

TYPE III · ISO 14025:2006

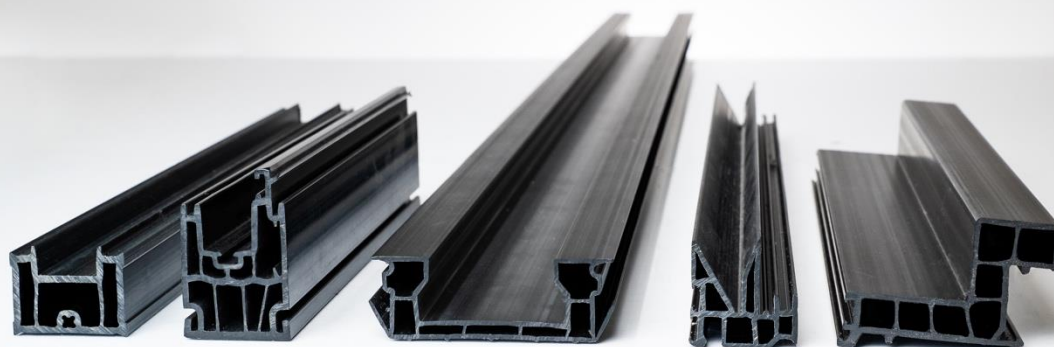
Environmental Product Declaration

in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019

ALFA PRO & ALFA ASA

Extruded profiles in ABS (ALFA PRO) and ASA (ALFA ASA) · multiple-set EPD (2 datasets)

Production site: Alfa Solare S.p.A. — Serravalle, Republic of San Marino



EPD OWNER

Alfa Solare S.p.A.

Multiple-set EPD covering two products — ALFA PRO (ABS) and ALFA ASA (ASA) — each declared as a multi-size specific product. Cradle-to-gate with modules C1–C4 and module D.

Programme operator

EPDItaly

Publisher

EPDItaly

Declaration number

EPDALFAPROASA_2025_rev.0.0

Registration number

EPDITALY1493

Issue date

23 / 09 / 2026

Update date

-

Expiry date

22 / 09 / 2031

General information

EPD OWNER	
Company name	Alfa Solare S.p.A.
Legal seat	Via Guardia di Rocca, 6 - 47891 Serravalle (Repubblica San Marino)
Contacts for EPD information	Paolo Gatti – p.gatti@alfasolare.com
PROGRAM OPERATOR	
Program Operator	EPDItaly — operated by ICMQ S.p.A., Via Gaetano De Castillia 10, 20124 Milano, Italy · www.epditaly.it
Publisher	EPDItaly
PRODUCT	
Product name	ALFA PRO (ABS) and ALFA ASA (ASA) — two datasets (multiple-set EPD)
Production site	Alfa Solare S.p.A. — Serravalle, Republic of San Marino
Description	Extruded ABS (ALFA PRO) and ASA (ALFA ASA) profiles — two multi-size specific-product datasets
Field of application	Accessory and thermal-break profiles for aluminium window and door systems (contributing to window thermal efficiency)
Type of EPD	Specific Product EPD (multi-size); Cradle-to-gate with modules C1–C4 and module D
Product standard · CPC	EN 14024 · UN CPC 36390
Geographical scope	Production: San Marino · Market & end-of-life: Global
VERIFICATION & VALIDATION	
PCR	CORE PCR ICMQ 001, Rev. 4 (10/11/2025)
EPDItaly Regulation	Regolamento EPDItaly, Rev. 7.1 (05/09/2025)
Project Report (LCA)	Studio del Ciclo di Vita a supporto delle Dichiarazioni Ambientali di Prodotto (EPD). Profili in materiale termoplastico estruso a taglio termico ALFA MID, ALFA THERM, ALFA PRO e ALFA ASA v0.2 of 24/07/2026
Independent verification	Independent verification of the declaration and data, according to UNI EN ISO 14025:2010 ☐ Internal ☒ External
Third-party verifier	TÜV Italia srl – Via Fulvio Testi 280/6 20126 Milano (MI) – Italia (Accredited by Accredia, N.00077)
Comparability	EPDs from different programmes or not compliant with EN 15804 may not be comparable; comparison must consider the product's use in the building over the full life cycle.
Responsibility	The EPD Owner is responsible for the information and supporting evidence; EPDItaly assumes no liability for the data and results provided by the EPD Owner.
LCA CONSULTANT	
LCA consultant	Bluegreen Ecoinnovations S.r.l. SB alessandro.marson@bluegreen.eco · www.bluegreen.eco

Company profile

Alfa Solare S.p.A. (Republic of San Marino) is the EPD Owner and a long-standing manufacturer of thermal break profiles for the window and door industry (Window Division). Through more than thirty years of activity it offers an extensive range of extruded thermoplastic profiles available as standard and custom (special) profiles, in bars or coils and in a range of colours.

