

# ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of declaration	Lasita Aken AS
Program operator	The Building Information Foundation RTS sr
Declaration number	RTS_279_24
Publishing date	14.2.2024, (revision 18.6.2025)
EPD valid until	14.2.2029

**INTEGRA, ATMOS & INVISTA - WOODEN WINDOWS**

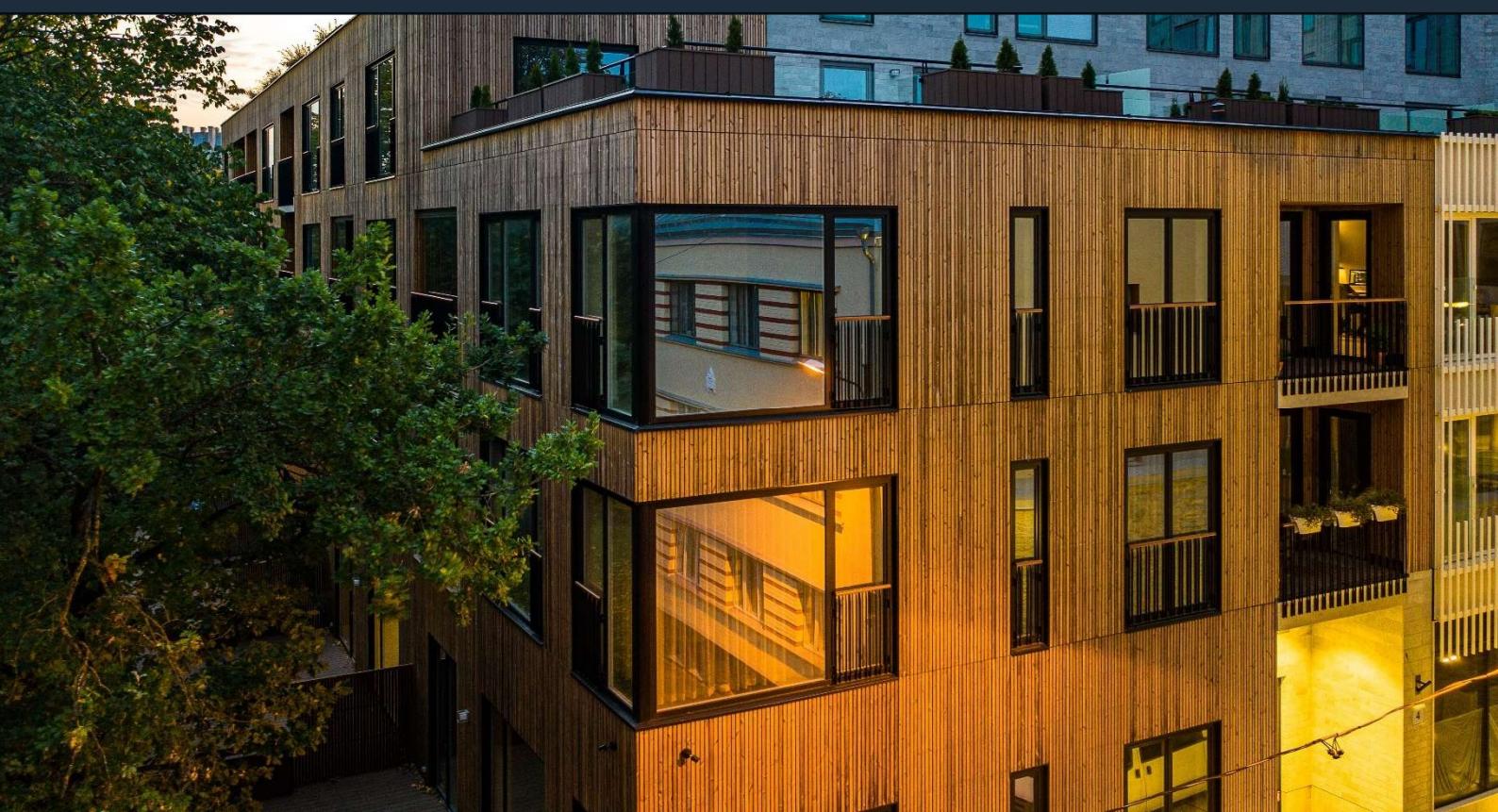
**INTEGRA, ATMOS & INVISTA - ALUMINIUM CLAD WOODEN  
WINDOWS**

**INTEGRA - FIRE RESISTANT WINDOWS**

LCA SUPPORT



**LASITA**  
PERFECTING VIEWS



## 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.

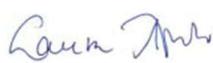
EPDs within the same product category but from different programmes may not be comparable.

