Environmental Product Declaration Type III ITB No. 758/2025

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Roller Shutter systems

EPD Program Operator:
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ITB is the verified member of The European Platform for EPD program operators and LCA practitioner www.eco-platform.org

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment. Their aspects were verified by the independent body according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 (see point 5.3 of the standard).

Life cycle analysis (LCA): A1-A5 modules, C1-C4 and D in accordance with EN 15804
(Cradle to Gate with options)

Product standard: EN 13659

The year of preparing the EPD: 2023

Service Life: not declared, SL shall vary depending on a specific scenario of application

PCR: ITB-PCR A (PCR based on EN 15804)

Declared unit: 1 kg of product

Reasons for performing LCA: B2B

Representativeness: manufactured in Poland, year 2023

BASIC INFORMATION

ALUPROF SA belonging to the Capital Group Grupa Kęty SA is one of the leading manufacturers of aluminium systems for the building industry in Europe. Its offer includes window and door systems, façade systems, fire protection solutions and systems for sun protection, pergolas, garage doors and insect screens. Aluprof SA sells its solutions to most European countries and to the United States. The company has representative offices and distribution centres throughout Europe: in Germany, the UK, Belgium, the Netherlands, the Czech Republic, Romania, Hungary, Ukraine and also in the US A. On foreign markets, Aluprof is perceived as a large and reliable partner, which translates into systematically growing export sales. High-quality Polish architectural systems are finding customers in completely new markets, such as: Estonia, Azerbaijan, Georgia, United Arab Emirates.Due to over 70 years of experience, Aluprof SA has over 1900 regular customers. The annual sales revenue of ALUPROF SA amounts to EUR 438 million. The share of exports in total sales amounts to approximately 40%. The company hires more than 3, 200 employees. Aluprof SA plants located in Bielsko-Biała, Opole, Goleszów and Złotów cover an area of over 230 thousand square meters and are equipped with modern machinery.The quality of products is of paramount importance to Aluprof, which is why its engineers are constantly developing technologically advanced solutions to meet the needs of modern construction industry in terms of energy efficiency and freedom of design.

The ALUPROF plant, located in Opole (Poland), primarily specialises in the production and supply of high-quality components necessary for the prefabrication of external roller shutters, rolling gates, industrial gates, aluminium insect screens, textile shutters, and from 2021 also screens. The company has also recently launched several variants of façade blinds, which are available as a finished product. Aluprof external blinds are a construction product installed on the outside of a building in order to provide or change the thermal, visual and safety properties of the window, door, curtain wall or façade to which they are applied.

PRODUCTS DESCRIPTION

External roller shutters are still an extremely practical but underestimated solution. In adverse weather conditions, they form a barrier that effectively protects the interior against heat loss. In summer, on the other hand, they provide excellent protection against overheating of interiors, while at the same time reducing the use of air conditioning equipment and thus reducing building operating costs. The roller shutter installed according to the system provider's guidelines has very good acoustic properties, which significantly reduces the perception of noise coming from outside. Roller shutter systems offered by Aluprof can be additionally integrated with an insect screen, which guarantees effective protection of rooms against insects. In addition, a properly selected system of external roller shutters can provide protection against burglary. The roller shutters systems are most often made of profiles manufactured of high-quality aluminium sheet, filled with polyurethane foam, with special double-layer varnish coatings in the PU/PA system. Such solution makes them more resistant to abrasion and weathering. There are also profiles made of extruded aluminium, which are more rigid and stable, and plastic profiles, which are used depending on the selected system. A wide range of colours definitely facilitates matching the roller shutters to each façade. In Aluprof's range there are roller shutters in the front -mounted systems, underplaster systems, top-mounted systems and two anti-burglary solutions.The supplied systems are used for the production of roller blinds and shutters, including: extruded aluminum profiles (guides, boxes, other profiles), bent boxes, shaped profiles filled with foam, shutters. The products are sold in long lengths and in bulk packaging as materials for the production of a finished product for the end customer. The products are introduced to the market in accordance with the requirements of Regulation (EU) No 305/2011 of the European Parliament and of the Council. These requirements are met on the basis of the harmonized product standard EN 13659 for roller blinds and venetian blinds The tested characteristic of the products, declared on the label and in the Declaration of Performance, is resistance to wind load. All specific product technical data is available at manufacturer website.