The ALFA PRO and ALFA ASA profiles covered by this declaration are manufactured by Alfa Solare S.p.A. at its own plant in Serravalle (Republic of San Marino).

Scope and type of EPD

This is a multiple-set EPD (EPDItaly Regulation Rev. 7.1 §4.2) covering two products declared as two separate datasets — ALFA PRO (ABS) and ALFA ASA (ASA). Both share the same LCA study and assumptions, the same PCR, the same declared unit (1 kg), the same production cycle (extrusion at the Alfa Solare plant) and the same product standard (EN 14024), satisfying the cumulative conditions for multiple sets. Each set is an average product of the cradle-to-gate (A1-A3) with modules C1-C4 and module D; results are reported separately per set. Modules A4, A5 and B1-B7 are not declared (Table 1).

Declared and non-declared modules

Life-cycle stage	Module	Status
Raw material supply	A1	X
Transport to manufacturer	A2	X
Manufacturing	A3	X
Transport to customer	A4	ND
Installation	A5	ND
Use stage	B1-B7	ND
De-construction / demolition	C1	X
Transport to waste processing	C2	X
Waste processing for recovery	C3	X
Disposal	C4	X
Benefits and loads beyond the boundary	D	X

Table 1 — Declared and non-declared modules (X = declared; ND = not declared).