### EPD program operator

The Building Information Foundation RTS sr  
 Rakennustietosäätiö RTS sr, Malminkatu 16 A, 00100  
 Helsinki



Jukka Seppänen  
 RTS EPD Committee Secretary



Laura Apilo  
 Managing Director

### Publishing date

14.2.2024, revised 18.6.2025

### Valid until

14.2.2029

### Product category rules

The CEN standard EN 15804 serves as the core PCR.  
 In addition, the RTS PCR (English version, 26.8.2020)  
 EN 17213 is used.

### EPD author

Mari Kirss and Anni Oviir  
 Rangi Maja OÜ  
[www.lcasupport.com](http://www.lcasupport.com)

### EPD verifier

Sigita Židonienė  
 Vesta Consulting UAB  
[www.vestaconsulting.lt](http://www.vestaconsulting.lt)

### Verification date

11 January 2024

Independent verification of this EPD and data,  
 according to ISO 14025:2010:

Internal  External

### Manufacturer

Lasita Aken AS

### Address

Tähe 116, Tartu 50107 Estonia

### Contact details

[lasita@lasita.ee](mailto:lasita@lasita.ee)

### Website

<https://www.lasita.ee/>

Lasita is a family owned and run business based 100% on family capital. In Lasita, the traditions of being the oldest industrial window manufacturer in the region meet ambitions of growth and development, where the focus is on providing memorable full service experience through well run processes. A full solution provider of fenestration products with a strong brand image, that provides fast, environmentally friendly service and is clearly distinguished in the world of premium products.

### Place of production

Tartu, Estonia

### Products

Integra, Atmos & Invista - wooden windows  
 Integra, Atmos & Invista - aluminium clad wooden windows  
 Integra - fire resistant windows

### Declared unit

1 m<sup>2</sup>

### Mass of declared unit

Integra, Atmos & Invista - wooden windows: 38.11 kg  
 Integra, Atmos & Invista - aluminium clad wooden windows: 42.83 kg  
 Integra - fire resistant windows: 55.38 kg

### Data period

2022



AS Lasita Aken EPD certificates were funded by the European Union NextGeneration EU.



# PRODUCT INFORMATION

Product name	Integra, Atmos & Invista - wooden windows Integra, Atmos & Invista - aluminium clad wooden windows Integra - fire resistant windows
Place of production	Tartu, Estonia

## PRODUCT DESCRIPTION AND APPLICATION

Integra, Atmos & Invista window systems offers various options in both technical as well as functional capabilities where the core is a tilt-and-turn window providing a range of options both fully wooden and wooden with aluminum clad. With a wide variety of types, the windows may be categorized as either single or multi leaf that can be either openable, fixed, combination of both and as well as special shaped windows in all options mentioned. The product application is windows in domestic and commercial locations.

## TECHNICAL SPECIFICATIONS AND PRODUCT STANDARDS

The Integra, Atmos & Invista window systems are designed for maximum comfort where U-values are as low as 0,59W/m2K and all wooden surfaces are finished with nature and user-friendly water based transparent or opaque paints. Integra, Atmos & Invista products vary in frame thickness from 68-92 mm, offering water tightness up to E1500. Applicable standards: EVS-EN 14351-1:2006+A2:2016, EVS-EN 16034:2014  
Additional technical information can be found at <https://www.lasita.ee/>.

## PRODUCT RAW MATERIAL COMPOSITION PER DECLARED UNIT

	Integra, Atmos & Invista - wooden windows	Integra, Atmos & Invista - aluminium clad wooden windows	Integra - fire resistant windows	
Raw material category	Amount, mass- %*	Amount, mass- %*	Amount, mass- %*	Material origin
Concrete, masonry, tiles, ceramic tiles, natural stone	0.0%	0.0%	0.0%	-
Wood and other bio-based materials	34.0%	32.7%	32.8%	Europe
Glass materials	57.9%	55.7%	55.7%	Europe
Plastics and rubbers	0.7%	0.7%	0.7%	Europe
Bitumen materials and bitumen mixtures	0.0%	0.0%	0.0%	-
Metals	2.5%	6.0%	5.9%	Global
Thermal insulation materials	0.0%	0.0%	0.0%	-
Gypsum	0.0%	0.0%	0.0%	-
Building integrated appliances	0.0%	0.0%	0.0%	-
Other materials	5.0%	4.8%	4.8%	Europe
<b>Total</b>	100.0%	100.0%	100.0%	

	Integra, Atmos & Invista - wooden windows	Integra, Atmos & Invista - aluminium clad wooden windows	Integra - fire resistant windows		
Product components	Amount, mass- %*	Amount, mass- %*	Amount, mass- %*	Material origin	Post-consumer recycled material, mass-%
Glulam	34.66%	33.41%	33.50%	Europe	-
Glass unit	60.90%	58.67%	58.67%	Europe	-

<b>Aluminium</b>	0.02%	3.66%	3.57%	Europe	75%
<b>Coatings</b>	2.49%	2.40%	2.40%	Europe	-
<b>Other</b>	1.94%	1.87%	1.87%	Global	-
<b>Total</b>	100%	100%	100%		

\* Order of magnitude, not exact composition

The products and the packaging contain biogenic carbon.