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Unit

The declared unit is the production of 1 kg of the aluminium Roller Shutter system, representative for a wide range of products. Conversion to 1 m^2 is possible by multiplying the environmental impact results by the number of kg per m^2.

System boundary

The life cycle analysis of the declared product covers “Product Stage” A1-A5, C1-C4+D modules in accordance with EN 15804+A2 and ITB PCR A (cradle to gate with options).

Allocation

The allocation rules used for this EPD are based on general ITB PCR A. Averages are obtained through the weighted average. Allocation of impacts is done on product mass basis in both plantsMinimum 99% of the impacts from a line production were allocated to the products covered by this declaration. Module A2 includes products specific transport of to Opole. Municipal wastes of the factories were allocated to module A3. Emissions in the factories were assessed using Ecoinvent v3.10. data for energy carriers.

System limits

Minimum 99.5% input materials and 100% energy consumption (electricity, gas, ON, heat) were inventoried in Opole plant and were included in the calculation. In the assessment, all significant parameters from gathered production data are considered, i.e. all material used per formulation utilized thermal energy, and electric power consumption, direct production waste and available emission measurements. Tires consumption for transport was not taken into account. Substances with a percentage share of less than 1% of total mass were excluded from the calculations. It is assumed that the total sum of omitted processes does not exceed 0.5% of all impact categories. All packaging products are excluded in the analysis. In accordance with EN 15804 machines and facilities required for and during production are excluded, as is transportation of employees.

A1 and A2 Modules: Raw materials supply and transport

The modules A1 and A2 represent the extraction and processing of raw materials, the transport to the production site in Opole. Module A1 represents the impact of the production of aluminium, steel and PVC/polymers. For A2 calculation purposes, European averages for fuel data are applied.

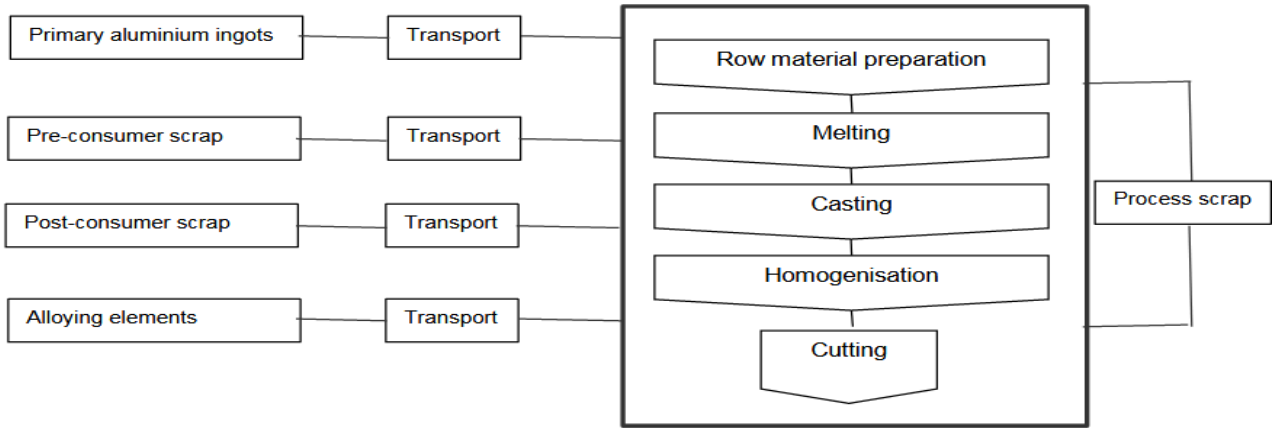

Figure 1. A schematic diagram of the industrial process (aluminium) in Kęty plant, A1 module.

Specific impacts for the production of 1 kg of aluminium (used for aluminium profiles production) is presented as A1 module.

A3: Production

The product specific production process is presented in Figure 2. Electricity and gas are consumed in the process.