Product system & system boundary

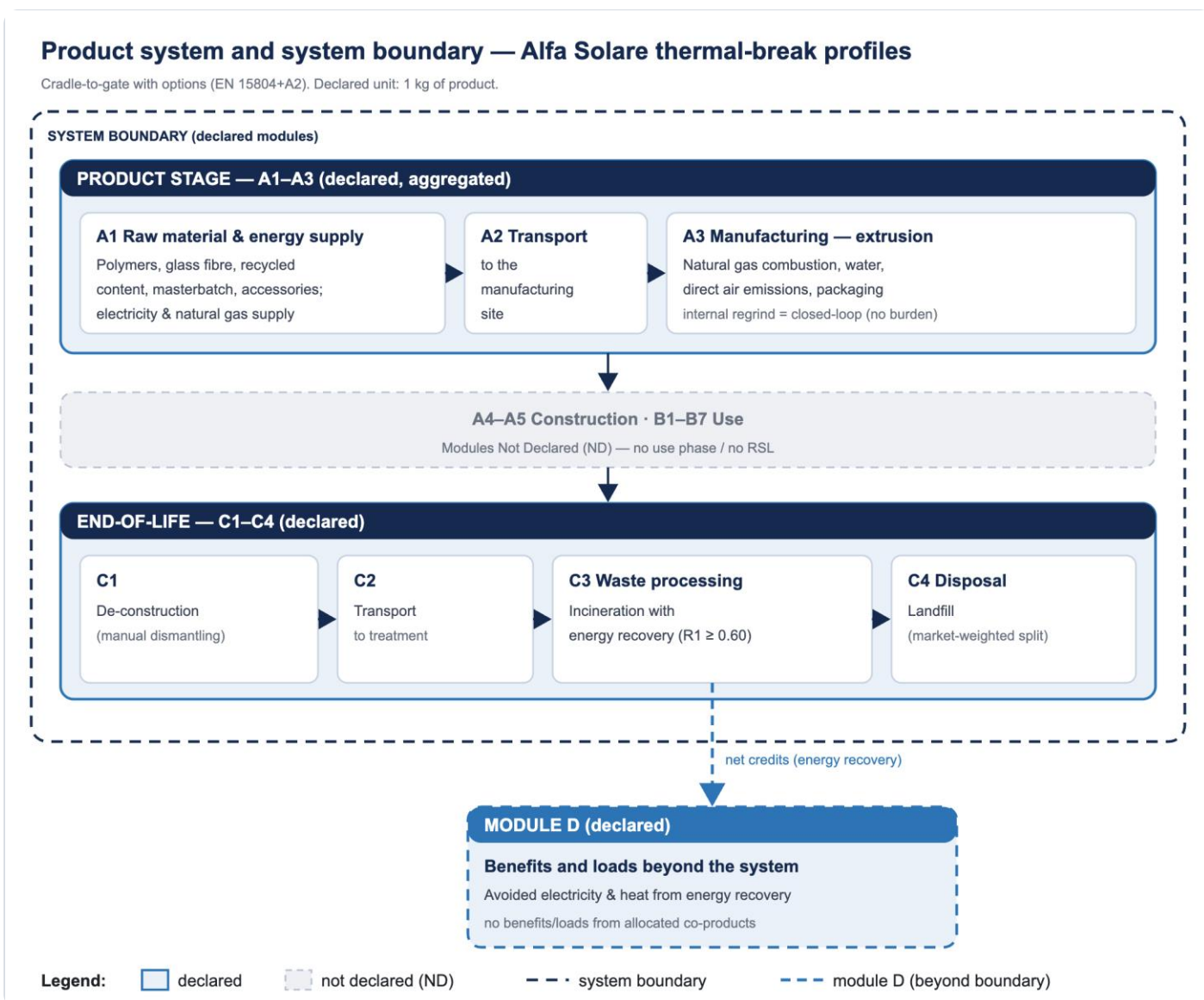


Figure 1 — Product system and system boundary

Basis of the LCA calculation

Declared unit	1 kg of product (average product, reference year 2025)
Database / system model	ecoinvent v3.12 — cut-off by classification
LCIA method / indicators	Environmental Footprint (EF) v3.1 + EN 15804+A2
LCA software	Activity Browser (Brightway)
Allocation	Physical, by extruded mass
Secondary (recycled) inputs	EoL allocation approach: Cut-off; internal regrind modelled closed-loop in A3
Electricity	Italian residual mix, no Guarantees of Origin. GWP-total 0.621 kg CO ₂ e/kWh
Cut-off	< 1% per flow, < 5% total

Table 2 — Basis of the LCA calculation.

Product — ALFA PRO

ALFA PRO is an extruded profile in ABS (acrylonitrile-butadiene-styrene) used as an accessory/structural profile in aluminium window and door systems. The polymer matrix is ABS with a colour masterbatch (~2%); there is no glass-fibre reinforcement. The profiles are produced by extrusion at the Alfa Solare plant and supplied in bars or coils, in a range of colours. The product is C2C Certified® Material Health Silver (certificate number 6597 – expiration date 08/08/2026). As a component incorporated into the window/door system, no use stage is declared (B1–B7 = ND) and no Reference Service Life is declared. Packaging (cardboard, plastic film, wooden pallet) is allocated by extruded mass.



Composition

ABS	≈ 98%
Masterbatch (colour)	≈ 2%

Technical data

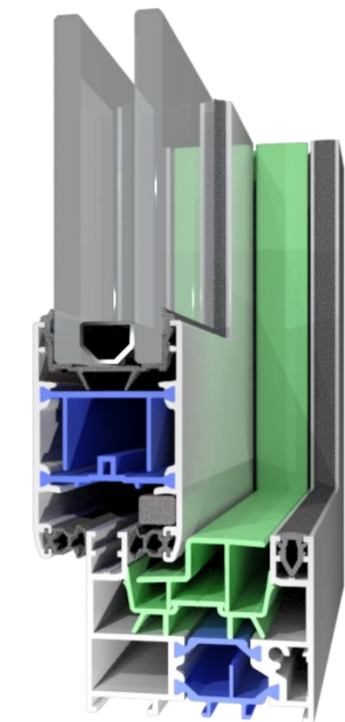
Property	Value	Standard
Composition	ABS	—
Density	1.02 ± 0.07 g/cm ³	ISO 1183
Colour	various colours	—
Vicat softening (5 kg)	> 95 °C	ISO 306
HDT (1.8 MPa)	≈ 83 °C	ISO 75-2
Thermal cond. λ	0.139 W/(m·K)	EN 10456
Lin. therm. exp. (-20–80 °C)	≈ 8.5×10 ⁻⁵ K ⁻¹	ISO 11359-2
Flammability	HB	UL 94
Tensile strength	> 35 N/mm ²	ISO 527-2
Tensile modulus	> 1500 N/mm ²	ISO 527-2
Flexural modulus	2800 N/mm ²	ISO 178
Hardness	75 ± 5 ShD	ISO 868

Table 3 — Product composition (share of declared unit mass).

