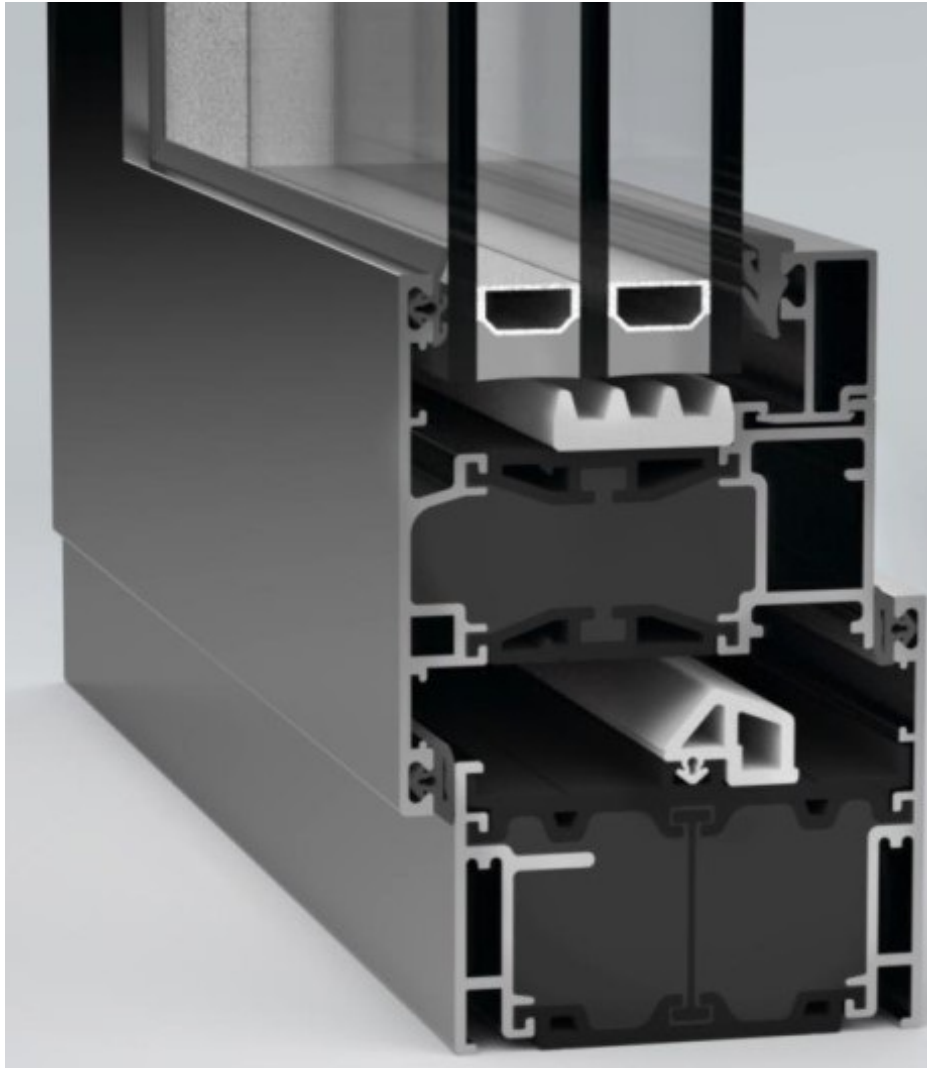


ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804+A2

XT66 Performance Plus Casement double glazed 1.48m x 2.18m



Owner of the declaration:
Architectural & Metal Systems Ltd.

Product:
XT66 Performance Plus Casement double glazed 1.48m x 2.18m

Declared unit:
1 pcs

This declaration is based on Product Category Rules:
EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
I.S. EN 17213:2020 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets

Program operator:
EPD Ireland

Declaration number:
EPDIE-26-317

Issue date:
31.03.2026

Valid to:
30.03.2031

General information

Product

XT66 Performance Plus Casement double glazed 1.48m x 2.18m

Program operator:

EPD Ireland
19 Mountjoy Square, Dublin D01 E8P5
Phone: +353 (01) 6815862
web: <https://www.igbc.ie/epd-home/>

Declaration number:

EPDIE-26-317

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
I.S. EN 17213:2020 Windows and doors - Environmental Product
Declarations - Product category rules for windows and pedestrian
doorsets

Statement of liability:

The owner of the declaration shall be liable for the underlying
information and evidence. The EPD Program operator shall not be
liable with respect to manufacturer information, life cycle assessment
data and evidences.