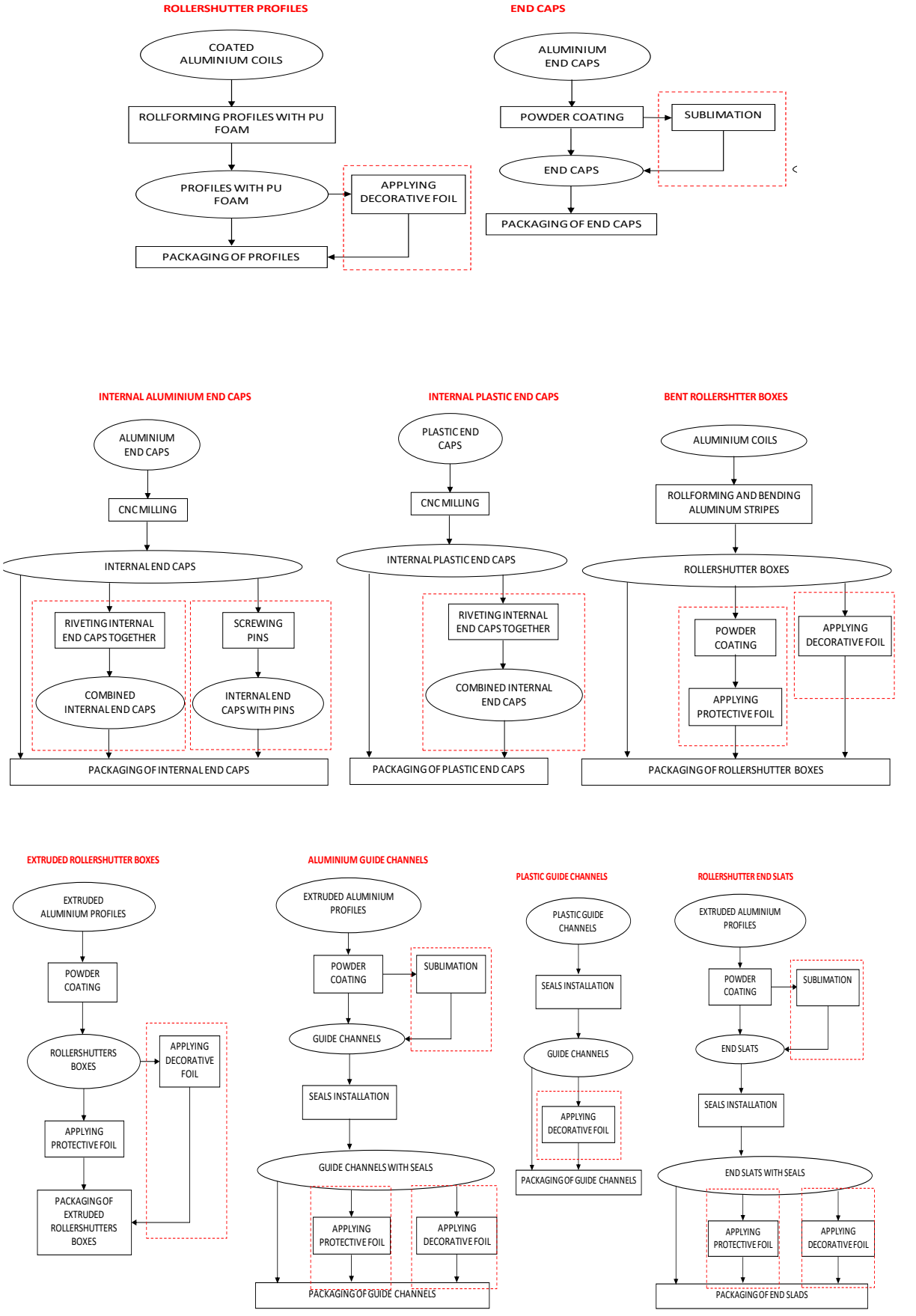

Figure 2. A schematic diagram of the industrial process in Opole (A3)

Modules A4-A5: transport to consumer and installation

Vehicle transport at distance 100 km is considered (emission standard Euro 5) with 100% load capacity. Installation is carried out in accordance with the manufacturer's recommendations, with a marginal amount of electrical energy being consumed during installation.

