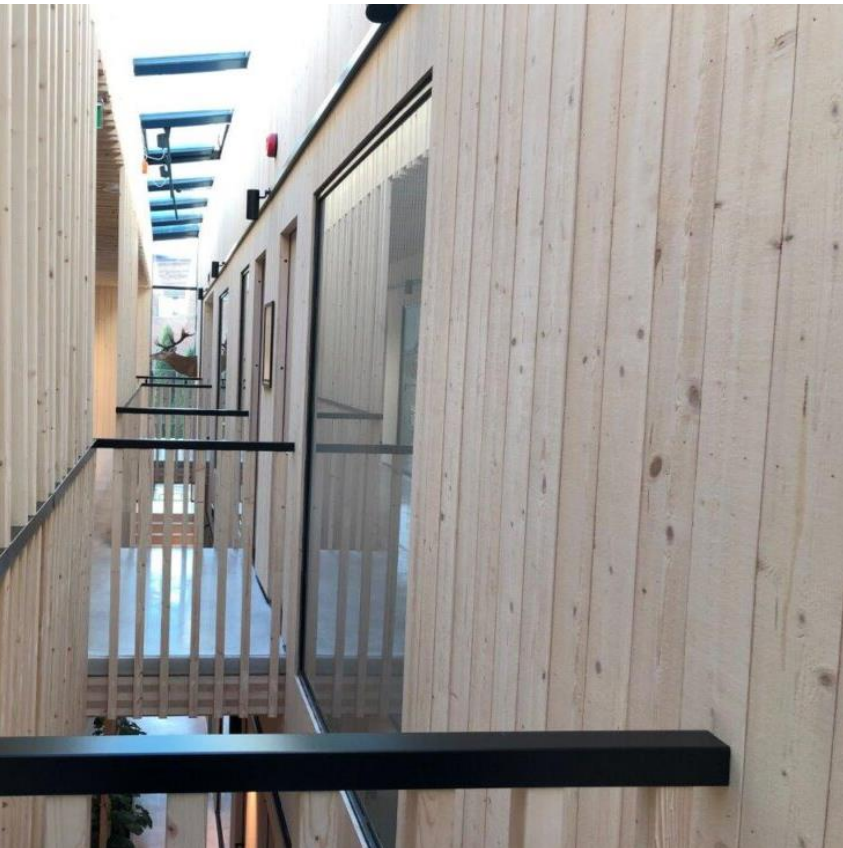




**RAITWOOD**



## **ENVIRONMENTAL PRODUCT DECLARATION**

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

Planned softwood products without coating  
Planned softwood products with coating

**AS RAIT / RAITWOOD**



## GENERAL INFORMATION

### MANUFACTURER INFORMATION

Manufacturer	AS RAIT
Address	Unipiha tee 20 Reola, 61707, Estonia
Contact details	info@raitwood.ee
Website	https://www.raitwood.com

### PRODUCT IDENTIFICATION

Product name	Planed softwood products without coating Planed softwood products with coating
Additional label(s)	
Place(s) of production	Unipiha tee 20, Reola, 61707, Estonia

Jukka Seppänen  
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	The Building Information Foundation RTS sr
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 (English version, 26.8.2020) is used.
EPD author	Daniel Satola, Civitta International OÜ
EPD verification	Independent verification of this EPD and data, according to ISO 14025: x External verification
Verification date	05.03.2024
EPD verifier	Mari Kirss, Rangi Maja OÜ
EPD number	RTS_297_24
Publishing date	28.3.2024
EPD valid until	28.3.2029

## PRODUCT INFORMATION

### PRODUCT DESCRIPTION

Planed softwood products are timber products used in construction. Planed softwood products are primarily used as finishing and general construction materials, e.g. cladding and framework. Uncoated planed softwood products are manufactured following wood processing steps, i.e. incoming dried softwood sawn timber is, usually split by sawing and then planed or profiled in a moulder. In case of the coated planed softwood products, the additional process related to coating (painting) takes place afterwards. All manufacturing processes are conducted in the same manufacturing plant in Reola, Estonia.