Type of EPD

Specific product EPD

Declared unit:

1 pcs XT66 Performance Plus Casement double glazed 1.48m x 2.18m

Scope of the EPD:

A1, A2, A3, A4, A5, C1, C2, C3, C4, D

Functional unit:

One XT66 Performance Plus Casement double glazed window, size
1.48m x 2.18m.

PLEASE NOTE: This EPD does not include the glazing in the unit.
Glazing type is at the discretion of the user, and impacts of glazing
can be added separately. Packaging is also not included, as packaging
is minimal and its impact is far below 1% of the impact of the product.

This EPD also covers the non-Performance Plus version of the
Casement double glazed window, size 1.48m x 2.18m.

Verification:

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

Third party verifier:
Kim Allbury

Owner of the declaration:

Architectural & Metal Systems Ltd.
Contact person: Charlie Millea
Phone: +353 21 470 5100
e-mail: info@ams.ie

Manufacturer:

Architectural & Metal Systems Ltd.

Place of production:

Architectural & Metal Systems Ltd.
Wallingstown
T45 VP40 Little Island, Co. Cork , Ireland

Issue date:

31.03.2026

Valid to:

30.03.2031

Year of study:

2024

Comparability:

Environmental Product Declarations from different programmes may
not be directly comparable if not compliant with EN
15804:2012+A2:2019. Comparability is further dependent on the
specific product category rules, system boundaries and allocations,
and background data sources. See clause 5.3 of EN
15804:2012+A2:2019

LCA consultant or person responsible for LCA:
EcoReview, Peter Seymour

Approved:

SIGNATURE OF PROGRAMME OPERATOR



Pat Barry, CEO - Irish Green Building Council

Product

Product description:

Profiles and frames (without glass) are assembled at the AMS factory site. The raw materials comprise, by weight percentage: aluminium profile, (64-65), PVC/foam/EPDM (24-26), hardware (7-9), powder coat (3). Aluminium profiles are painted and then assembled with PVC strips and injected polyurethane foam insulation and then cut to size. The completed profiles are then assembled into the designed window/door unit size, with the addition of handles, locks, receivers, etc.. Finished products are packaged in light plastic bubble wrap packaging for dispatch to the customer, where glass units are fitted. Full technical specification and information for each product can be found at www.ams.ie

Product specification:

The window and door systems are manufactured in accordance with IS EN 14351-1:2006+A2:2016 windows and doors – product standard, performance characteristics.

Technical data:

Product/Element	Supplier guarantee	Design life expected	Actual life expected
Extrusion	30 years	40 years	100 years
Paint finish	30 years	40 years	45 years
Gaskets	10 years	40 years	40 years
Hardware	10 years	20 years (medium usage)	20 years

Market/Geographical Area:

The intended use of the products are as windows and doors in residential, educational, healthcare and commercial buildings throughout Ireland.

Reference service life, product

See Technical Data table (above).

Reference service life, building or construction works

N/A

LCA: Calculation rules

Declared unit:

1 pcs XT66 Performance Plus Casement double glazed 1.48m x 2.18m

kg per Declared unit 26.66

Cut-off criteria:

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA, and in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process. Long term emissions have been excluded from the study.

Allocation:

The source of default unit processes or activities is the Ecoinvent database version 3.9.1, system model "Allocation, cut-off by classification". The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF 3.1. In this EPD, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state. The modularity and the polluter payer principles have been followed

Data quality:

Geographical representativeness: Data is from area under study. The ecoinvent records cover mostly Europe. The reference for the main raw material (aluminium) is product-specific and manufacturer-specific. The references for plastics elements are from Europe. Geographic representativeness is considered to be very good.

Technical representativeness: Data is from the processes and products under study. The same state of technology that is used by AMS is that defined in goal and scope. Technical representativeness is considered to be very good.