Modules *C1-C4 and D: End-of-life (EoL)*

It is assumed that at the End-of-Life, the aluminium products are dismantled using electric tools. Recovered material is transported to waste processing plant distant of about 100 km using > 24t lorry with 85% capacity utilization and fuel consumption of 35 L per 100 km (module C2). About 98% of the resulting aluminium/steel scrap undergo recycling after shredding (C3) while the remaining 2% of them is forwarded to landfill in the form of mixed construction and demolition waste (Table 1). Environmental burdens declared in module C4 are associated with treatment of scrap, prepared for recycling at refiner and waste-specific emissions to air and groundwater via landfill. A potential credit resulting from the recycling of the aluminium scrap, steel scrap and plastic/PVC waste are presented in module D (calculated for the primary aluminium content).

Table 1. End-of-life scenario for the aluminium shutters produced by Aluprof

Material	Material recovery	Recycling	Landfilling
Aluminium scrap	100%	98%	2%
Steel scrap	100%	98%	2%
Polimer waste	100%	90%	10%

Module D - Allocation by reuse, recovery or recycling

In order to obtain the net post-consumer scrap output from the product system, the input of post-consumer scrap present in assessed product is subtracted from post-consumer scrap to be recycled at end of life. Module D reports the burdens and benefits of the recycling of this remaining net scrap. Benefits are assessed at the point of functional equivalence, i.e. where the substitution of primary aluminium takes place. In the recycling process, smelting yield for post-consumer scrap was taken into account.

Data collection period

The data of manufacturing of the declared products refer to period between 01.01.2023 – 31.12.2023 (1 year). The life cycle assessments were done for Poland as reference area.

Data quality - production

The values determined to calculate A1-A3 originate from verified process LCI inventory data form production plant. The carbon data for input aluminium is based on the specific EPD for Kęty. The energy consumption of production and its impact on the production lines were inventoried and calculated. In accordance with Annex E of the EN 15804 + A2, a data quality assessment was performed. For technical representativeness, processes with a quality level of "very good" account for 99% of the value for climate change indicator. For geographical and time representativeness, processes level of "very good" is obtained.

Assumptions and estimates

The impacts of the representative product were aggregated using a weighted average. According to the data adopted from the Ecoinvent 3.10 database, the , pre-consumer and post-consumer scrap is not burdened with the environmental impacts, however, scrap processing impacts eq. 0.6 kg CO_2/kg is included (EEA).

Calculation rules

LCA was done in accordance with ITB PCR A document. Characterization factors are CML ver. 4.2 based on EN 15804+A2. ITB-LCA own algorithms were used for impact aggregation. A1 was calculated based on data from the specific data from Kęty manufacturing plant (aluminium) and and using database (steel plastic, European Area) for resources. A3 and A2 are calculated based on the specific input data.

Databases

The background data for the processes come from the following databases: Ecoinvent v.3.10 and KOBIZE (Polish electricity mix and combustion factors for fuels). KOBIZE data is supplemented with Ecoinvent data on the Polish electricity mix impact where no specific indicator data is provided. Specific (LCI) data quality analysis was a part of the input data verification. Specific EPDs for aluminium (grupa Kęty) were used. The time related quality of the data used is valid (5 years).

Additional information

Polish electricity mix used is 0.685 kg CO_2/kWh (2023). Aluprof products meet the applicable regulations, including REACH Regulation (EC) 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals and directive 2011/65/EU of the European Parliament and of the Council (RoHS 2 Directive) which lays down rules on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) with a view to contributing to the protection of human health and the environment, including the environmentally sound recovery and disposal of waste EEE. Taking into consideration this justification the additional indicators (including Eco and Human toxicity) related were not included in the assessment.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to the declared unit DU – 1 kg of roller shutter systems (table 3-6). The following life cycle modules are included in the declaration (Table 2).

