SuMPO EPD Japan

Third party verified

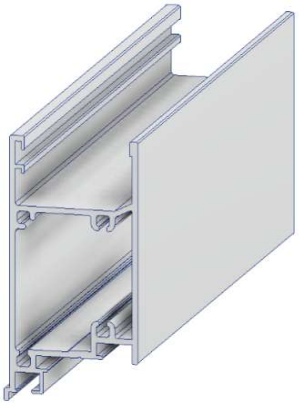
Environmental Product Declaration

In conformance with

ISO14025 | ISO14040 | ISO14044

FUJI SASH CO.,LTD.

Reborn Low-Carbon Aluminum Building Materials "ReSash R100"



take various cross-sectional

Final product condition
（extruded profiles: frame only, excluding

the window portion of a building

Registration number	Verification date	Publication date	Expiration date	EPD type
SuMPO-EPD-2512-47-1	2025/12/22	2025/12/26	2030/12/21	Multiple Products EPD

* First publication date

Additional standards in conformance

EPD can be updated or withdrawn during the validity period. To confirm the validity of this EPD, check the following website: https://ecoleaf-label.jp/epd/search

Environmental Product Declaration for Reborn Low-Carbon Aluminum Building Materials "ReSash R100"

●General Information

＞Programme

Programme name	SuMPO EPD Japan
Programme operator	Sustainable Management Promotion Organization (SuMPO)
Address	KANDA SQUARE GATE 4F, 14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo, 101-0047, Japan
Website	https://ecoleaf-label.jp

＞GPI and PCR

GPI	SuMPO EPD Japan General Program Instructions v.2.1.1
PCR name	Windows
PCR registration number	PA-212300-AD-05
PCR publication date	2023/5/10
PCR review panel chair	Masayuki Kanzaki（Sustainable Management Promotion Organization）
PCR valid until	2028/5/10

＞Verification

Verification Type	Third-party verification in conformance with ISO14025 and ISO21930:2017		
	☐ Internal	■ External	
	■ Third-party verification by individual verifier	☐ Third-party verification by verification body	☐ Third-party verification by system certification
選択してください	Mio Ito（KAKEN Test Center, General Incorporated Foundation）		

＞Standards

Standards in conformance with;	■ ISO14040:2006	■ ISO14044:2006	■ ISO14067:2018
	■ ISO14025:2006	■ ISO21930:2007	☐ ISO21930:2017
	☐ EN15804+A2	☐ EN50693:2019	☐ ISO/IEC63366:2025

EPD owner is responsible for the information contained in the EPD and for environmental claims related to the information. For any inquiries or requests regarding the content of the EPD, please contact the EPD owner.

EPDs are comparable only if they comply with the same standards, use the same sub-PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works. Comparability of EPDs is limited to those applying a functional unit.

The LCIA results are relative expressions and do not predict impacts on category endpoints, the exceedance of thresholds, safety margins or risks.

When using weighted averages for calculation, the life cycle impact assessment results, life cycle inventory analysis-related information, waste-related information, and environmental information on output flows do not correspond to information about a specific product.

●EPD Owner's Information

Name of company and dept.	FUJI SASH CO.,LTD.　Sustainability Promotion Office
Address	4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 11F, Tokyo Nissan Nishi-Gotanda Building
Contact	mail: sustainability@fujisash.net　　tel: +81-3-6867-0755
LCA practitioner	FUJI SASH CO.,LTD.　Sustainability Promotion Office　Tsuyoshi Akamatsu
Company description	Under the management philosophy of “Fuji Sash expands dreams through windows,” the company has established bases throughout Japan and primarily across Southeast Asia, and has built an integrated production system by leveraging collaboration within the group. Its main business activities include the manufacture, sale, and installation of curtain walls, building sashes, and other building materials.

Environmental Product Declaration for Reborn Low-Carbon Aluminum Building Materials "ReSash R100"

Product Information

Product name		Reborn Low-Carbon Aluminum Building Materials "ReSash R100"		
Product /model number		aluminum extrusion (intermediate product)		
Product sepcification	Function	Extruded profiles forming the frame portions of aluminum building products, including windows and sashes.		
	Mass	Unit mass: 1 kg	Conversion factor	–
	Applications	It is used as a primary raw material in the processing and assembly of windows, sashes, and curtain walls for buildings and residential housing.		
	TS*	Relevant JIS standards for aluminum and its alloys, the Building Standards Act, and related laws and regulations		
Service life	Service life	Corresponding to the service life of the building or structure		
	In-use conditions	Corresponding to the service conditions of the building or structure		
	reference	–		
Manufacturing site(s)		Chiba Plant (East Japan Business Office, Fuji Light Metal Co, Ltd.)		
Product description		All aluminum extruded profiles for windows, sashes, and similar applications manufactured at the above production site (made from 100% recycled aluminum). However, stock materials produced prior to the product changeover (with a 70% recycling rate) and green aluminum extruded profiles are excluded.		
Website		https://www.fujisash.co.jp/hp/company/csr/		