<b>Biogenic carbon content in product</b>	Integra, Atmos & Invista - wooden windows: 5.31 kg Integra, Atmos & Invista - aluminium clad wooden windows: 5.51 kg Integra - fire resistant windows: 7.45 kg
<b>Biogenic carbon content in packaging</b>	1.73 kg

Note. 1 kg biogenic carbon is equivalent to 44/12 kg of biogenic CO<sub>2</sub>.

## SUBSTANCES, REACH - VERY HIGH CONCERN

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

## MANUFACTURING PROCESS

Hand pieced wood is cut, molded, profiled and drilled after which the windows are put together, finished, fitted, glazed and packaged.

Figure 1. Manufacturing process (all products)



## PRODUCT LIFE-CYCLE AND LIFE-CYCLE ASSESSMENT

<b>Period for data</b>	2022
<b>Declared unit</b>	1 m <sup>2</sup>
<b>Mass per declared unit</b>	Integra, Atmos & Invista - wooden windows: 38.11 kg Integra, Atmos & Invista - aluminium clad wooden windows: 42.83 kg Integra - fire resistant windows: 55.38 kg
<b>Mass of packaging</b>	4.69 kg

The results are calculated per standard size elements according to EN 17213 and declared per 1 m<sup>2</sup>.

All products can be manufactured in various sizes. The products declared on the EPD are averaged windows of similar type in a size of 1.24x1.48 m. The results have been calculated per 1 m<sup>2</sup> of this size product.

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. Cut-off has been applied to painter's tape, and transport of glass from supplier.

Co-product allocation has not been used.

The data sources for the study are Ecoinvent 3.8 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	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. Electricity used in the manufacturing plant (A3 module) is sourced from the national grid and has been modelled as renewable electricity covered by Guarantees of Origin (GOs), reflecting the company's contractual energy procurement. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Electricity data source and quality	Wind energy, on shore. Source: Ecoinvent 3.8
Specific emissions	0.02 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, 350 km by lorry). Vehicle capacity utilization volume factor is assumed to be 1.

Vehicle type used for transport and distance	425 km (75 km by ferry, 350 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.

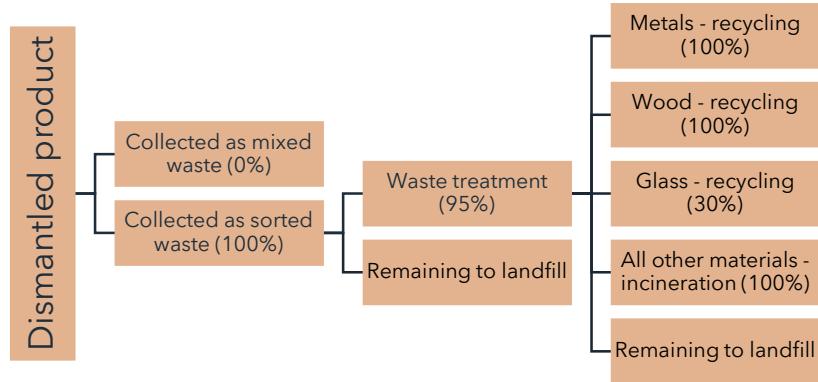
Air, soil, and water impacts during the use phase have not been studied.

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

EOL scenarios have been based on default scenarios given in standard EN 17213:2020 (Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorssets).

The EOL scenario is representative of Europe.

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.

95% of metals and 30% of glass materials are sent to waste treatment and recycled. 95% of wood materials are sent to waste treatment and recycled to secondary fuels. 95% of all other materials are incinerated but no energy recovery is assumed.

All biogenic carbon bound in the product gets released in C3 and C4. Carbon that is assumed to be sequestered under GWP-biogenic in A1, gets released as positive GWP-biogenic values. All wood used in production is FSC-certified. No GWP-luluc emissions were assumed.

Any materials that were not sent to waste treatment are landfilled.