Table 2. System boundaries (life stage modules included) in a product environmental assessment

Environmental assessment information (MA – Module assessed, MNA – Module not assessed, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction 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**
MA	**MA**	**MA**	**MA**	**MA**	**MNA**	**MNA**	**MNA**	**MNA**	**MNA**	**MNA**	**MNA**	**MA**	**MD**	**MD**	**MD**	**MD**

Table 2. Life cycle assessment (LCA) results of Roller Shutter systems manufactured by Aluprof SA – the environmental impacts (DU: 1 kg)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	3.12E+00	2.70E-01	6.82E-01	4.07E+00	1.89E-02	3.43E-03	4.11E-03	1.67E-02	6.98E-01	1.06E-03	-8.98E-01
Greenhouse gas potential - fossil	eq. kg CO_2	3.07E+00	2.69E-01	6.82E-01	4.02E+00	1.88E-02	3.43E-03	4.11E-03	1.66E-02	6.97E-01	1.05E-03	-8.83E-01
Greenhouse gas potential - biogenic	eq. kg CO_2	1.86E-02	2.31E-04	4.66E-04	1.93E-02	1.62E-05	1.00E-04	1.20E-04	5.68E-05	4.89E-04	1.06E-05	-5.60E-03
Global warming potential - land use and land use change	eq. kg CO_2	4.05E-02	1.31E-04	6.68E-05	4.07E-02	9.14E-06	1.20E-06	1.44E-06	6.52E-06	1.23E-03	1.07E-06	-1.13E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	2.57E-07	5.86E-09	2.66E-08	2.89E-07	4.10E-10	7.00E-11	8.40E-11	3.85E-09	2.08E-08	3.20E-10	-1.69E-06
Soil and water acidification potential	eq. mol H+	3.36E-02	8.78E-04	1.57E-03	3.61E-02	6.14E-05	3.80E-05	4.56E-05	6.75E-05	6.19E-03	8.88E-06	-8.33E-03
Eutrophication potential - freshwater	eq. kg P	1.99E-03	1.88E-05	1.99E-04	2.21E-03	1.32E-06	6.50E-06	7.80E-06	1.12E-06	2.93E-04	3.06E-07	-4.31E-04
Eutrophication potential - seawater	eq. kg N	3.60E-03	3.02E-04	3.07E-04	4.20E-03	2.11E-05	5.50E-06	6.60E-06	2.04E-05	9.04E-04	3.06E-06	-8.19E-04
Eutrophication potential - terrestrial	eq. mol N	3.54E-02	3.19E-03	2.98E-03	4.16E-02	2.23E-04	4.65E-05	5.58E-05	2.22E-04	9.84E-03	3.33E-05	-8.09E-03
Potential for photochemical ozone synthesis	eq. kg NMVOC	1.27E-02	1.31E-03	1.40E-03	1.54E-02	9.17E-05	1.30E-05	1.56E-05	6.80E-05	3.70E-03	9.64E-06	-2.88E-03
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	2.25E-05	8.83E-07	2.26E-07	2.36E-05	6.18E-08	1.67E-08	2.00E-08	5.89E-08	1.55E-05	3.56E-09	-6.54E-03
Abiotic depletion potential - fossil fuels	MJ	5.64E+01	3.85E+00	1.04E+01	7.06E+01	2.69E-01	5.80E-02	6.96E-02	2.47E-01	8.36E+00	2.43E-02	-1.10E+01
Water deprivation potential	eq. m^3	3.43E+00	1.89E-02	4.73E-02	3.50E+00	1.32E-03	1.20E-03	1.44E-03	1.14E-03	2.24E-01	1.41E-04	-8.62E-01

Table 3. Life cycle assessment (LCA) results of Roller Shutter manufactured by Aluprof SA – the environmental aspects (DU: 1 kg)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.23E+01	5.92E-02	1.80E-01	1.25E+01	4.14E-03	4.30E-03	5.16E-03	3.54E-03	7.07E-01	4.27E-04	-3.26E+00
Consumption of renewable primary energy resources used as raw materials	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	-1.14E-03
Total consumption of renewable primary energy resources	MJ	1.23E+01	5.92E-02	1.80E-01	1.25E+01	4.14E-03	4.30E-03	5.16E-03	3.54E-03	7.07E-01	4.27E-04	-3.30E+00
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	4.96E+01	3.85E+00	1.04E+01	6.38E+01	2.69E-01	5.82E-02	6.98E-02	2.47E-01	8.36E+00	2.63E-02	-1.09E+01
Consumption of non-renewable primary energy resources used as raw materials	MJ	6.57E+00	0.00E+00	0.00E+00	6.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.54E-03
Total consumption of non-renewable primary energy resources	MJ	5.64E+01	3.85E+00	1.04E+01	7.06E+01	2.69E-01	5.82E-02	6.98E-02	2.47E-01	8.36E+00	2.63E-02	-1.10E+01
Consumption of secondary materials	kg	5.35E-01	1.73E-03	1.30E-03	5.38E-01	1.21E-04	5.30E-06	6.36E-06	8.27E-05	2.99E-02	0.00E+00	5.53E-02
Consumption of renewable secondary fuels	MJ	4.91E-03	2.20E-05	2.01E-06	4.93E-03	1.54E-06	2.95E-08	3.55E-08	9.11E-07	1.25E-04	0.00E+00	-3.13E-05
Consumption of non-renewable secondary fuels	MJ	5.47E-03	0.00E+00	0.00E+00	5.47E-03	0.00E+00	4.70E-05	5.63E-05	0.00E+00	0.00E+00	0.00E+00	-8.12E-04
Net consumption of freshwater resources	m^3	7.13E-02	4.59E-04	5.30E-03	7.71E-02	3.21E-05	1.58E-05	1.89E-05	3.10E-05	5.01E-03	3.79E-06	-1.90E-02