* TS: technical specifications,

Product Content

Product components	Propotion (%)	Mass (unit)	
aluminum	the balance (98% or more)	the balance (98% or more)	kg
magnesium	0.45~0.9	0.0045~0.009	kg
silicon	0.20~0.6	0.0020~0.006	kg
nickel	0.01~0.07	0.0001~0.0007	kg
Packaging materials	Propotion (%)	Mass (unit)	
-	-	-	

Biogenic Carbon Content

Item	Content (kg-C)	Content (kg-CO_2 eq)
Biogenic carbon content per product	-	-
Biogenic carbon content in packaging	-	-

●LCA-related Information

＞EPD Type Information

EPD type	Product type	☐ Single product EPD	■ Multiple products EPD	☐ Industry-wide EPD	
	Site type	■ Single site	☐ Multiple sites		
	Value	☐ Specific	■ Average	☐ Representative	☐ Worst case
Geographical coverage		Japan			
Description of representativeness for multiple-products/sites EPD		This is a single-site group product EPD. The activity data for each item required to produce 1 kg of aluminum extruded profiles are aggregated and calculated with consideration of yield losses, and multiplied by IDEA emission factors. Within the same site, the types of raw materials, electricity, and fuels used are common. As this EPD is based on a cradle-to-gate approach, processes after shipment are excluded from the scope of calculation.			
Description of variation for multiple-products/sites EPD		Although mass differences arise in final products that use this EPD as an intermediate product (extruded profiles), this EPD is calculated on a mass basis per declared unit of the extruded profile.			
Description of products covered in the multiple products EPD		–			

＞LCA Information

Declared unit		kg	
Mass per declared unit (Conversion factor to mass)		1kg	
Reference flow (number of products required to fulfil the function)		Not applicable.	
System boundary		■ Cradle-to-Gate	☐ Cradle-to-Gate with options ☐ Cradle-to-Grave
LCA software		MiLCA ver.1.2.0.8	
LCI database		IDEA Ver.3.4	
Characterization model		GWP IPCC2021 with LULUCF 100a、LIME2	
Use of other background data		None	
Secondary data quality		The calculation was conducted using data that meet the secondary data quality requirements specified by GPI. Data quality assessment was carried out in accordance with ISO 14044:2006 (Environmental management - Life cycle assessment - Requirements and guidelines), Clause 4.2.3.6.	
Primary data collection sites		Chiba Plant (East Japan Business Office, Fuji Light Metal Co, Ltd.)	
Primary data collection period		2023/4/1～2024/3/31	
Biogenic carbon		■ 0/0 approach	☐ -1/+1 approach
Information about electricity	Use	■ Average consumption mix	☐ Others
	Type	–	
	Purchase date	–	
	Issuing body	–	

＞Modules

Production stage			Construction stage		Use stage							End-of-life stage				Suppl. info
					Use					Operation						
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction / Demolition	Transport to waste processing or disposal	Waste processing	Disposal of waste	Potential net benefits
■	■	■	–	–	–	–	–	–	–	–	–	–	–	–	–	–

■ : declared module　– : module not declared

＞Allocation

In this calculation, process subdivision and allocation were examined in accordance with the procedures described in the GPI. In this manufacturing process, extruded profiles for applications other than windows and sashes are also produced as co-products. As it is difficult to avoid allocation through process subdivision, and since the economic value of both products discharged from the process is equivalent, physical allocation was applied.

＞Cut-off rules

No cut-off was applied based on the cut-off criterion (less than 1% by mass).

＞System Boundary

Based on the PCR, the product was defined as aluminum extruded profiles (intermediate product). Specifically, the system boundary covers the material production stage (A1, A2, and A3). No processes other than those defined as outside the system boundary were excluded, and no processes outside the system boundary were included in the calculation. The temporal system boundary is 100 years.