#### Product 1 – Planed softwood products without surface coating

Product examples:



Four sides planed construction timber



Planed profiled timber

#### Product 2 – Planed softwood products with the surface coating

Product example:



Painted planed (profiled) timber

## PRODUCT APPLICATION

Timber products are used for structures in construction as well as interior walls, exterior claddings and floorboards.

## TECHNICAL SPECIFICATIONS

Softwood timber from the spruce (*Pinus sylvestris*) and pine (*Pinus sylvestris*).

## PRODUCT STANDARDS

Declarations of performance for strength-graded construction products 14081-1:2005+A1:2011. Declaration of performance for four side planed construction timber EN 14915:2013. Declaration of performance for claddings EN 14915:2013. Declaration of performance for flooring EN 14342:2013.

## PHYSICAL PROPERTIES OF THE PRODUCT

Planed softwood product properties vary depending on application: thickness 8-100mm, width: 25-295mm, lengths: 2.1-6m. The average moisture content is 14%.

## ADDITIONAL TECHNICAL INFORMATION

<b>Planed softwood products without surface coating</b>		
Product name	<b>Planed construction timber and four sides planed timber</b>	<b>Planed profiled timber</b>
Product description	Strength-graded timber is used for structures in construction. Wide variety of processed timber in outdoor and indoor construction. Strength class in Europe C14-C30, TR26. Strength class in Australia MGP10	Wood products for interior walls, exterior claddings and floorboards.
Properties:		
Wood species	Spruce ( <i>Picea abies</i> ), pine ( <i>Pinus sylvestris</i> )	Spruce ( <i>Picea abies</i> ), pine ( <i>Pinus sylvestris</i> )
Moisture content	Strength-graded construction products: average 12-18% ± 2% when dispatched from the mill. Four sides planed products: 12-16% ± 2% when dispatched from the mill.	Average 8-16% ± 2% when dispatched from the mill
Thickness	Strength graded: 32-100mm, four side planed timber 7-100mm	8-70mm
Width	Strength graded: 54-258mm, four sides planed timber: 25-295mm	43-275mm
Length	2.4-6.0m	2.1-6.0m
Product standards	Declarations of performance for strength-graded construction products 14081-1:2005+A1:2011. Declaration of performance for four side planed construction timber EN 14915:2013	Declaration of performance for claddings EN 14915:2013. Declaration of performance for flooring EN 14342:2013

<b>Planed softwood products with the surface coating</b>	
Product name	<b>Painted planed timber</b>
Product description	Paint-treated ready-to-install wood products for interior and exterior usage.
Properties:	
Wood spieces	Spruce (Picea abies), pine (Pinus sylvestris)
Moisture content	Average 8-16% ± 2% when dispatched from the mill
Thickness	7-95mm
Widths	25-295mm
Lenghts	2.1-6.0m
Product standards	Declaration of performance EN 14915:2013
REACH SVHC substances composition	No

Further information can be found at <https://www.raitwood.com>.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

<b>Raw material category</b>	<b>Amount, mass- % and material origin</b>	<b>Material origin</b>
<b>Planed softwood products without surface coating</b>		
Bio-based materials	100%	Europe
<b>Planed softwood products with the surface coating</b>		
Fossil materials (coating)	<0.1%	Europe
Bio-based materials	>99.9%	Europe

Softwood products are 100% made from FSC-certified material.

## 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 environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production, packaging materials, and other ancillary materials. Also, this stage includes the fuels used by machines and the handling of waste formed in the production processes at the manufacturing facilities. The study also considers the material losses occurring during the manufacturing processes and losses during electricity transmission.

The manufacturing process of uncoated products comprises the wood drying (if needed), cutting (splitting), planing, sorting and packaging. In case of the coated products, one or more layers of coating is added in the additional finishing process including priming. The products are packaged using plastic film, wooden laths and cardboard.

### TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts from final product delivery to the 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. The reference transportation distance was based on the weighted average of sold product quantities in main EU markets. According to the manufacturer, transportation does not cause losses as products are correctly packaged. Based on the sales data - Product 1 – planed softwood without surface coating is transported by an average of 440 km by lorry and 35 km by sea. In the case of product 2 - planed softwood with the surface coating is transported by an average of 123 km by lorry. The vehicle capacity utilization volume factor is assumed

to be 1. Environmental impacts from installation into the building (A5) have not been included.

### PRODUCT USE AND MAINTENANCE (B1-B7)

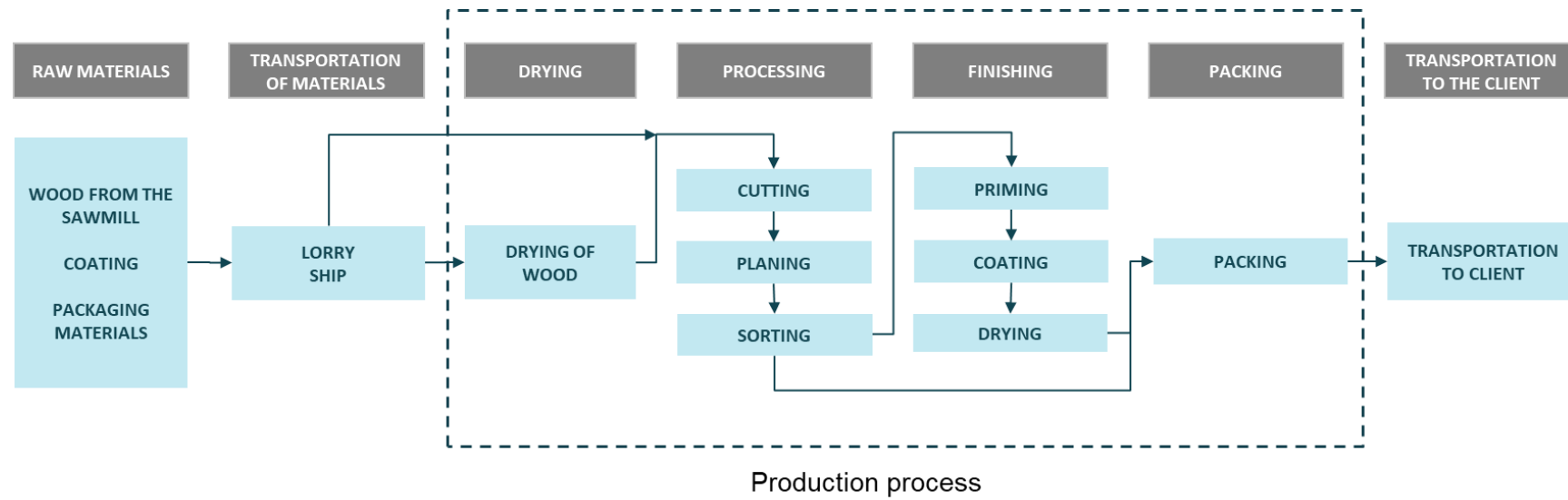
This EPD does not cover the use phase.

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

### PRODUCT END OF LIFE (C1-C4, D)

EOL scenarios have been based on EU waste management data from 2017-2021 and represent the EU market. It is assumed that 70% of the product is collected as sorted wood waste and the rest (30%) as general construction and demolition waste (C1). Demolition is not assumed to require any energy or resources. Sorted wood waste is sent to waste treatment facilities, and mixed waste is sent to landfill (C2). It is assumed that the dismantled product is transported 50 km by lorry. 87% of the sorted wood waste is then recycled (60%) or incinerated (27%) for energy recovery (C3). The rest (13%) is landfilled (C4). In total, 42% of the dismantled product is recycled, 18.9% is incinerated for energy recovery, and 39.1% is landfilled. The environmental benefits of recyclable waste generated in Module C3 are considered. It was assumed that the sorted wood waste is incinerated for energy recovery or recycled – for example, used for fibrewood production – in the same ratio as in module C3.