Table 4. Life cycle assessment (LCA) results of Roller Shutter systems manufactured by Aluprof SA. - environmental information describing waste categories (DU: 1 kg)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste, neutralized	kg	7.05E-01	2.58E-03	1.49E-02	7.23E-01	1.80E-04	6.00E-07	7.20E-07	2.77E-04	5.31E-02	3.83E-08	-1.90E-01
Non-hazardous waste, neutralised	kg	1.14E+00	7.84E-02	9.46E-01	2.16E+00	5.48E-03	3.12E-05	3.74E-05	4.92E-03	1.22E+00	1.00E-01	-1.14E-01
Radioactive waste	kg	5.62E-04	1.24E-06	1.16E-06	5.65E-04	8.67E-08	4.35E-08	5.22E-08	1.84E-08	9.81E-06	1.48E-07	-1.53E-04
Components for re-use	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	-9.81E-07
Materials for recycling	kg	3.35E-04	2.82E-05	2.74E-05	3.90E-04	1.97E-06	6.00E-08	7.20E-08	7.64E-07	5.43E-02	0.00E+00	-5.98E-05
Materials for energy recovery	kg	2.23E-06	2.36E-07	1.35E-07	2.60E-06	1.65E-08	5.25E-10	6.30E-10	6.18E-09	8.58E-07	0.00E+00	-1.79E-05

VERIFICATION

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 and ITB PCR A
Independent verification corresponding to ISO 14025 (subclause 8.1.3.) ☒ external ☐ internal
External verification of EPD: PhD. eng. Halina Prejzner LCI audit and input data verification: Filip Poznański, M.Sc. eng LCA, and input data verification: Michał Piasecki, PhD., D.Sc., Eng.

Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent, third-party verification organization (ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

Normative references

- ITB PCR A General Product Category Rules for Construction Products (2023)
- EN 13659:2015 Shutters and external venetian blinds - Performance requirements including safety
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- EN 15804+A2 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- CRU Group. Carbon footprint by cold metal by country - https://www.crugroup.com/about-cru/
- EAA 2020 - Circular Aluminium Action Plan - A strategy for achieving aluminium's full potential for circular economy by 2030.
- European Life Cycle Database. ELCD 3.2. http://eplca.jrc.ec.europa.eu/ELCD3/index.xhtml?stock=default
- Ecoinvent Database. http://www.ecoinvent.org/database/.
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- Aluminium Recycling in LCA – European Aluminium Association, 2013.
- KOBiZE Wskaźniki emisyjności CO_2, SO_2, NO_x, CO i pyłu całkowitego dla energii elektrycznej, 2023
- JRC Technical Report, Sustainability aspects of Bauxite and Aluminium, 2021

LCA,LCI, input data verification
Michał Piasecki, PhD. D.Sc.

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CERTIFICATE № 758/2025
of TYPE III ENVIRONMENTAL DECLARATION

Products:

Roller Shutter systems

Manufacturer:

ALUPROF SA
ul. Warszawska 153, 43-300 Bielsko-Biała

ALUPROF SA
ul. Gosławicka 3, 45-446 Opole

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804:2012+A2:2019

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued on 29th January 2025 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, January 2025