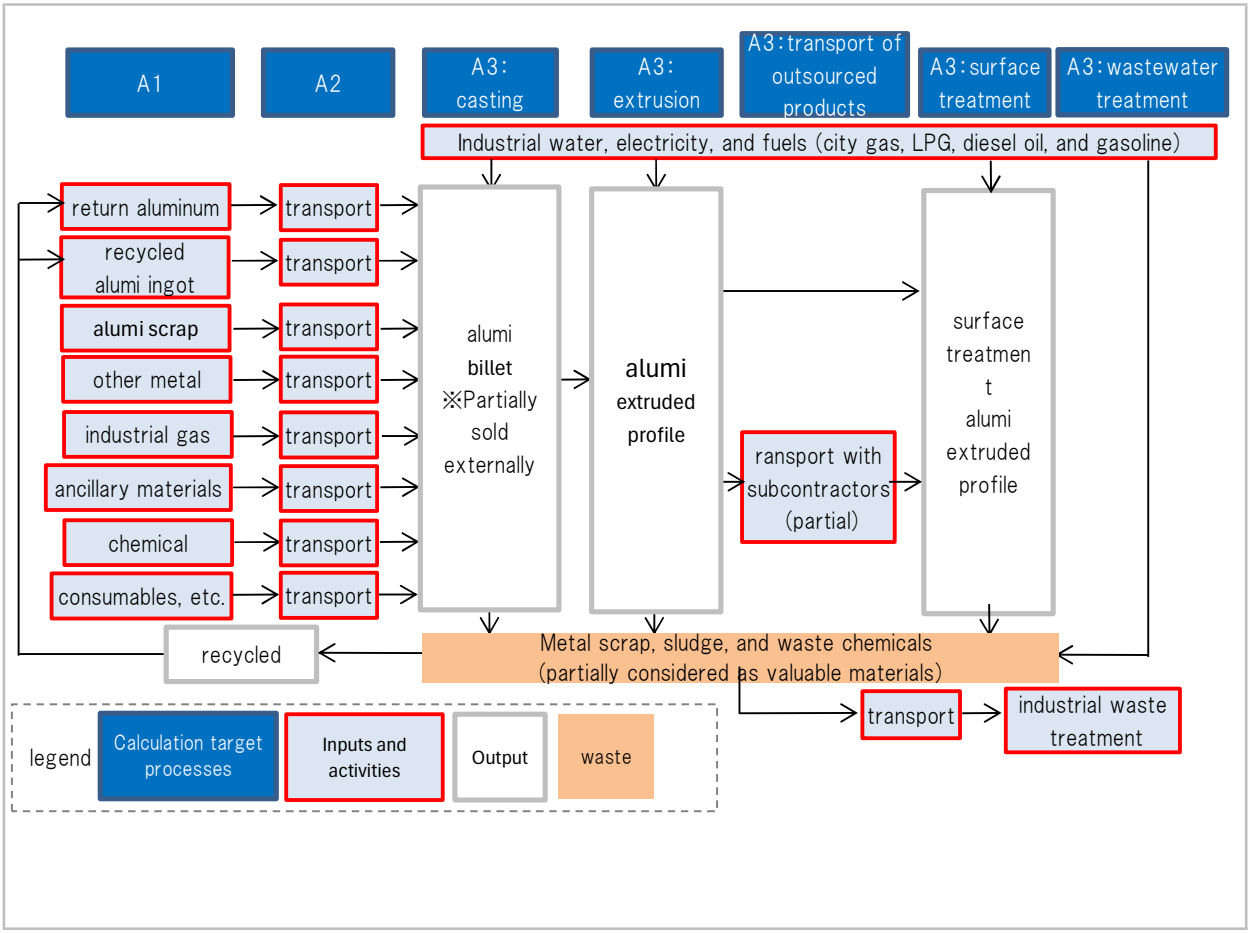
＞Scenario

Modules	Description
A2	Transport distances were determined using the scenarios specified in the PCR and values calculated based on Google Maps. In addition, the scenarios defined in the PCR were applied for the end-of-life stage.

＞Electricity Modelling

For all life cycle stages considered, calculations were performed using data for the Japanese average grid electricity mix for the year 2021.

＞Life Cycle Sytem Diagram



●LCA Result

＞LCIA Indicators

		Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
								Use					Operation						
		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP - total	kg-CO_2eq	7.98E-01	3.53E-02	2.09E+00	2.92E+00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWP - fossil	kg-CO_2eq	7.98E-01	3.53E-02	2.08E+00	2.92E+00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWP - biogenic	kg-CO_2eq	1.58E-04	6.73E-06	2.97E-04	4.62E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWP - land use and land use change	kg-CO_2eq	4.87E-04	3.67E-05	2.06E-03	2.59E-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ODP: Ozone depletion potential	kg-CFC-11eq	2.54E-08	1.56E-12	8.75E-07	9.01E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EP: Eutrophication potential	kg-PO_4^{3-}eq	1.59E-04	1.67E-10	1.63E-07	1.59E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AP: Acidification potential	kg-SO_2eq	7.49E-04	5.14E-05	1.57E-03	2.37E-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POCP: Photochemical oxidant creation potential	kg-C_2H_4eq	7.93E-06	3.62E-07	2.26E-05	3.09E-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Optional indicators																			
ADP - elements	kg-Sbeq	4.32E-05	1.46E-10	6.50E-06	4.97E-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWP - aircraft	kg-CO_2eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	-	-	-	-	-	-	-	-	-	-	-	-	-