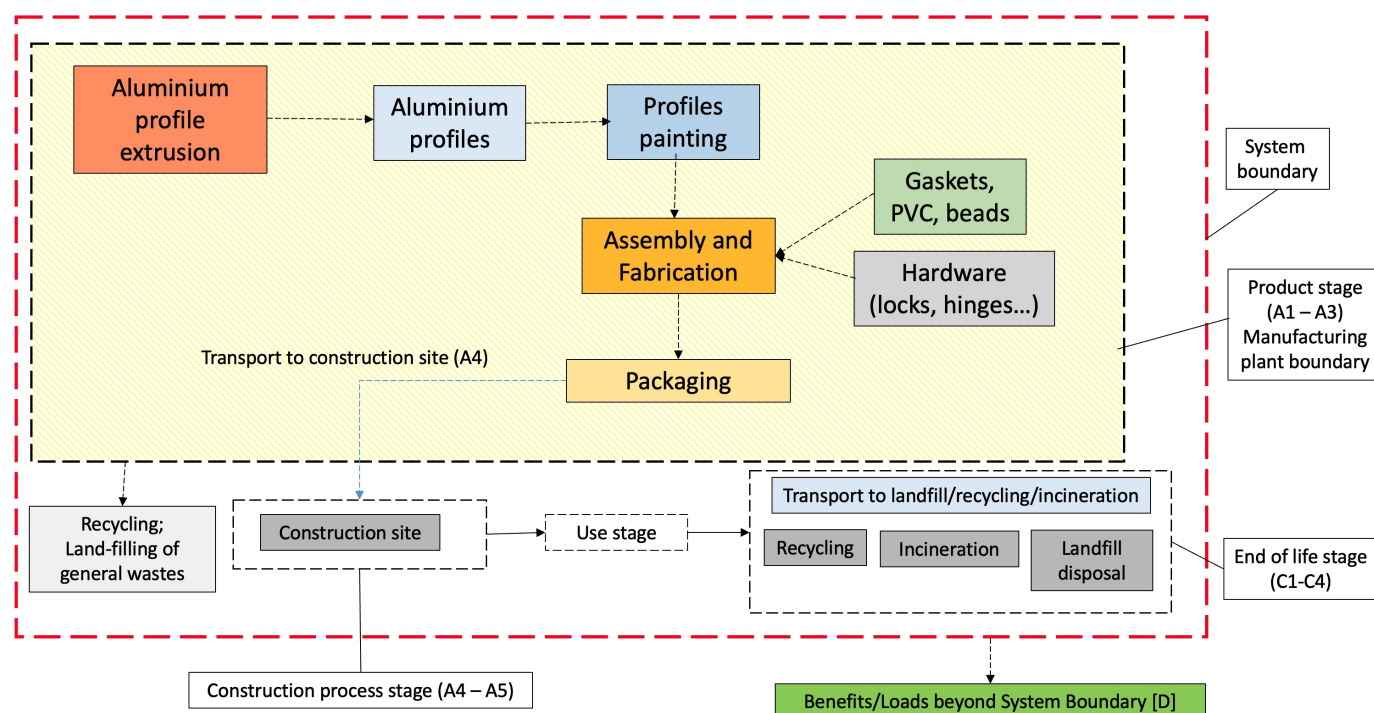
Time representativeness: The production year used in this LCA is 2024. The Ecoinvent version 3.9.1 database was used to represent this production. The reference for aluminium raw material for the profiles is based on the 2021 production year. Time representativeness is considered to be good.

Scope and type of EPD (X = Module declared; ND = Module not declared)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

System boundary:

This LCA covers the Product (A1, A2 and A3), Transport to site (A4), Construction Process (A5), End of Life (C1 to C4) and Benefits/loads beyond the system boundary (D) Stages, as indicated above. This is termed: "Cradle to gate with options, modules C1 to C4, and module D". A schematic of these stages is presented in the flow diagram below.



Additional technical information:

Electricity modelling

This LCA calculates the electricity impact based on the market-based approach. The CO₂ intensity of the electricity is determined to be 0.66 kg CO₂eq per kWh.

LCA: Scenarios and additional technical information

The following information describes the scenarios in the different modules of the EPD.

A4. Transport to customer

The transport to the customer phase (A4) is modelled on delivery from Little Island to an average customer in Ireland of a distance of 180 km, as required in the PCR for EPD Ireland [8]. Delivery trucks used have a carrying capacity of 7.5 – 16 tonnes. Trucks normally carry a load of 2 tonnes.

A5. Installation

The installation phase (A5) comprises fixing the window/door in place on the construction site. As the windows/doors are manually installed in the openings, no energy is allocated to this process. Installation losses of 1% are modelled in the LCA.

B. Use Stage

This stage is not included in the LCA.

C1. De-construction demolition

In the deconstruction/demolition stage C1 it is assumed that the units are removed manually from building – so no energy or materials are used, and the impacts in C1 are assumed to be zero.

C2. Transport

In the transport phase C2 it is assumed that the materials travel 50km to landfill/recycling, and 250km to incineration, as per default values in the Product Category Rules PCR for EPD Ireland.

C3. Waste processing

In the Waste Processing phase C3, the following assumptions are made for recycling, landfilling and incineration:

Aluminium: 95% recycled, 5% landfilled

Metals (ferrous): 95% recycled, 5% landfilled

Plastics: 95% incinerated, 5% landfilled.