Any material that left the product system in C3 has been considered in module D. Only net benefits are considered. Waste packaging from A5 and the small amount of plastic, rubber etc incinerated in C4 has not been included under benefits. Metals are assumed to replace virgin metals. Wood is assumed to be used as secondary fuels. Glass is assumed to be used as filling material, replacing for example gravel.

Module D scenario is representative of Europe.

		Integra, Atmos & Invista - wooden windows	Integra, Atmos & Invista - aluminium clad wooden windows	Integra - fire resistant windows
<b>EOL mass of product</b>		38.11 kg	42.83 kg	55.38 kg
<b>Collection</b>	<b>Collected separately</b>	38.11 kg	42.83 kg	55.38 kg
	<b>Collected with mixed waste</b>	0 kg	0 kg	0 kg
<b>Recovery</b>	<b>Re-use</b>	0 kg	0 kg	0 kg
	<b>Recycling</b>	19.81 kg	22.57 kg	29.65 kg
<b>Disposal</b>	<b>Incineration with energy recovery</b>	0 kg	0 kg	0 kg
	<b>Landfill</b>	2.07 kg	2.24 kg	2.89 kg
<b>Scenario assumptions</b>	End-of-life product is transported 100 km with an average lorry			

All the values in the table are rounded.

## 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.
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- Ecoinvent database v3.8 (2021) and One Click LCA database.
- EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.
- RTS PCR in line with EN 15804+A2. Published by the Building Information Foundation RTS 26.8.2020.
- Glassense OÜ. (2024). Environmental Product Declaration: Float glass (clear and low iron), laminated safety glass, and tempered safety glass. RTS EPD Number 301\_24. EPD published by RTS EPD, Finland. Available at: <https://epd.rts.fi/en/epd-search/301-24>

## EPD VERSION HISTORY

Date	Changes made
18 June 2025	<p>Glass dataset was updated based on supplier EPD covering the Tartu factory. Tempered glass share in products has been fixed to reflect actual production. Electricity in module A3 was changed from residual mix to renewable electricity backed by Guarantees of Origin (GOs).</p> <p>No other modelling changes were made.</p>



# INTEGRA WOODEN WINDOWS (1m<sup>2</sup>, 38.11 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	3,38E+01	2,91E+00	0,00E+00	6,50E-01	2,03E+01	6,11E+00	-3,18E+00
Global warming potential - fossil	kg CO2e	5,25E+01	2,90E+00	0,00E+00	6,48E-01	1,54E-01	5,05E+00	-3,17E+00
Global warming potential - biogenic	kg CO2e	-2,05E+01	8,66E-03	0,00E+00	2,17E-03	2,01E+01	1,06E+00	0,00E+00
Global warming potential - LULUC	kg CO2e	1,73E+00	1,20E-03	0,00E+00	2,48E-04	3,01E-04	4,51E-04	-7,43E-03
Ozone depletion potential	kg CFC-11e	6,80E-06	6,40E-07	0,00E+00	1,45E-07	1,39E-08	5,50E-08	-2,37E-07
Acidification potential	mol H+e	4,84E-01	2,16E-02	0,00E+00	2,55E-03	1,02E-03	2,27E-03	-2,15E-02
Eutrophication potential - freshwater	kg Pe	1,78E-03	1,91E-05	0,00E+00	4,57E-06	1,29E-05	2,92E-06	-2,02E-04
Eutrophication potential - marine	kg Ne	8,57E-02	5,89E-03	0,00E+00	7,62E-04	1,96E-04	9,31E-04	-5,83E-03
Eutrophication potential - terrestrial	mol Ne	9,49E-01	6,51E-02	0,00E+00	8,38E-03	2,20E-03	9,80E-03	-6,66E-02
Photochemical ozone formation ("smog")	kg NMVOCe	2,65E-01	1,85E-02	0,00E+00	2,59E-03	6,29E-04	2,59E-03	-2,01E-02
Abiotic depletion potential - minerals & metals	kg Sbe	8,40E-04	9,29E-06	0,00E+00	2,25E-06	3,12E-06	8,37E-07	-3,79E-05
Abiotic depletion potential - fossil resources	MJ	7,97E+02	4,14E+01	0,00E+00	9,41E+00	3,00E+00	4,03E+00	-4,47E+01
Water use	m3e depr.	2,04E+01	1,77E-01	0,00E+00	4,19E-02	6,99E-02	2,06E-01	-1,35E+00

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.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources as energy	MJ	6,80E+02	5,53E-01	0,00E+00	1,33E-01	4,67E-01	7,24E-02	-1,06E+02
Renewable primary energy resources as material	MJ	2,29E+02	0,00E+00	0,00E+00	0,00E+00	-1,64E+02	-8,66E+00	-1,65E+02
Total use of renewable primary energy resources	MJ	9,09E+02	5,53E-01	0,00E+00	1,33E-01	-1,64E+02	-8,58E+00	-2,70E+02
Non-renewable primary energy resources as energy	MJ	6,49E+02	4,14E+01	0,00E+00	9,41E+00	3,00E+00	4,03E+00	-4,47E+01
Non-renewable primary energy resources as material	MJ	4,52E+01	0,00E+00	0,00E+00	0,00E+00	4,24E+01	-8,68E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	6,92E+02	4,14E+01	0,00E+00	9,41E+00	4,54E+01	-4,65E+00	-4,47E+01
Secondary materials	kg	6,97E-01	1,43E-02	0,00E+00	3,16E-03	1,31E-03	1,69E-03	8,91E-01
Renewable secondary fuels	MJ	2,41E+00	1,41E-04	0,00E+00	3,47E-05	2,11E-05	4,69E-05	1,64E+02
Non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m3	5,07E-01	4,91E-03	0,00E+00	1,18E-03	2,38E-03	1,01E-02	-2,89E-02

## END OF LIFE - WASTE

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	3,32E+00	4,74E-02	0,00E+00	1,07E-02	1,22E-02	3,86E-03	-5,31E-01
Non-hazardous waste	kg	4,13E+01	7,79E-01	0,00E+00	1,87E-01	1,72E+00	2,92E+00	-7,07E+00
Radioactive waste	kg	1,32E-03	2,86E-04	0,00E+00	6,48E-05	2,05E-05	2,01E-05	-2,05E-04

## END OF LIFE - OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00						
Materials for recycling	kg	2,45E-03	0,00E+00	0,00E+00	0,00E+00	7,51E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,23E+01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00						

## ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	kg CO2e	6,40E+01	2,75E+00	0,00E+00	6,10E-01	1,52E-01	5,05E+00	-3,10E+00
Ozone depletion Potential	kg CFC-11e	4,89E-06	5,04E-07	0,00E+00	1,14E-07	1,15E-08	4,57E-08	-2,06E-07
Acidification	kg SO2e	4,34E-01	1,71E-02	0,00E+00	1,98E-03	8,28E-04	1,66E-03	-1,61E-02
Eutrophication	kg PO43e	1,11E-01	2,82E-03	0,00E+00	4,57E-04	5,10E-04	7,81E-04	-8,11E-03
POCP ("smog")	kg C2H4e	2,25E-02	5,49E-04	0,00E+00	8,00E-05	3,41E-05	5,21E-05	-1,59E-03
ADP-elements	kg Sbe	7,25E-04	9,11E-06	0,00E+00	2,21E-06	3,11E-06	7,41E-07	-3,81E-05
ADP- fossil	MJ	6,92E+02	4,14E+01	0,00E+00	9,41E+00	3,00E+00	4,02E+00	-4,47E+01

## KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO2e	8,86E-01	7,64E-02	0,00E+00	1,71E-02	5,32E-01	1,60E-01	-8,34E-02
Global warming potential - fossil	kg CO2e	1,38E+00	7,61E-02	0,00E+00	1,70E-02	4,03E-03	1,33E-01	-8,32E-02
Global warming potential - biogenic	kg CO2e	-5,37E-01	2,27E-04	0,00E+00	5,70E-05	5,28E-01	2,78E-02	0,00E+00
ADP - minerals & metals	kg Sbe	2,20E-05	2,44E-07	0,00E+00	5,90E-08	8,18E-08	2,20E-08	-9,96E-07
ADP - fossil	MJ	2,09E+01	1,09E+00	0,00E+00	2,47E-01	7,87E-02	1,06E-01	-1,17E+00
Water use	m3e depr.	5,34E-01	4,64E-03	0,00E+00	1,10E-03	1,83E-03	5,42E-03	-3,54E-02
Secondary materials	kg	1,83E-02	3,74E-04	0,00E+00	8,30E-05	3,44E-05	4,45E-05	2,34E-02
Biogenic C in product (A3)	kg C	1,51E-01	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic C in packaging (A3)	kg C	4,54E-02	N/A	N/A	N/A	N/A	N/A	N/A

# INTEGRA - ALUMINIUM CLAD WOODEN WINDOWS (1m<sup>2</sup>, 42.83 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 CO <sub>2</sub> e	4,94E+01	3,23E+00	0,00E+00	7,31E-01	2,15E+01	6,59E+00	-8,76E+00
Global warming potential - fossil	kg CO <sub>2</sub> e	6,88E+01	3,22E+00	0,00E+00	7,28E-01	4,59E-01	5,49E+00	-8,74E+00
Global warming potential - biogenic	kg CO <sub>2</sub> e	-2,13E+01	9,62E-03	0,00E+00	2,44E-03	2,10E+01	1,11E+00	0,00E+00
Global warming potential - LULUC	kg CO <sub>2</sub> e	1,91E+00	1,34E-03	0,00E+00	2,78E-04	4,79E-04	5,00E-04	-2,33E-02
Ozone depletion potential	kg CFC-11e	8,03E-06	7,10E-07	0,00E+00	1,63E-07	2,78E-08	6,08E-08	-4,23E-07
Acidification potential	mol H+e	6,14E-01	2,40E-02	0,00E+00	2,87E-03	2,20E-03	2,50E-03	-5,62E-02
Eutrophication potential - freshwater	kg Pe	2,29E-03	2,12E-05	0,00E+00	5,14E-06	2,06E-05	3,21E-06	-3,72E-04
Eutrophication potential - marine	kg Ne	1,05E-01	6,53E-03	0,00E+00	8,57E-04	3,30E-04	1,02E-03	-1,15E-02
Eutrophication potential - terrestrial	mol Ne	1,18E+00	7,22E-02	0,00E+00	9,42E-03	3,82E-03	1,08E-02	-1,29E-01
Photochemical ozone formation ("smog")	kg NMVOC <sub>e</sub>	3,29E-01	2,06E-02	0,00E+00	2,91E-03	1,11E-03	2,84E-03	-3,85E-02
Abiotic depletion potential - minerals & metals	kg Sbe	1,21E-03	1,03E-05	0,00E+00	2,53E-06	1,79E-05	9,19E-07	1,25E-05
Abiotic depletion potential - fossil resources	MJ	9,83E+02	4,60E+01	0,00E+00	1,06E+01	5,08E+00	4,46E+00	-9,59E+01
Water use	m <sup>3</sup> e depr.	2,49E+01	1,97E-01	0,00E+00	4,71E-02	1,21E-01	2,24E-01	-2,74E+00

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.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources as energy	MJ	7,18E+02	6,14E-01	0,00E+00	1,50E-01	7,72E-01	7,96E-02	-1,15E+02
Renewable primary energy resources as material	MJ	2,37E+02	0,00E+00	0,00E+00	0,00E+00	-1,72E+02	-9,05E+00	-1,71E+02
Total use of renewable primary energy resources	MJ	9,54E+02	6,14E-01	0,00E+00	1,50E-01	-1,71E+02	-8,97E+00	-2,86E+02
Non-renewable primary energy resources as energy	MJ	8,21E+02	4,60E+01	0,00E+00	1,06E+01	5,07E+00	4,46E+00	-9,59E+01
Non-renewable primary energy resources as material	MJ	4,78E+01	0,00E+00	0,00E+00	0,00E+00	4,60E+01	-9,40E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	8,66E+02	4,60E+01	0,00E+00	1,06E+01	5,11E+01	-4,95E+00	-9,59E+01
Secondary materials	kg	3,26E+00	1,58E-02	0,00E+00	3,55E-03	2,64E-03	1,86E-03	1,29E+00
Renewable secondary fuels	MJ	2,44E+00	1,57E-04	0,00E+00	3,90E-05	6,89E-05	5,14E-05	1,72E+02
Non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	6,29E-01	5,45E-03	0,00E+00	1,33E-03	3,88E-03	1,10E-02	-5,62E-02

## END OF LIFE - WASTE

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	5,70E+00	5,26E-02	0,00E+00	1,20E-02	4,24E-02	4,28E-03	-1,70E+00
Non-hazardous waste	kg	6,09E+01	8,65E-01	0,00E+00	2,10E-01	2,55E+00	3,22E+00	-1,37E+01
Radioactive waste	kg	1,65E-03	3,18E-04	0,00E+00	7,28E-05	2,93E-05	2,22E-05	-2,82E-04

## END OF LIFE - OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00						
Materials for recycling	kg	4,35E-01	0,00E+00	0,00E+00	0,00E+00	9,79E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,28E+01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00						

## ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	kg CO <sub>2</sub> e	8,12E+01	3,05E+00	0,00E+00	6,85E-01	4,56E-01	5,49E+00	-8,47E+00
Ozone depletion Potential	kg CFC-11e	5,82E-06	5,60E-07	0,00E+00	1,28E-07	2,33E-08	5,05E-08	-3,65E-07
Acidification	kg SO <sub>2</sub> e	5,46E-01	1,90E-02	0,00E+00	2,23E-03	1,83E-03	1,83E-03	-4,54E-02
Eutrophication	kg PO43e	1,40E-01	3,14E-03	0,00E+00	5,14E-04	9,08E-04	8,53E-04	-1,53E-02
POCP ("smog")	kg C2H4e	2,84E-02	6,09E-04	0,00E+00	8,99E-05	8,07E-05	5,75E-05	-3,49E-03
ADP-elements	kg Sbe	1,09E-03	1,01E-05	0,00E+00	2,48E-06	1,79E-05	8,14E-07	1,60E-05
ADP- fossil	MJ	8,66E+02	4,60E+01	0,00E+00	1,06E+01	5,07E+00	4,44E+00	-9,59E+01

## KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO <sub>2</sub> e	1,15E+00	7,54E-02	0,00E+00	1,71E-02	5,01E-01	1,54E-01	-2,05E-01
Global warming potential - fossil	kg CO <sub>2</sub> e	1,61E+00	7,52E-02	0,00E+00	1,70E-02	1,07E-02	1,28E-01	-2,04E-01
Global warming potential - biogenic	kg CO <sub>2</sub> e	-4,98E-01	2,25E-04	0,00E+00	5,70E-05	4,90E-01	2,58E-02	0,00E+00
ADP - minerals & metals	kg Sbe	2,82E-05	2,41E-07	0,00E+00	5,90E-08	4,18E-07	2,15E-08	2,91E-07
ADP - fossil	MJ	2,30E+01	1,07E+00	0,00E+00	2,47E-01	1,19E-01	1,04E-01	-2,24E+00
Water use	m <sup>3</sup> e depr.	5,81E-01	4,59E-03	0,00E+00	1,10E-03	2,82E-03	5,24E-03	-6,39E-02
Secondary materials	kg	7,61E-02	3,70E-04	0,00E+00	8,30E-05	6,15E-05	4,35E-05	3,01E-02
Biogenic C in product (A3)	kg C	1,41E-01	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic C in packaging (A3)	kg C	4,04E-02	N/A	N/A	N/A	N/A	N/A	N/A

# INTEGRA - FIRE RESISTANT WINDOWS (1m<sup>2</sup>, 55.38 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 CO <sub>2</sub> e	6,34E+01	4,08E+00	0,00E+00	9,45E-01	2,88E+01	8,56E+00	-1,12E+01
Global warming potential - fossil	kg CO <sub>2</sub> e	8,97E+01	4,07E+00	0,00E+00	9,41E-01	5,89E-01	7,08E+00	-1,12E+01
Global warming potential - biogenic	kg CO <sub>2</sub> e	-2,87E+01	1,22E-02	0,00E+00	3,16E-03	2,82E+01	1,48E+00	0,00E+00
Global warming potential - LULUC	kg CO <sub>2</sub> e	2,46E+00	1,69E-03	0,00E+00	3,60E-04	6,27E-04	6,33E-04	-3,00E-02
Ozone depletion potential	kg CFC-11e	1,06E-05	8,98E-07	0,00E+00	2,10E-07	3,56E-08	7,73E-08	-5,51E-07
Acidification potential	mol H+e	7,99E-01	3,03E-02	0,00E+00	3,71E-03	2,83E-03	3,19E-03	-7,25E-02
Eutrophication potential - freshwater	kg Pe	2,94E-03	2,69E-05	0,00E+00	6,65E-06	2,70E-05	4,11E-04	-4,84E-04
Eutrophication potential - marine	kg Ne	1,37E-01	8,26E-03	0,00E+00	1,11E-03	4,25E-04	1,31E-03	-1,50E-02
Eutrophication potential - terrestrial	mol Ne	1,54E+00	9,13E-02	0,00E+00	1,22E-02	4,91E-03	1,38E-02	-1,68E-01
Photochemical ozone formation ("smog")	kg NMVOCe	4,27E-01	2,60E-02	0,00E+00	3,77E-03	1,42E-03	3,63E-03	-4,99E-02
Abiotic depletion potential - minerals & metals	kg Sbe	1,51E-03	1,30E-05	0,00E+00	3,27E-06	2,26E-05	1,18E-06	1,40E-05
Abiotic depletion potential - fossil resources	MJ	1,28E+03	5,81E+01	0,00E+00	1,37E+01	6,62E+00	5,67E+00	-1,24E+02
Water use	m <sup>3</sup> e depr.	3,19E+01	2,48E-01	0,00E+00	6,09E-02	1,58E-01	2,89E-01	-3,55E+00

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.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources as energy	MJ	9,21E+02	7,78E-01	0,00E+00	1,94E-01	1,01E+00	1,02E-01	-1,55E+02
Renewable primary energy resources as material	MJ	2,99E+02	0,00E+00	0,00E+00	0,00E+00	-2,31E+02	-1,22E+01	-2,31E+02
Total use of renewable primary energy resources	MJ	1,22E+03	7,76E-01	0,00E+00	1,94E-01	2,30E+02	-1,21E+01	-3,86E+02
Non-renewable primary energy resources as energy	MJ	1,08E+03	5,81E+01	0,00E+00	1,37E+01	6,60E+00	5,67E+00	-1,24E+02
Non-renewable primary energy resources as material	MJ	5,73E+01	0,00E+00	0,00E+00	0,00E+00	5,94E+01	-1,22E+01	0,00E+00
Total use of non-renewable primary energy resources	MJ	1,13E+03	5,81E+01	0,00E+00	1,37E+01	6,60E+01	-6,48E+00	-1,24E+02
Secondary materials	kg	4,06E+00	2,00E-02	0,00E+00	4,60E-03	3,41E-03	2,38E-03	1,64E+00
Renewable secondary fuels	MJ	2,63E+00	1,99E-04	0,00E+00	5,04E-05	8,74E-05	6,61E-05	2,31E+02
Non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	8,07E-01	6,89E-03	0,00E+00	1,72E-03	5,06E-03	1,41E-02	-7,32E-02

## END OF LIFE - WASTE

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	7,21E+00	6,65E-02	0,00E+00	1,55E-02	5,44E-02	5,40E-03	-2,16E+00
Non-hazardous waste	kg	7,79E+01	1,09E+00	0,00E+00	2,71E-01	3,27E+00	4,20E+00	-1,78E+01
Radioactive waste	kg	2,21E-03	4,02E-04	0,00E+00	9,41E-05	3,84E-05	2,81E-05	-3,75E-04

## END OF LIFE - OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00						
Materials for recycling	kg	5,49E-01	0,00E+00	0,00E+00	0,00E+00	1,24E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,73E+01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00						

## ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global Warming Potential	kg CO <sub>2</sub> e	1,05E+02	3,86E+00	0,00E+00	8,86E-01	5,86E-01	7,08E+00	-1,09E+01
Ozone depletion Potential	kg CFC-11e	7,71E-06	7,07E-07	0,00E+00	1,66E-07	2,99E-08	6,42E-08	-4,75E-07
Acidification	kg SO <sub>2</sub> e	7,09E-01	2,40E-02	0,00E+00	2,88E-03	2,35E-03	2,33E-03	-5,84E-02
Eutrophication	kg PO43e	1,79E-01	3,96E-03	0,00E+00	6,65E-04	1,18E-03	1,10E-03	-1,99E-02
POCP ("smog")	kg C2H4e	3,65E-02	7,70E-04	0,00E+00	1,16E-04	1,04E-04	7,33E-05	-4,50E-03
ADP-elements	kg Sbe	1,35E-03	1,28E-05	0,00E+00	3,21E-06	2,26E-05	1,04E-06	1,84E-05
ADP-fossil	MJ	1,13E+03	5,81E+01	0,00E+00	1,37E+01	6,59E+00	5,65E+00	-1,24E+02

## KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO <sub>2</sub> e	1,15E+00	7,37E-02	0,00E+00	1,71E-02	5,20E-01	1,55E-01	-2,03E-01
Global warming potential - fossil	kg CO <sub>2</sub> e	1,62E+00	7,35E-02	0,00E+00	1,70E-02	1,06E-02	1,28E-01	-2,03E-01
Global warming potential - biogenic	kg CO <sub>2</sub> e	-5,18E-01	2,20E-04	0,00E+00	5,70E-05	5,09E-01	2,68E-02	0,00E+00
ADP - minerals & metals	kg Sbe	2,72E-05	2,35E-07	0,00E+00	5,90E-08	4,09E-07	2,12E-08	2,53E-07
ADP - fossil	MJ	2,31E+01	1,05E+00	0,00E+00	2,47E-01	1,19E-01	1,02E-01	-2,24E+00
Water use	m <sup>3</sup> e depr.	5,76E-01	4,49E-03	0,00E+00	1,10E-03	2,85E-03	5,22E-03	-6,41E-02
Secondary materials	kg	7,33E-02	3,61E-04	0,00E+00	8,30E-05	6,15E-05	4,30E-05	2,96E-02
Biogenic C in product (A3)	kg C	1,46E-01	N/A	N/A	N/A	N/A	N/A	N/A
Biogenic C in packaging (A3)	kg C	3,13E-02	N/A	N/A	N/A	N/A	N/A	N/A