＞LCI - Primary Resource Use

		Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
								Use					Operation						
		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPR_E*	MJ	5.78E-01	2.02E-04	1.24E+01	1.30E+01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPR_M*	MJ	3.52E-03	3.32E-07	2.33E-04	3.75E-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
$NRPR_E$*	MJ	9.59E+00	3.87E-01	4.90E+01	5.89E+01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
$NRPR_M$*	MJ	9.11E-01	1.29E-06	1.54E-02	9.26E-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*RPRE: Renewable primary resources used as an energy carrier, RPRM: Renewable primary resources with energy content used as material, NRPRE: Non-renewable primary resources used as an energy carrier, NRPRM: Non-renewable primary resources with energy content used as material.

＞LCI- Secondary Resources Use

		Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
								Use					Operation						
		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
SM： Use of secondary material	kg	1.65E+00	1.44E-07	1.61E-03	1.65E+00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF： Renewable secondary fuels	MJ	7.34E-04	9.41E-08	1.60E-04	8.94E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NRSF： Non-renewable secondary fuels	MJ	1.67E-03	5.79E-07	3.94E-04	2.06E-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RE： Use of recovered energy	MJ	2.34E-03	9.75E-07	6.53E-02	6.77E-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-

＞LCI - ADP-fossil and Consumption of freshwater

		Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
								Use					Operation						
		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP - fossil	MJ	1.16E+01	4.78E-01	3.21E+01	4.42E+01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consumption of freshwater resources	m^3	4.77E-03	1.00E-06	5.44E-04	5.31E-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-

＞Waste Indicators

		Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
								Use					Operation						
		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
hazardous waste disposed	kg	0.00E+00	0.00E+00	6.92E-04	6.92E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
non-hazardous waste disposed	kg	4.69E-03	3.15E-05	6.81E-03	1.15E-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
high-level radioactive waste	㎥	3.44E-12	1.28E-15	7.60E-11	7.95E-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
intmd. and low-level radioactive waste	㎥	1.44E-09	5.36E-13	3.18E-08	3.32E-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-

＞Output Flow Indicators

			Production stage				Construction stage		Use stage							End-of-life stage				Supple. info
									Use					Operation						
			A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for reuse		kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Materials for recycling		kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Material for energy recovery		kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exported energy from waste (energy recovery efficiency≧60%)		MJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Incineration of waste (energy recovery efficiency＜60%)	Waste disposed	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recovered energy	MJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waste disposed in landfill and energy recoved from landfill gas	Waste disposed	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recovered energy	MJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

＞Description of LCA Results

・Since this is a pre-sale product, the calculation was performed using the same data as that of a similar product for which an EPD has been obtained, in order to ensure data quality. Although the data collection period is FY2023, the same production technologies and equipment are used in FY2024, and production volumes and conditions are standardized; therefore, measured data for one year of production equivalent to FY2023 were used.
・No primary aluminum is used; only recycled ingots, return materials, and post-consumer aluminum are utilized.
・The EPD may be updated or withdrawn if circumstances change. To confirm the latest version and validity of the EPD, please refer to the following: https://ecoleaf-label.jp/epd/

●Additional Environmental Information

＞Additional Environmental Information not related to LCA

The product is manufactured at a factory certified to ISO 14001.

＞Information on Hazardous Substances

Hazardous materials name	CAS No.	Standards or regulations
nickel sulfate	7786-81-4	Priority Assessment Chemical Substances (The Chemical Substances Control Law): Used in surface treatment processes at the plant
Boric acid	10043-35-3	Class I designated chemical substances (PRTR): Used in surface treatment processes at the plant

Release of dangerous substances from construction products
No release of hazardous substances is expected from the aluminum extruded profiles.

●Definitions of Terms

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●References

・ISO14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures
・ISO14040:2006 Environmental management - Life Cycle Assessment - Principles and framework
・ISO14044:2006 Environmental management - Life Cycle Assessment - Requirements and guidelines
・ISO21930:2007 Sustainability in building construction — Environmental declaration of building products
・ISO14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification