thin sheet metalworking.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Favor As
EPD author	Valteri Kainila, Bionova Ltd, Suvilahdenkatu 10 B, www.oneclicklca.com
EPD verifier	Anni Oviir, Rangi Maja OÜ, Tondi 22-4, Tallinn Estonia, www.lcasupport.com
EPD program operator	The Building Information Foundation RTS sr
Background data	This EPD is based on Ecoinvent 3.6 (2019, cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Primary Steel and Aluminium and all Metal-Based Products



VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? [Read more online.](#)

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Anni Oviir, Rangi Maja OÜ
EPD verification started on	01.07.2021
EPD verification completed on	14.07.2021
Approver of the EPD verifier	The Building Information Foundation RTS sr

Author & tool verification	Answer
EPD author	Valtteri Kainila, One Click LCA Ltd
EPD Generator module	Primary Steel and Aluminium and all Metal-Based Products
Independent software verifier	Anni Oviir, Rangi Maja OÜ
Software verification date	25.09.2020



THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Anni Oviir, Rangi Maja OÜ



ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO2e	1,92E0	6,44E-2	2,71E-2	2,01E0	4,3E-2	7,57E-2	MND	MND	MND	MND	MND	MND	MND	3,27E-3	9,01E-3	2,06E-2	7,75E-4	-2,23E-1
Ozone depletion Pot.	kg CFC11e	1,14E-7	9,77E-9	3,66E-9	1,27E-7	7,84E-9	4,56E-9	MND	MND	MND	MND	MND	MND	MND	5,63E-10	1,7E-9	2,56E-9	2,58E-10	-6,22E-9
Acidification	kg SO2e	1,65E-2	1,13E-3	1,54E-4	1,78E-2	8,69E-5	4,98E-4	MND	MND	MND	MND	MND	MND	MND	4,87E-6	1,85E-5	1,58E-4	3,13E-6	-7,36E-4
Eutrophication	kg PO4 3e	5,84E-3	1,61E-4	3,48E-5	6,03E-3	1,79E-5	2,08E-4	MND	MND	MND	MND	MND	MND	MND	8,57E-7	3,74E-6	6,45E-5	6,05E-7	-3,87E-4
POCP ("smog")	kg C2H4e	8,28E-4	3,02E-5	8,9E-6	8,67E-4	5,72E-6	3,16E-5	MND	MND	MND	MND	MND	MND	MND	5,01E-7	1,17E-6	7,41E-6	2,29E-7	-1,8E-4
ADP-elements	kg Sbe	1,91E-3	4,67E-7	2,85E-7	1,91E-3	1,17E-6	4,31E-5	MND	MND	MND	MND	MND	MND	MND	5,03E-9	1,55E-7	1,16E-6	7,22E-9	-2,19E-7
ADP-fossil	MJ	2,4E1	8,38E-1	4,29E-1	2,52E1	6,54E-1	9,35E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	1,41E-1	2,91E-1	2,21E-2	-1,77E0

ANNEX 2 : MASSES OF DIFFERENT FAVOR STEEL PROFILES

Product	weight kg/rm	Product	weight kg/rm	Product	weight kg/rm	Product	weight kg/rm
VP 42/35/0,55	0.52	CW 50/50/0,55	0.67	HP 70/37/0,55	0.62	HP 66/58/0,55	0.78
VP 45/35/0,55	0.54	CW 75/50/0,55	0.78	HP 95/37/0,55	0.72	HP 70/58/0,55	0.80
VP 66/35/0,55	0.63	CW 100/50/0,55	0.88	HP 120/37/0,55	0.83	HP 95/58/0,55	0.90
VP 70/35/0,55	0.64	LPR 42/40/0,55	0.56	SK 42/37/0,55	0.50	HP 120/58/0,55	1.00
VP 95/35/0,55	0.75	LPR 45/40/0,55	0.58	SK 50/37/0,55	0.52	SK 42/58/0,55	0.67
VP 42/40/0,55	0.56	LPR 66/40/0,55	0.67	SK 66/37/0,55	0.60	SK 45/58/0,55	0.68
VP 45/40/0,55	0.58	LPR 70/40/0,55	0.69	SK 70/37/0,55	0.62	SK 50/58/0,55	0.72
VP 66/40/0,55	0.67	LPR 95/40/0,55	0.78	SK 75/37/0,55	0.64	SK 66/58/0,55	0.78
VP 70/40/0,55	0.69	LPR 120/40/0,55	0.90	SK 95/37/0,55	0.72	SK 70/58/0,55	0.80
VP 95/40/0,55	0.78	LPR 50/50/0,55	0.67	SK 100/37/0,55	0.75	SK 75/58/0,55	0.82
VP 120/40/0,55	0.90	LPR 75/50/0,55	0.78	SK 120/37/0,55	0.83	SK 95/58/0,55	0.88
AVP 66/40/0,46	0.66	LPR 100/50/0,55	0.88	UW 50/37/0,55	0.52	SK 100/58/0,55	0.90
AVP 70/40/0,46	0.67	HP 42/30/0,55	0.43	UW 75/37/0,55	0.64	SK 120/58/0,55	0.99
AVP 75/40/0,46	0.69	HP 45/30/0,55	0.44	UW 100/37/0,55	0.75	UW 50/58/0,55	0.72
AVP 95/40/0,46	0.76	HP 66/30/0,55	0.52	HP 42/40/0,55	0.52	UW 75/58/0,55	0.82
AVP 100/40/0,46	0.78	HP 70/30/0,55	0.55	HP 66/40/0,55	0.63	UW 100/58/0,55	0.90
AVP 120/40/0,46	0.85	HP 95/30/0,55	0.67	HP 70/40/0,55	0.64	SK 42/100/0,55	1.03
AR 66/40/0,46	0.66	SK 50/30/0,55	0.46	HP 95/40/0,55	0.75	SK 45/100/0,55	1.04
AR 70/40/0,46	0.67	SK 75/30/0,55	0.57	HP 120/40/0,55	0.86	SK 66/100/0,55	1.13
AR 75/40/0,46	0.69	SK 100/30/0,55	0.64	SK 42/40/0,55	0.52	SK 70/100/0,55	1.16
AR 95/40/0,46	0.76	UW 50/30/0,55	0.46	SK 66/40/0,55	0.63	SK 95/100/0,55	1.27
AR 100/40/0,46	0.78	UW 75/30/0,55	0.57	SK 70/40/0,55	0.64	SK 120/100/0,55	1.36
AR 120/40/0,46	0.85	UW 100/30/0,55	0.64	SK 95/40/0,55	0.75	HP 42/130/0,55	1.29
MR 70/40/0,46	0.63	HP 42/37/0,55	0.50	SK 120/40/0,55	0.86	HP 45/130/0,55	1.30
MR 95/40/0,46	0.65	HP 45/37/0,55	0.51	HP 42/58/0,55	0.67	HP 66/130/0,55	1.39
MR 120/40/0,46	0.72	HP 66/37/0,55	0.60	HP 45/58/0,55	0.68	HP 70/130/0,55	1.42

Product	weight kg/rm	Product	weight kg/rm	Product	weight kg/rm	Product	weight kg/rm
HP 95/130/0,55	1.51	SK 70/37/0,5	0.56	SK 95/55/0,5	0.80	SK 66/130/0,5	1.26
HP 120/130/0,55	1.62	SK 75/37/0,5	0.59	SK 120/55/0,5	0.89	SK 70/130/0,5	1.29
SK 66/130/0,55	1.39	SK 95/37/0,5	0.66	SK 42/58/0,5	0.61	SK 95/130/0,5	1.38
SK 70/130/0,55	1.42	SK 100/37/0,5	0.68	SK 45/58/0,5	0.62	SK 120/130/0,5	1.47
SK 95/130/0,55	1.51	SK 120/37/0,5	0.76	SK 50/58/0,5	0.66	CD 60/0,5	0.48
SK 120/130/0,55	1.62	UW 50/37/0,5	0.48	SK 66/58/0,5	0.71	GK 60/0,5	0.48
HP 42/30/0,5	0.39	UW 75/37/0,5	0.59	SK 70/58/0,5	0.72	UD 28/0,5	0.31
HP 45/30/0,5	0.40	UW 100/37/0,5	0.68	SK 75/58/0,5	0.74	GK-UD 28/0,5	0.31
HP 66/30/0,5	0.48	HP 42/40/0,5	0.48	SK 95/58/0,5	0.80	FR 45/50/1,2	2.20
HP 70/30/0,5	0.50	HP 66/40/0,5	0.57	SK 100/58/0,5	0.82	FR 50/50/1,2	2.25
HP 95/30/0,5	0.61	HP 70/40/0,5	0.59	SK 120/58/0,5	0.90	FR 66/50/1,2	2.40
SK 50/30/0,5	0.42	HP 95/40/0,5	0.68	UW 50/58/0,5	0.66	FR 70/50/1,2	2.43
SK 75/30/0,5	0.52	HP 120/40/0,5	0.78	UW 75/58/0,5	0.74	FR 95/50/1,2	2.67
SK 100/30/0,5	0.59	SK 42/40/0,5	0.48	UW 100/58/0,5	0.82	FR 100/50/1,2	2.71
UW 50/30/0,5	0.42	SK 66/40/0,5	0.57	SK 42/100/0,5	0.94	FR 120/50/1,2	2.90
UW 75/30/0,5	0.52	SK 70/40/0,5	0.59	SK 45/100/0,5	0.95	FSK 45/50/1,2	2.20
UW 100/30/0,5	0.59	SK 95/40/0,5	0.68	SK 66/100/0,5	1.03	FSK 50/50/1,2	2.25
HP 42/37/0,5	0.45	SK 120/40/0,5	0.78	SK 70/100/0,5	1.05	FSK 66/50/1,2	2.40
HP 45/37/0,5	0.46	HP 42/58/0,5	0.61	SK 95/100/0,5	1.15	FSK 70/50/1,2	2.43
HP 66/37/0,5	0.54	HP 45/58/0,5	0.62	SK 120/100/0,5	1.24	FSK 75/50/1,2	2.67
HP 70/37/0,5	0.56	HP 66/58/0,5	0.71	HP 42/130/0,5	1.17	FSK 100/50/1,2	2.71
HP 95/37/0,5	0.66	HP 70/58/0,5	0.72	HP 45/130/0,5	1.18	FSK 120/50/1,2	2.90
HP 120/37/0,5	0.76	HP 95/58/0,5	0.82	HP 66/130/0,5	1.26	SK 42/130/0,5	1.17
SK 42/37/0,5	0.45	HP 120/58/0,5	0.91	HP 70/130/0,5	1.29	SK 45/130/0,5	1.18
SK 50/37/0,5	0.48	SK 45/55/0,5	0.60	HP 95/130/0,5	1.38	CD 60/0,55	0.53
SK 66/37/0,5	0.54	SK 70/55/0,5	0.70	HP 120/130/0,5	1.47	UD 28/0,55	0.35