Table 4 — Technical data

ALFA PRO formats included in the EPD

This EPD applies to the ALFA PRO profiles of the Alfa Solare Window Division, with profile weight in the range 26–928 g/m. The list of the product codes manufactured in the reference year (2025) and the technical justification of the invariance across sections are reported in the LCA Report.



-> The image shows a cross-section of a complete window or door unit, which is not covered by the EPD. The insulating profile, which is covered by the EPD, is highlighted.

Environmental performance — ALFA PRO

Results are given per declared unit (1 kg). Mandatory core and additional indicators carry the disclaimers of EN 15804+A2 §7.2.3.3 (Table 5): they are potential values and relative statements that do not predict impacts on endpoints, thresholds or risks (§8.2). Result tables contain no blank cells; 0.00E+00 denotes a value calculated as zero or below the reporting limit.

TABLE 5 — CORE ENVIRONMENTAL IMPACT INDICATORS (PER 1 KG)

Indicator	Unit	A1–A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	5,83E+00	0,00E+00	1,91E-02	2,32E+00	2,53E-02	-9,13E-01
GWP-fossil	kg CO ₂ eq	5,78E+00	0,00E+00	1,90E-02	2,32E+00	2,53E-02	-9,00E-01
GWP-biogenic	kg CO ₂ eq	4,46E-02	0,00E+00	1,21E-05	1,20E-04	1,24E-05	-1,25E-02
GWP-luluc	kg CO ₂ eq	3,26E-04	0,00E+00	6,14E-06	1,35E-05	1,82E-06	-1,09E-03
ODP	kg CFC-11 eq	2,33E-08	0,00E+00	4,30E-10	5,69E-10	8,09E-11	-2,96E-08
AP	mol H ⁺ eq	1,88E-02	0,00E+00	5,97E-05	3,94E-04	2,15E-05	-2,29E-03
EP-freshwater	kg P eq	7,13E-04	0,00E+00	1,32E-06	5,68E-06	3,21E-07	-3,70E-04
EP-marine	kg N eq	3,57E-03	0,00E+00	2,08E-05	2,25E-04	5,63E-04	-5,06E-04
EP-terrestrial	mol N eq	3,42E-02	0,00E+00	2,26E-04	1,91E-03	8,96E-05	-4,64E-03
POCP	kg NMVOC eq	1,53E-02	0,00E+00	9,45E-05	4,78E-04	3,68E-05	-1,74E-03
ADP-min&met¹	kg Sb eq	4,81E-06	0,00E+00	6,63E-08	1,23E-07	5,86E-09	-6,89E-07
ADP-fossil¹	MJ	1,15E+02	0,00E+00	2,69E-01	3,24E-01	6,68E-02	-1,68E+01
WDP¹	m ³ depriv.	2,81E+00	0,00E+00	1,40E-03	1,15E-01	2,93E-03	-2,29E-01

¹Indicator to be used with care: high uncertainty / limited experience (EN 15804+A2).

Core environmental impact indicators. **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 the freshwater end compartment; **EP-marine**, eutrophication potential, fraction of nutrients reaching the marine end compartment; **EP-terrestrial**, eutrophication potential (accumulated exceedance); **POCP**, formation potential of tropospheric ozone (photochemical ozone formation); **ADP-min&met**, abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil**, abiotic depletion potential for fossil resources; **WDP**, water (user) deprivation potential (deprivation-weighted water consumption).