C4, Disposal

5% of all materials are landfilled.

D. Benefits and loads beyond the system boundary

Incineration of plastics provides energy for electricity. Avoided electricity is based on the reference year of 2024. The grid mix used is 'kWh Electricity mix average low voltage Ireland'. Avoided electricity energy for this product is 18.2 kWh per DU.

Aluminium and steel are assumed to be recycled at rates of 95%. The aluminium raw material is 68.5 % recycled, thus only 31.5% of the recycled aluminium material counts towards the replacement of primary aluminium raw material. For the hardware (steel elements) it is assumed there is 37% recycled steel content in these raw materials.

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact												
Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	1.25E+02	1.29E+00	1.40E+00	9.20E+00	1.28E+00	0.00E+00	5.69E-01	1.52E+01	4.02E-02	-6.08E+01
	GWP-fossil	kg CO ₂ -eq	1.19E+02	1.29E+00	1.37E+00	9.19E+00	1.22E+00	0.00E+00	5.69E-01	1.86E+01	4.02E-02	-5.93E+01
	GWP-biogenic	kg CO ₂ -eq	1.64E+00	5.08E-04	3.05E-02	7.80E-03	1.67E-02	0.00E+00	5.64E-04	1.44E-03	2.52E-05	-4.01E-01
	GWP-luluc	kg CO ₂ -eq	2.64E+00	7.63E-04	3.44E-04	4.15E-03	2.64E-02	0.00E+00	2.76E-04	1.27E-04	3.66E-06	-1.13E+00
	ODP	kg CFC 11-eq	5.20E-06	2.30E-08	2.37E-08	1.96E-07	5.25E-08	0.00E+00	1.21E-08	7.22E-08	1.09E-10	-1.80E-06
	AP	mol H ⁺ -eq	2.93E-01	2.14E-02	4.07E-03	1.85E-02	3.19E-03	0.00E+00	1.21E-03	2.09E-02	3.43E-05	-3.03E-01
	EP-FreshWater	kg P -eq	2.30E-02	7.20E-06	2.06E-05	7.08E-05	2.31E-04	0.00E+00	4.50E-06	1.20E-04	7.23E-08	-2.64E-03
	EP-Marine	kg N -eq	9.95E-02	5.42E-03	7.76E-04	4.48E-03	1.06E-03	0.00E+00	2.98E-04	5.14E-03	5.18E-05	-3.67E-02
	EP-Terrestrial	mol N -eq	1.00E+00	5.98E-02	8.32E-03	4.66E-02	1.07E-02	0.00E+00	3.11E-03	5.73E-02	1.33E-04	-4.09E-01
	POCP	kg NMVOC-eq	4.31E-01	1.72E-02	3.61E-03	2.90E-02	4.52E-03	0.00E+00	1.88E-03	1.65E-02	5.29E-05	-1.77E-01
	ADP-minerals&metals ¹	kg Sb-eq	1.00E-03	2.51E-06	2.71E-05	2.87E-05	1.03E-05	0.00E+00	1.81E-06	4.15E-04	9.81E-09	-1.39E-04
	ADP-fossil ¹	MJ	1.73E+03	1.66E+01	1.87E+01	1.26E+02	1.77E+01	0.00E+00	7.87E+00	4.04E+01	1.01E-01	-8.31E+02
	WDP ¹	m ³	3.32E+01	5.22E-02	2.93E-01	4.81E-01	3.35E-01	0.00E+00	3.25E-02	4.55E+00	4.22E-03	7.53E-01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks on environmental impacts

Additional environmental impact indicators

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
 PM	Disease incidence	1.02E-05	6.29E-08	2.93E-08	5.59E-07	1.03E-07	0.00E+00	4.11E-08	2.02E-07	6.98E-10	-3.86E-06
 IRP ²	kgBq U235 -eq	9.08E+00	5.81E-03	6.30E-03	7.43E-02	9.09E-02	0.00E+00	3.99E-03	1.05E-01	5.78E-05	-4.39E+00
 ETP-fw ¹	CTUe	2.88E+03	1.53E+01	2.71E+01	1.19E+02	2.92E+01	0.00E+00	7.67E+00	2.53E+02	2.12E-01	-1.05E+03
 HTP-c ¹	CTUh	3.10E-07	5.44E-10	8.16E-10	3.73E-09	3.12E-09	0.00E+00	2.54E-10	5.60E-09	3.00E-12	-1.56E-07
 HTP-nc ¹	CTUh	3.83E-06	1.14E-08	2.52E-08	1.06E-07	3.87E-08	0.00E+00	7.12E-09	1.78E-07	9.00E-11	-2.11E-06
 SQP ¹	dimensionless	2.97E+02	5.68E+00	3.05E+00	6.53E+01	3.06E+00	0.00E+00	4.79E+00	2.45E+01	2.24E-01	-1.08E+02

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

*Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. 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.