## MANUFACTURING PROCESS



## LIFE-CYCLE ASSESSMENT

### LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2022
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### DECLARED AND FUNCTIONAL UNIT

Declared unit	m <sup>3</sup>
Mass per declared unit	455 kg

### BIOGENIC CARBON CONTENT

#### The product's biogenic carbon content at the factory gate

Biogenic carbon content in the product, kg C	203.4
Biogenic carbon content in the packaging, kg C	3.8

### SYSTEM BOUNDARY

The scope of the EPD is cradle to gate with options (A1-A5), modules C1–C4 and module D for the products

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	
Geography, by two-letter ISO country code or regions. The International EPD System only.																			
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 that are stated to be mandatory in 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 materials and energy consumption. All inputs and outputs of the unit processes for which data is available 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.

### 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.

The recommended allocation procedure described in PCR, EN 15804+A2 and ISO 14044, section 4.3.4, is followed. As a principle, allocation is avoided whenever possible. When allocation is applied, it is ensured that there is no double counting or omissions, and all the environmental impacts are allocated to either product or co-products). Volumetric allocation allocates flows between main products: coated and uncoated planed softwood.





Allocation used in Ecoinvent 3.8 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of EN 15804.

## **BIOGENIC CARBON AND GWP-BIOGENIC**

Biogenic carbon content in products and packaging has been calculated according to EN 16449. Irrespective of the chosen co-product allocation, biogenic carbon content reflects physical flows. Carbon sequestration and neutrality have only been assumed for sustainable wood (FSC-certified).

## PLANED SOFTWOOD PRODUCTS WITHOUT COATING

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	-6,77E+02	3,34E+01	7,40E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,82E+00	4,62E+02	2,91E+02	-7,73E+01
GWP – fossil	kg CO <sub>2</sub> e	6,78E+01	3,37E+01	3,47E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,81E+00	9,93E+00	1,92E+00	-7,70E+01
GWP – biogenic	kg CO <sub>2</sub> e	-7,46E+02	1,34E-02	3,93E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	4,52E+02	2,89E+02	-1,60E-01
GWP – LULUC	kg CO <sub>2</sub> e	6,78E-01	1,33E-02	2,26E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,50E-03	4,46E-02	1,99E-03	-6,37E-02
Ozone depletion pot.	kg CFC <sub>11</sub> e	1,25E-05	7,80E-06	6,93E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,83E-07	1,34E-06	5,71E-07	-9,11E-06
Acidification potential	mol H <sup>+</sup> e	4,65E-01	1,41E-01	7,17E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,55E-02	6,47E-02	1,62E-02	-1,93E-01
EP-freshwater	kg Pe	6,84E-03	2,36E-04	7,60E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,68E-05	2,49E-04	3,69E-05	-3,04E-03
EP-marine	kg Ne	1,67E-01	4,19E-02	3,28E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,62E-03	2,25E-02	1,07E-02	-3,60E-02
EP-terrestrial	mol Ne	1,81E+00	4,62E-01	3,53E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,10E-02	2,44E-01	6,01E-02	-4,00E-01
POCP (“smog”) <sup>2)</sup>	kg NMVOCe	6,24E-01	1,41E-01	8,67E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,56E-02	6,62E-02	2,15E-02	-1,23E-01
ADP-minerals & metals <sup>3)</sup>	kg Sbe	2,23E-04	1,19E-04	2,07E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,35E-05	3,07E-05	6,48E-06	-7,35E-05
ADP-fossil resources	MJ	1,11E+03	5,00E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,66E+01	1,33E+02	4,38E+01	-1,34E+03
Water use <sup>4)</sup>	m <sup>3</sup> e depr.	2,26E+01	2,31E+00	1,81E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,62E-01	7,07E+00	2,63E-01	-1,17E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. The required characterization method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except for 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 experience with the indicator.

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

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	5,96E-06	2,90E-06	5,44E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,29E-07	9,46E-07	3,24E-07	-8,19E-07
Ionizing radiation <sup>5)</sup>	kBq U235e	7,05E+00	2,62E+00	1,85E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,96E-01	9,35E-01	2,11E-01	-1,11E+01
Ecotoxicity (freshwater)	CTUe	9,52E+02	4,15E+02	1,63E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,70E+01	1,56E+02	4,45E+01	-3,98E+02
Human toxicity, cancer	CTUh	5,53E-08	1,29E-08	1,88E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,45E-09	9,52E-09	1,43E-09	-1,45E-08
Human tox. non-cancer	CTUh	1,12E-06	4,21E-07	7,66E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,77E-08	2,95E-07	4,52E-08	-3,73E-07
SQP <sup>6)</sup>	-	6,11E+04	3,49E+02	3,48E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,96E+01	9,30E+01	1,06E+02	-5,47E+03

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on the 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; 7) SQP = Land use related impacts/soil quality.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy <sup>7)</sup>	MJ	7,37E+03	7,16E+00	1,41E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,12E-01	6,70E+00	8,12E-01	-9,53E+02
Renew. PER as material	MJ	6,66E+03	0,00E+00	-3,15E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,04E+03	-2,59E+03	0,00E+00
Total use of renew. PER	MJ	1,40E+04	7,16E+00	-3,15E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,12E-01	-4,04E+03	-2,59E+03	-9,53E+02
Non-re. PER as energy	MJ	1,08E+03	5,00E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,66E+01	1,33E+02	4,38E+01	-1,34E+03
Non-re. PER as material	MJ	5,63E+01	0,00E+00	-4,65E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-6,01E+00	-3,84E+00	0,00E+00
Total use of non-re. PER	MJ	1,13E+03	5,00E+02	-4,58E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,66E+01	1,27E+02	4,00E+01	-1,34E+03
Secondary materials	kg	5,44E-01	1,68E-01	9,28E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,90E-02	9,19E-02	1,57E-02	1,91E+02
Renew. secondary fuels	MJ	1,43E-01	1,84E-03	4,74E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,09E-04	8,77E-04	6,01E-04	-1,06E-03
Non-ren. secondary fuels	MJ	2,39E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	1,86E+00	6,28E-02	3,78E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,12E-03	8,74E-03	4,69E-02	-3,86E-01

8) PER = Primary energy resources

## END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	2,34E+00	5,62E-01	2,19E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,35E-02	0,00E+00	0,00E+00	-2,16E+00
Non-hazardous waste	kg	5,19E+01	9,95E+00	2,34E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,13E+00	0,00E+00	1,78E+02	-1,31E+02
Radioactive waste	kg	5,78E-03	3,45E-03	1,10E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,90E-04	0,00E+00	0,00E+00	-3,50E-03

## END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,10E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,91E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	3,57E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,60E+01	0,00E+00	0,00E+00
Exported energy	MJ	4,26E-02	0,00E+00	5,98E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,14E+03	0,00E+00	0,00E+00

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

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO <sub>2</sub> e	-1,49E+00	7,42E-02	-1,41E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,39E-03	1,01E-01	6,03E-01	-1,68E-01
ADP-minerals & metals	kg Sbe	4,40E-07	2,56E-07	3,92E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,91E-08	6,53E-08	1,37E-08	-1,83E-07
ADP-fossil	MJ	1,89E+00	1,10E+00	-2,41E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,24E-01	2,92E-01	9,63E-02	-2,97E+00
Water use	m <sup>3</sup> e depr.	4,66E-02	5,08E-03	-6,32E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,75E-04	1,55E-02	5,77E-04	-2,83E-02
Secondary materials	kg	1,12E-03	3,69E-04	-9,62E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,17E-05	2,02E-04	3,44E-05	4,20E-01
Biog. C in product <sup>9)</sup>	kg C	4,45E-01	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	8,35E-03	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

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

## PLANED SOFTWOOD PRODUCTS WITH COATING

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	-6,02E+02	9,29E+00	7,40E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,78E+00	4,68E+02	2,95E+02	-7,73E+01
GWP – fossil	kg CO <sub>2</sub> e	1,30E+02	9,38E+00	3,47E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,78E+00	9,93E+00	1,92E+00	-7,70E+01
GWP – biogenic	kg CO <sub>2</sub> e	-7,55E+02	3,75E-03	3,93E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,51E-03	4,58E+02	2,93E+02	-1,60E-01
GWP – LULUC	kg CO <sub>2</sub> e	2,31E+01	3,68E-03	2,26E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,48E-03	4,46E-02	1,99E-03	-6,37E-02
Ozone depletion pot.	kg CFC <sub>11</sub> e	1,95E-05	2,17E-06	6,93E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,75E-07	1,34E-06	5,71E-07	-9,11E-06
Acidification potential	mol H <sup>+</sup> e	1,46E+00	3,81E-02	7,17E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,53E-02	6,47E-02	1,62E-02	-1,93E-01
EP-freshwater	kg Pe	1,15E-02	6,59E-05	7,60E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,65E-05	2,49E-04	3,69E-05	-3,04E-03
EP-marine	kg Ne	2,91E-01	1,14E-02	3,28E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,58E-03	2,25E-02	1,07E-02	-3,60E-02
EP-terrestrial	mol Ne	2,51E+00	1,25E-01	3,53E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,05E-02	2,44E-01	6,01E-02	-4,00E-01
POCP (“smog”) <sup>2)</sup>	kg NMVOCe	8,97E-01	3,84E-02	8,67E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,55E-02	6,62E-02	2,15E-02	-1,23E-01
ADP-minerals & metals <sup>3)</sup>	kg Sbe	1,01E-03	3,33E-05	2,07E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,34E-05	3,07E-05	6,48E-06	-7,35E-05
ADP-fossil resources	MJ	2,05E+03	1,39E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,61E+01	1,33E+02	4,38E+01	-1,34E+03
Water use <sup>4)</sup>	m <sup>3</sup> e depr.	1,59E+02	6,44E-01	1,81E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,60E-01	7,07E+00	2,63E-01	-1,17E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterization method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

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

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,08E-05	8,10E-07	5,44E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,26E-07	9,46E-07	3,24E-07	-8,19E-07
Ionizing radiation <sup>5)</sup>	kBq U235e	1,32E+01	7,29E-01	1,85E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,94E-01	9,35E-01	2,11E-01	-1,11E+01
Ecotoxicity (freshwater)	CTUe	5,48E+03	1,16E+02	1,63E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,66E+01	1,56E+02	4,45E+01	-3,98E+02
Human toxicity, cancer	CTUh	1,35E-07	3,58E-09	1,88E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,44E-09	9,52E-09	1,43E-09	-1,45E-08
Human tox. non-cancer	CTUh	3,27E-06	1,17E-07	7,66E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,73E-08	2,95E-07	4,52E-08	-3,73E-07
SQP <sup>6)</sup>	-	6,28E+04	9,75E+01	3,48E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,93E+01	9,30E+01	1,06E+02	-5,47E+03

6) 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; 7) SQP = Land use related impacts/soil quality.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy <sup>7)</sup>	MJ	7,58E+03	2,00E+00	1,41E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,05E-01	6,70E+00	8,12E-01	-9,53E+02
Renew. PER as material	MJ	6,74E+03	0,00E+00	-3,15E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,09E+03	-2,62E+03	0,00E+00
Total use of renew. PER	MJ	1,43E+04	2,00E+00	-3,15E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,05E-01	-4,09E+03	-2,62E+03	-9,53E+02
Non-re. PER as energy	MJ	1,90E+03	1,39E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,61E+01	1,33E+02	4,38E+01	-1,34E+03
Non-re. PER as material	MJ	1,14E+02	0,00E+00	-4,65E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,12E+01	-2,63E+01	0,00E+00
Total use of non-re. PER	MJ	2,01E+03	1,39E+02	-4,58E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,61E+01	9,17E+01	1,75E+01	-1,34E+03
Secondary materials	kg	1,63E+00	4,67E-02	9,28E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,88E-02	9,19E-02	1,57E-02	1,91E+02
Renew. secondary fuels	MJ	1,56E-01	5,15E-04	4,74E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,07E-04	8,77E-04	6,01E-04	-1,06E-03
Non-ren. secondary fuels	MJ	2,39E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	5,21E+00	1,75E-02	3,78E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,06E-03	8,74E-03	4,69E-02	-3,86E-01

8) PER = Primary energy resources

## END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,47E+01	1,56E-01	2,19E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,30E-02	0,00E+00	0,00E+00	-2,16E+00
Non-hazardous waste	kg	3,14E+02	2,78E+00	2,34E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,12E+00	0,00E+00	1,78E+02	-1,31E+02
Radioactive waste	kg	8,58E-03	9,59E-04	1,10E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,87E-04	0,00E+00	0,00E+00	-3,50E-03

## END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,25E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,91E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	7,37E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,60E+01	0,00E+00	0,00E+00
Exported energy	MJ	1,75E-01	0,00E+00	5,98E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,14E+03	0,00E+00	0,00E+00

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

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO <sub>2</sub> e	-1,35E+00	2,06E-02	7,66E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,32E-03	1,02E+00	6.11E-01	-1.68E-01
ADP-minerals & metals	kg Sbe	2,30E-06	7,15E-08	3,92E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,88E-08	6,53E-08	1,37E-08	-1,83E-07
ADP-fossil	MJ	3,66E+00	3,06E-01	-2,41E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,23E-01	2,92E-01	9,63E-02	-2,97E+00
Water use	m <sup>3</sup> e depr.	1,64E-01	1,42E-03	-6,32E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,70E-04	1,55E-02	5,77E-04	-2,83E-02
Secondary materials	kg	3,29E-03	1,03E-04	-9,62E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,14E-05	2,02E-04	3,44E-05	4.20E-01
Biog. C in product <sup>9)</sup>	kg C	4.45E-01	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	8.35E-03	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

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

## SCENARIO DOCUMENTATION

### Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source	Electricity production, hydro, run-of-river (Reference product: electricity, high voltage) Ecoinvent 3.8
Electricity CO <sub>2e</sub> / kWh	0.0043
Heating data source	Heat production, softwood chips from industry, at furnace 1000kW, state-of-the-art 2014 (Reference product: heat, district or industrial, other than natural gas) Ecoinvent 3.8
Heating CO <sub>2e</sub> / MJ	0.0172

### Transport scenario documentation (A4)

Scenario parameter	Value
<b>Product 1 – Planed softwood without coating</b>	
Specific transport CO <sub>2e</sub> emissions, kg CO <sub>2e</sub> / tkm	0.16
Average transport distance, km	440 (road) 35 (sea)
Capacity utilization (including empty return) %	100
Bulk density of transported products	455
Volume capacity utilization factor	1
<b>Product 2 – Planed softwood with coating</b>	
Specific transport CO <sub>2e</sub> emissions, kg CO <sub>2e</sub> / tkm	0.17
Average transport distance, km	132 (road)
Capacity utilization (including empty return) %	100
Bulk density of transported products	455
Volume capacity utilization factor	1

### End-of-life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	318.5
Collection process – kg collected with mixed waste	136.5
Recovery process – kg for re-use	0
Recovery process – kg for recycling	191
Recovery process – kg for energy recovery	86
Disposal (total) – kg for final deposition	178
Scenario assumptions, e.g. transportation	End of life product is transported 50 km with an average lorry 50km, volume capacity utilization 100%

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Management of waste by waste management operations and type of material - Sankey diagram data (env\_wassd)

# RAITWOOD

## ABOUT THE MANUFACTURER

**RAITWOOD | AS RAIT is dedicated to producing planed and industrially coated finishing and construction materials from Nordic softwood.**

AS RAIT was established in 1991 and is among the largest privately owned and independent forest industry companies in Estonia. RAITWOOD is today one of the leading producers of planed softwood paneling and other profiles with annual capacity of 65 million linear meters. On two modern planning lines about 160 000 cbm of sawn timber is annually processed into interior and exterior wallpanelling, decking and strength graded construction wood.

Deliveries are made internationally to established customers in 40 countries around the world. RAITWOOD provides products for industrial consumers (manufacturers of wooden houses, garden houses, doors, windows and furniture) as well as to wholesalers and retail chains. In this way RAITWOOD products reach many end-users.

Industrially finished (coated) panelling is produced mainly for the building industry and prefab house manufacturers in the Baltic countries. In the finishing we use environment friendly water based coating systems (paints, lacquers, stains and waxes) for interior and exterior panelling

References: <https://www.raitwood.ee/en/references/>

<b>Manufacturer</b>	AS RAIT / RAITWOOD
<b>EPD author</b>	Daniel Satola, Civitta International OÜ
<b>EPD verifier</b>	Mari Kirss, Rangi Maja OÜ
<b>EPD program operator</b>	The Building Information Foundation RTS sr
<b>Background data</b>	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) and One Click LCA databases.
<b>LCA software</b>	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Wood and plant-fibre-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 compliance 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	Mari Kirss, Rangi Maja OÜ
EPD verification started on	18.12.2023
EPD verification completed on	05.03.2024
Approver of the EPD verifier	The Building Information Foundation RTS sr

Author & tool verification	Answer
EPD author	Daniel Satola, Civitta International OÜ
EPD Generator module	Wood and plant-fibre based products
Software verification date	17 January 2021

### 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.

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

### PLANED SOFTWOOD PRODUCTS WITHOUT COATING

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	5,76E+01	3,34E+01	3,46E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,78E+00	9,78E+00	1,34E+01	-7,70E+01
Ozone depletion Pot.	kg CFC-11e	8,57E-06	6,18E-06	5,85E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,00E-07	1,08E-06	4,53E-07	-7,91E-06
Acidification	kg SO <sub>2</sub> e	2,58E-01	1,10E-01	5,07E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,20E-02	4,89E-02	1,23E-02	-1,74E-01
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1,15E-01	2,45E-02	4,49E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,73E-03	2,37E-02	5,12E-01	-1,09E-01
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	3,30E-02	4,44E-03	1,14E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,93E-04	1,78E-03	2,97E-03	-9,81E-03
ADP-elements	kg Sbe	2,04E-04	1,17E-04	1,78E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,32E-05	2,97E-05	6,25E-06	-8,34E-05
ADP-fossil	MJ	9,13E+02	5,00E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,66E+01	1,33E+02	4,38E+01	-1,35E+03

### PLANED SOFTWOOD PRODUCTS WITH COATING

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	1,36E+02	9,29E+00	3,46E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,75E+00	9,78E+00	1,34E+01	-7,70E+01
Ozone depletion Pot.	kg CFC-11e	1,43E-05	1,72E-06	5,85E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,94E-07	1,08E-06	4,53E-07	-7,91E-06
Acidification	kg SO <sub>2</sub> e	1,11E+00	2,96E-02	5,07E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-02	4,89E-02	1,23E-02	-1,74E-01
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	3,84E-01	6,71E-03	4,49E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,71E-03	2,37E-02	5,12E-01	-1,09E-01
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	8,93E-02	1,21E-03	1,14E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,88E-04	1,78E-03	2,97E-03	-9,81E-03
ADP-elements	kg Sbe	9,39E-04	3,25E-05	1,78E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,31E-05	2,97E-05	6,25E-06	-8,34E-05
ADP-fossil	MJ	1,78E+03	1,39E+02	6,63E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,61E+01	1,33E+02	4,38E+01	-1,35E+03