TABLE 6 — ADDITIONAL IMPACT INDICATORS (PER 1 KG)

Indicator	Unit	A1–A3	C1	C2	C3	C4	D
PM²	disease inc.	2,73E-07	0,00E+00	1,52E-09	2,08E-09	4,88E-10	-8,46E-09
IRP^{2,3}	kBq U235 eq	2,20E-01	0,00E+00	3,07E-04	5,26E-04	5,40E-05	-2,19E-01
ETP-fw²	CTUe	1,37E+01	0,00E+00	3,98E-02	3,41E+00	9,24E-01	-1,27E+00
HTP-c²	CTUh	9,05E-10	0,00E+00	3,11E-12	1,47E-10	1,66E-12	-1,23E-10
HTP-nc²	CTUh	1,02E-08	0,00E+00	1,63E-10	5,17E-09	2,94E-10	-3,15E-09
SQP²	-	4,84E+00	0,00E+00	1,60E-01	9,41E-02	1,58E-01	-1,34E+00

²Use with care (high uncertainty / limited experience). ³IRP covers low-dose ionising radiation from the nuclear fuel cycle; excludes accidents, occupational exposure and radioactive-waste disposal.

Additional environmental impact indicators. **PM**, potential incidence of disease due to particulate matter emissions; **IRP**, ionising radiation, human health (potential human exposure relative to U235); **ETP-fw**, ecotoxicity, freshwater (comparative toxic unit for ecosystems); **HTP-c**, human toxicity, cancer effects (comparative toxic unit for humans); **HTP-nc**, human toxicity, non-cancer effects (comparative toxic unit for humans); **SQP**, land use related impacts / soil quality index.

Use of resources · waste & output flows

TABLE 7 — USE OF RESOURCES (PER 1 KG)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,31E+00	0,00E+00	4,42E-03	1,35E-02	9,18E-04	-1,96E+00
PERM	MJ	3,74E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,69E+00	0,00E+00	4,42E-03	1,35E-02	9,18E-04	-1,96E+00
PENRE	MJ	7,61E+01	0,00E+00	2,69E-01	3,24E-01	6,68E-02	-1,68E+01
PENRM	MJ	3,88E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,15E+02	0,00E+00	2,69E-01	3,24E-01	6,68E-02	-1,68E+01
SM	kg	1,23E-03	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	6,49E-02	0,00E+00	3,18E-05	1,94E-03	-1,02E-03	-5,31E-03

PERE / PERM / PERT renewable primary energy: used as energy / used as material / total · **PENRE / PENRM / PENRT** non-renewable primary energy: as energy / as material / total · **SM** secondary material · **RSF / NRSF** renewable / non-renewable secondary fuels · **FW** net use of fresh water.

TABLE 8 — WASTE CATEGORIES AND OUTPUT FLOWS (PER 1 KG)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
HWD	kg	4,98E-01	0,00E+00	1,64E-03	2,90E-02	3,40E-04	-4,09E-02
NHWD	kg	3,91E+00	0,00E+00	2,16E-02	8,07E-01	7,25E-01	-1,88E+00
RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	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
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	3,92E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	9,69E+00	0,00E+00	0,00E+00

HWD / NHWD / RWD hazardous / non-hazardous / radioactive waste disposed · **CRU** components for re-use · **MFR** materials for recycling · **MER** materials for energy recovery · **EEE / EET** exported electrical / thermal energy.

Product — ALFA ASA

ALFA ASA is an extruded profile in ASA (acrylonitrile-styrene-acrylate) used as an accessory/structural profile in aluminium window and door systems, with good weathering resistance. The polymer matrix is ASA with a colour masterbatch (~2%); there is no glass-fibre reinforcement. The profiles are produced by extrusion at the Alfa Solare plant and supplied in bars or coils, in a range of colours. The product is C2C Certified® Material Health Silver (certificate number MHC6598 – expiration date 08/08/2026). As a component incorporated into the window/door system, no use stage is declared (B1-B7 = ND) and no Reference Service Life is declared. Packaging (cardboard, plastic film, wooden pallet) is allocated by extruded mass.



Composition

ASA	≈ 98%
Masterbatch (colour)	≈ 2%

Table 3 — Product composition (share of declared unit mass).

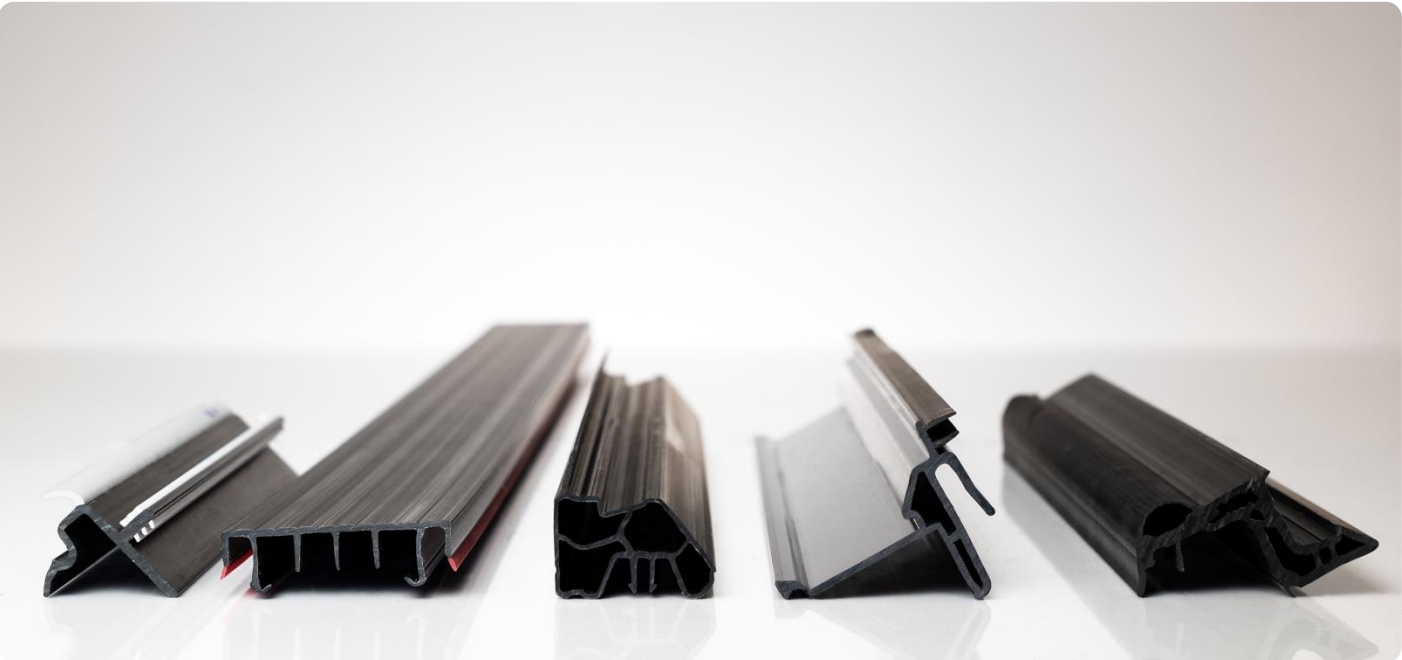
Technical data

Property	Value	Standard
Composition	ASA	—
Density	1.06 g/cm ³	ISO 1183
Colour	various colours	—
Vicat softening (5 kg)	96 °C	ISO 306
HDT (1.8 MPa)	81 °C	ISO 75
Thermal cond. λ	0.16 W/(m·K)	EN 12664
Lin. therm. exp. (-20–80 °C)	≈ 8.8×10 ⁻⁵ K ⁻¹	ISO 11359-2
Flammability	HB	UL 94
Tensile strength	48 N/mm ²	ISO 527
Tensile modulus	2300 N/mm ²	ISO 527
Flexural modulus	2200 N/mm ²	ISO 178
Izod notched (23 °C)	20 kJ/m ²	ISO 180/1A

Table 4 — Technical data

ALFA ASA formats included in the EPD

This EPD applies to the ALFA ASA profiles of the Alfa Solare Window Division, with profile weight in the range 62–652 g/m. The list of the product codes manufactured in the reference year (2025) and the technical justification of the invariance across sections are reported in the LCA Report.



Environmental performance — ALFA ASA

Results are given per declared unit (1 kg). Mandatory core and additional indicators carry the disclaimers of EN 15804+A2 §7.2.3.3 (Table 5): they are potential values and relative statements that do not predict impacts on endpoints, thresholds or risks (§8.2). Result tables contain no blank cells; 0.00E+00 denotes a value calculated as zero or below the reporting limit.

TABLE 5 — CORE ENVIRONMENTAL IMPACT INDICATORS (PER 1 KG)

Indicator	Unit	A1–A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	7,37E+00	0,00E+00	1,91E-02	7,77E-01	6,83E-02	-3,03E-01
GWP-fossil	kg CO ₂ eq	7,30E+00	0,00E+00	1,90E-02	7,77E-01	6,82E-02	-2,98E-01
GWP-biogenic	kg CO ₂ eq	3,75E-02	0,00E+00	1,21E-05	4,30E-05	3,36E-05	-4,15E-03
GWP-luluc	kg CO ₂ eq	2,79E-02	0,00E+00	6,14E-06	4,85E-06	4,93E-06	-3,62E-04
ODP	kg CFC-11 eq	6,73E-08	0,00E+00	4,30E-10	2,04E-10	2,18E-10	-9,81E-09
AP	mol H ⁺ eq	2,49E-02	0,00E+00	5,97E-05	1,41E-04	5,80E-05	-7,61E-04
EP-freshwater	kg P eq	1,22E-03	0,00E+00	1,32E-06	2,04E-06	8,66E-07	-1,23E-04
EP-marine	kg N eq	6,09E-03	0,00E+00	2,08E-05	8,05E-05	1,52E-03	-1,68E-04
EP-terrestrial	mol N eq	6,02E-02	0,00E+00	2,26E-04	6,86E-04	2,42E-04	-1,54E-03
POCP	kg NMVOC eq	2,66E-02	0,00E+00	9,45E-05	1,71E-04	9,94E-05	-5,77E-04
ADP-min&met ¹	kg Sb eq	1,41E-05	0,00E+00	6,63E-08	4,40E-08	1,58E-08	-2,29E-07
ADP-fossil ¹	MJ	1,34E+02	0,00E+00	2,69E-01	1,16E-01	1,80E-01	-5,57E+00
WDP ¹	m ³ depriv.	2,70E+00	0,00E+00	1,40E-03	4,11E-02	7,91E-03	-7,58E-02

¹Indicator to be used with care: high uncertainty / limited experience (EN 15804+A2).

Core environmental impact indicators. **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 the freshwater end compartment; **EP-marine**, eutrophication potential, fraction of nutrients reaching the marine end compartment; **EP-terrestrial**, eutrophication potential (accumulated exceedance); **POCP**, formation potential of tropospheric ozone (photochemical ozone formation); **ADP-min&met**, abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil**, abiotic depletion potential for fossil resources; **WDP**, water (user) deprivation potential (deprivation-weighted water consumption).

TABLE 6 — ADDITIONAL IMPACT INDICATORS (PER 1 KG)

Indicator	Unit	A1–A3	C1	C2	C3	C4	D
PM ²	disease inc.	3,09E-07	0,00E+00	1,52E-09	7,46E-10	1,32E-09	-2,81E-09
IRP ^{2,3}	kBq U235 eq	2,87E-01	0,00E+00	3,07E-04	1,88E-04	1,46E-04	-7,26E-02
ETP-fw ²	CTUe	4,52E+01	0,00E+00	3,98E-02	1,22E+00	2,49E+00	-4,20E-01
HTP-c ²	CTUh	2,17E-09	0,00E+00	3,11E-12	5,28E-11	4,48E-12	-4,08E-11
HTP-nc ²	CTUh	4,30E-07	0,00E+00	1,63E-10	1,85E-09	7,95E-10	-1,05E-09
SQP ²	-	1,33E+01	0,00E+00	1,60E-01	3,37E-02	4,27E-01	-4,44E-01

²Use with care (high uncertainty / limited experience). ³IRP covers low-dose ionising radiation from the nuclear fuel cycle; excludes accidents, occupational exposure and radioactive-waste disposal.

Additional environmental impact indicators. **PM**, potential incidence of disease due to particulate matter emissions; **IRP**, ionising radiation, human health (potential human exposure relative to U235); **ETP-fw**, ecotoxicity, freshwater (comparative toxic unit for ecosystems); **HTP-c**, human toxicity, cancer effects (comparative toxic unit for humans); **HTP-nc**, human toxicity, non-cancer effects (comparative toxic unit for humans); **SQP**, land use related impacts / soil quality index.

Use of resources · waste & output flows

TABLE 7 — USE OF RESOURCES (PER 1 KG)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	3,26E+00	0,00E+00	4,42E-03	4,83E-03	2,48E-03	-6,50E-01
PERM	MJ	3,74E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,63E+00	0,00E+00	4,42E-03	4,83E-03	2,48E-03	-6,50E-01
PENRE	MJ	9,54E+01	0,00E+00	2,69E-01	1,16E-01	1,80E-01	-5,57E+00
PENRM	MJ	3,85E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,34E+02	0,00E+00	2,69E-01	1,16E-01	1,80E-01	-5,57E+00
SM	kg	8,42E-20	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	8,08E-02	0,00E+00	3,18E-05	6,97E-04	-2,74E-03	-1,76E-03

PERE / PERM / PERT renewable primary energy: used as energy / used as material / total · **PENRE / PENRM / PENRT** non-renewable primary energy: as energy / as material / total · **SM** secondary material · **RSF / NRSF** renewable / non-renewable secondary fuels · **FW** net use of fresh water.

TABLE 8 — WASTE CATEGORIES AND OUTPUT FLOWS (PER 1 KG)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
HWD	kg	8,66E-01	0,00E+00	1,64E-03	1,04E-02	9,18E-04	-1,36E-02
NHWD	kg	7,80E+00	0,00E+00	2,16E-02	2,89E-01	1,96E+00	-6,22E-01
RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	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
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	1,30E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	3,21E+00	0,00E+00	0,00E+00

HWD / NHWD / RWD hazardous / non-hazardous / radioactive waste disposed · **CRU** components for re-use · **MFR** materials for recycling · **MER** materials for energy recovery · **EEE / EET** exported electrical / thermal energy.

Calculation rules and scenarios

The declared unit is 1 kg of product. Allocation is physical, by extruded mass; cut-off thresholds are 1% per flow and 5% in total (EN 15804+A2 §6.3.6 / CORE PCR §5.5). Secondary materials are modelled with the cut-off (polluter-pays) approach; market-balance and book-and-claim approaches are not used.

Module A1–A3 covers raw-material and energy supply, gas combustion, extrusion, water, direct air emissions and packaging. **C1** assumes manual dismantling. Transport to end-of-life (**C2**) is 100 km by 16–32 t lorry; incineration qualifies as recovery (R1 $\approx 0.82 \geq 0.60$, Directive 2008/98/EC). **End-of-life scenario** (by destination market), per set. ALFA PRO: European market 27.4% to disposal (controlled landfill, **C4**; no credit) and 72.6% to incineration with energy recovery (**C3**, D10+R1; fossil-CO₂ load in C3). ALFA ASA: European market 74.0% to disposal and 26.0% to incineration with energy recovery. Both sets: Extra-Europe market 100% to disposal. **Module D** reports net credits from avoided EU-average electricity and heat (plant efficiencies 15% electrical / 37.1% thermal).

Biogenic carbon

The product polymers are of fossil origin (no biogenic carbon). The cellulosic packaging carries biogenic carbon; because module A5 is not declared, the biogenic-CO₂ uptake in A3 is balanced by an equal release reported within the declared A1–A3 results (ECO Platform LCA Calculation Rules v2.0 §2.11). The net GWP-biogenic of the packaging within A1–A3 is therefore nil.

Biogenic carbon in the product	0.00E+00 kg C
Biogenic carbon in the accompanying packaging	1.08E-02 kg C
As % of packaging mass	45.0% (> 5%; balanced in A1–A3)

Table 10 — Biogenic carbon content at the gate (A1–A3), per 1 kg.

Data quality

Data quality is assessed per EN 15941:2024 and EN 15804+A2 Annex E, Table E.2 (PEF, 1 = Very good ... 5 = Very poor). Primary site data (2025) are very good and the ecoinvent v3.12 background is good; geographical representativeness ranges from very good (IT/RER) to fair (GLO/RoW). For ALFA PRO the ABS matrix uses a native ecoinvent dataset (good); for ALFA ASA the matrix uses a constructed ASA dataset (fair) that dominates the A1–A3 result and exceeds 30% on a core indicator. No relevant data are poor or very poor; no misleading or exaggerated claims are made.

References

Standards	UNI EN ISO 14025:2010 · EN 15804:2012+A2:2019 · EN 15941:2024 · EN 14024.
Programme	Regolamento EPDItaly Rev. 7.1 (05/09/2025) and Annexes; CORE PCR ICMQ 001 Rev. 4 and Technical Guideline; ECO Platform LCA Calculation Rules v2.0 (2024)