Resource use												
Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	6.78E+02	1.84E-01	9.39E+00	2.21E+00	6.88E+00	0.00E+00	1.24E-01	4.68E+00	1.93E-03	-3.20E+02
	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	6.78E+02	1.84E-01	9.39E+00	2.21E+00	6.88E+00	0.00E+00	1.24E-01	4.68E+00	1.93E-03	-3.20E+02
	PENRE	MJ	1.80E+03	1.76E+01	2.05E+01	1.34E+02	1.84E+01	0.00E+00	8.37E+00	4.36E+01	1.07E-01	-8.83E+02
	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.80E+03	1.76E+01	2.05E+01	1.34E+02	1.84E+01	0.00E+00	8.37E+00	4.36E+01	1.07E-01	-8.83E+02
	SM	kg	1.23E+01	0.00E+00	0.00E+00	0.00E+00	1.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m ³	4.79E+00	1.68E-03	6.86E-03	1.73E-02	4.80E-02	0.00E+00	1.06E-03	1.21E-01	1.01E-04	-1.94E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

*Reading example: 9.0 E-03 = $9.0 \times 10^{-3} = 0.009$

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	5.67E-02	9.39E-05	1.08E-03	8.04E-04	5.78E-04	0.00E+00	5.01E-05	2.86E-02	4.98E-07	-2.29E-03
	NHWD	kg	4.96E+01	4.35E-01	2.03E-01	5.22E+00	5.02E-01	0.00E+00	3.91E-01	6.56E-01	4.24E-01	-1.44E+01
	RWD	kg	2.88E-03	3.55E-06	3.91E-06	5.02E-05	2.88E-05	0.00E+00	2.59E-06	6.95E-05	3.53E-08	-3.46E-03

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.56E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	6.74E-03	0.00E+00	0.00E+00	0.00E+00	6.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EET	MJ	6.74E-03	0.00E+00	0.00E+00	0.00E+00	6.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

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

Additional requirements

Dangerous substances

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation", or they do not exceed the limit for registration with the European Chemicals Agency.

Mandatory additional information on release of dangerous substances to indoor air, soil and water.

Bibliography

- [1] ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.
- [2] ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.
- [3] ISO 14025: Environmental labels and declarations -- Type III environmental declarations - Principles and procedures', International Organization for Standardization, ISO14025:2006.
- [4] I.S. EN 15804:2012+A2:2019, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products', EN 15804:2012+A2:2019.
- [5] Ecochain, 2025, web: <http://app.ecochain.com>.
- [6] Product Category Rules : Part A Version 2 Implementation and use of I.S. EN 15804:2012 and CEN TR 16970:2016 in Ireland. Product Category Rules: Part A, version 2.
- [7] CML - Department of Industrial Ecology, CML-IA Characterisation Factors, Dated August 2016, Leiden University, Leiden, Netherlands Available at: <https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors>.
- [8] Ministerie van Verkeer en Waterstaat, 8 maart 2004, Toxiciteit heeft z'n prijs, Schaduwprijzen voor (eco-)toxiciteit en uitputting van abiotische grondstoffen binnen DuboCalc.
- [9] I.S. EN 17213:2020 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets.
- [10] I.S. EN 13351-1:2006 +A1:2010 Windows and doors - Product standard, performance characteristics.
- [11] PEF methodology final draft.pdf (europa.eu)
- [12] EPD Norge, EPD for Hydro Aluminium Extrusion Ingots, Wrexham Plant. EPD declaration No.: NEPD-5011-4267-EN. Published 19.09.2023.

	Program operator and publisher EPD Ireland 19 Mountjoy Square East, Dublin 1, Ireland	Phone: +353 (01) 6815862 e-mail: epd@igbc.ie web: https://www.igbc.ie/epd-home/
	Owner of the declaration: Architectural & Metal Systems Ltd. Wallingstown, T45 VP40 Little Island, Co. Cork , Ireland	Phone: +353 21 470 5100 e-mail: info@ams.ie web: https://www.ams.ie/
	Author of the Life Cycle Assessment EcoReview Ireland Kilkenny City, Co. Kilkenny, Ireland	Phone: +353 87 258 9783 e-mail: pseymour@ecoreview.ie web: www.ecoreview.ie
	Developer of PDF generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Ireland	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal