SuMPO EPD JAPAN VERIFIED

SuMPO EPD Japan

Third party verified

Environmental Product Declaration

In conformance with

ISO14025 | ISO14040 | ISO14044

LIXIL

LIXIL Corporation

PremiAL

Registration number	Verification date	Publication date	Expiration date	EPD type
SuMPO-EPD-2508-1-1	8/8/2025	9/17/2025	8/7/2030	Multiple Products EPD

* First publication date

Additional standards in conformance

ISO21930:2017

EPD can be updated or withdrawn during the validity period.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 PremiAL

●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.2.0.1
PCR name	Core PCR for Construction products
PCR registration number	SuMPO-PCR-01000-2-0-0
PCR publication date	3/31/ 2025
PCR review panel chair	Toshiharu Ikaga
PCR valid until	3/30/ 2030
PCR issuer	Sustainable Management Promotion Organization (SuMPO)

＞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
Verifier	Tomoko Fuchigami（EFPRO LLC.）		

＞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.	Environmental Promotion, Corporate Environmental Management, LIXIL Corporation
Address	Osaki Garden Tower, 1-1-1, Nishi-Shinagawa, Shinagawa-ku, Tokyo, 141-0033, Japan
Contact	+81 50-1780-0956
LCA practitioner	Naoto Imaizumi, Sustainability Planning Promotion Dept. , LHT, LIXIL Corporation
Company description	LIXIL makes every home a reality for everyone, everywhere. We develop and provide innovative and essential water and housing products that solve every day, real-life challenges. Our portfolio includes advanced water products such as toilets, bathrooms, and kitchens, as well as housing products like windows, doors, interiors, and exteriors.

●Product Information

Product name		PremiAL		
Product /model number		Aluminum extruded shapes（intermediate products）		
Product sepcification	Function	Aluminum extruded shapes		
	Mass	1kg	Conversion factor	
	Applications	Aluminum products for building materials and construction products (e.g., residential and commercial sashes, exterior products, industrial components).		
	TS*	Aluminum extruded shapes compliant with the JIS A6063 and 6000 series standards.		
Service life	Service life	Conforms to the service life of the building or structure.		
	In-use conditions	Conforms to the service life of the building or structure.		
	reference	–		
Manufacturing site(s)		Shimotsuma Factory, Oyabe Factory, Ariake Factory, Thailand Factory, Vietnam Factory		
Product description		All aluminum extruded shapes, excluding PremiAL R70 (JR-AD-22001E-A) and PremiAL R100 (JR-AD-23001E-A).		
Website		https://www.lixil.co.jp/lineup/s/premial/		
		https://newsroom.lixil.com/2025091701		

* TS: technical specifications,

●Product Content

Product components	Propotion (%)	Mass (unit)	
Aluminum	98.7	0.99	kg
Magnesium	0.7	0.01	kg
Silicon	0.5	0.01	kg
Nickel	0.1	0.00	kg
Packaging materials	Propotion (%)	Mass (unit)	

●Biogenic Carbon Content

Item	Content (kg-C)	Content (kg-CO_2 eq)
Biogenic carbon content per product	0.00	0.00
Biogenic carbon content in packaging	0.00	0.00

●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, Thailand, Vietnam			
Description of representativeness for multiple-products/sites EPD		The five factories producing aluminum extruded shapes employ substantially equivalent production processes, and the activity data for each item required to produce 1 kg of aluminum extruded shapes is calculated considering the production yield, and multiplied by the IDEA coefficients. For electricity, data from the respective grid mixes of Japan, Thailand, and Vietnam are used. Additionally, since this EPD is cradle-to-gate, transportation after shipment is excluded from the calculation scope.			
Description of variation for multiple-products/sites EPD		Data is collected from all five sites that manufacture aluminum extruded shapes.			
Description of products covered in the multiple products EPD		–			

＞LCA Information

Functional unit		kg		
Mass per declared unit (Conversion factor to mass)		1kg		
Reference flow (number of products required to fulfil the function)		–		
System boundary		■ Cradle-to-Gate	☐ Cradle-to-Gate with options	☐ Cradle-to-Grave
LCA software		MiLCA ver1.1.1.5		
LCI database		IDEA v3.4		
Characterization model		GWP IPCC2021 with LULUCF 100a、 LIME2		
Use of other background data		–		
Secondary data quality		The calculation was performed using data that meets the secondary data quality requirements specified in the GPI (General Programme Instructions). Furthermore, the data quality assessment was conducted in accordance with Clause 4.2.3.6 of ISO 14044: 2006 (Environmental management — Life cycle assessment — Requirements and guidelines).		
Primary data collection sites		Shimotsuma Factory, Oyabe Factory, Ariake Factory, Thailand Factory, Vietnam Factory		
Primary data collection period		4/1/2024～3/31/2025		
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, the sub-division of processes and allocation were investigated according to the procedures described in the GPI. As a result, since the aluminum extruded shapes manufacturing processes are all identical, allocation is not implemented.

＞Cut-off rules

Processes with negligible environmental impact and difficulty in data collection were cut off, utilizing the 5% cut-off criteria specified in the PCR.

＞System Boundary

The boundary was set based on the PCR (Product Category Rules). Modules A4 through D, which are defined as processes outside the boundary in the GPI (General Programme Instructions) and PCR, are excluded from the system boundary. The temporal system boundary is 100 years.

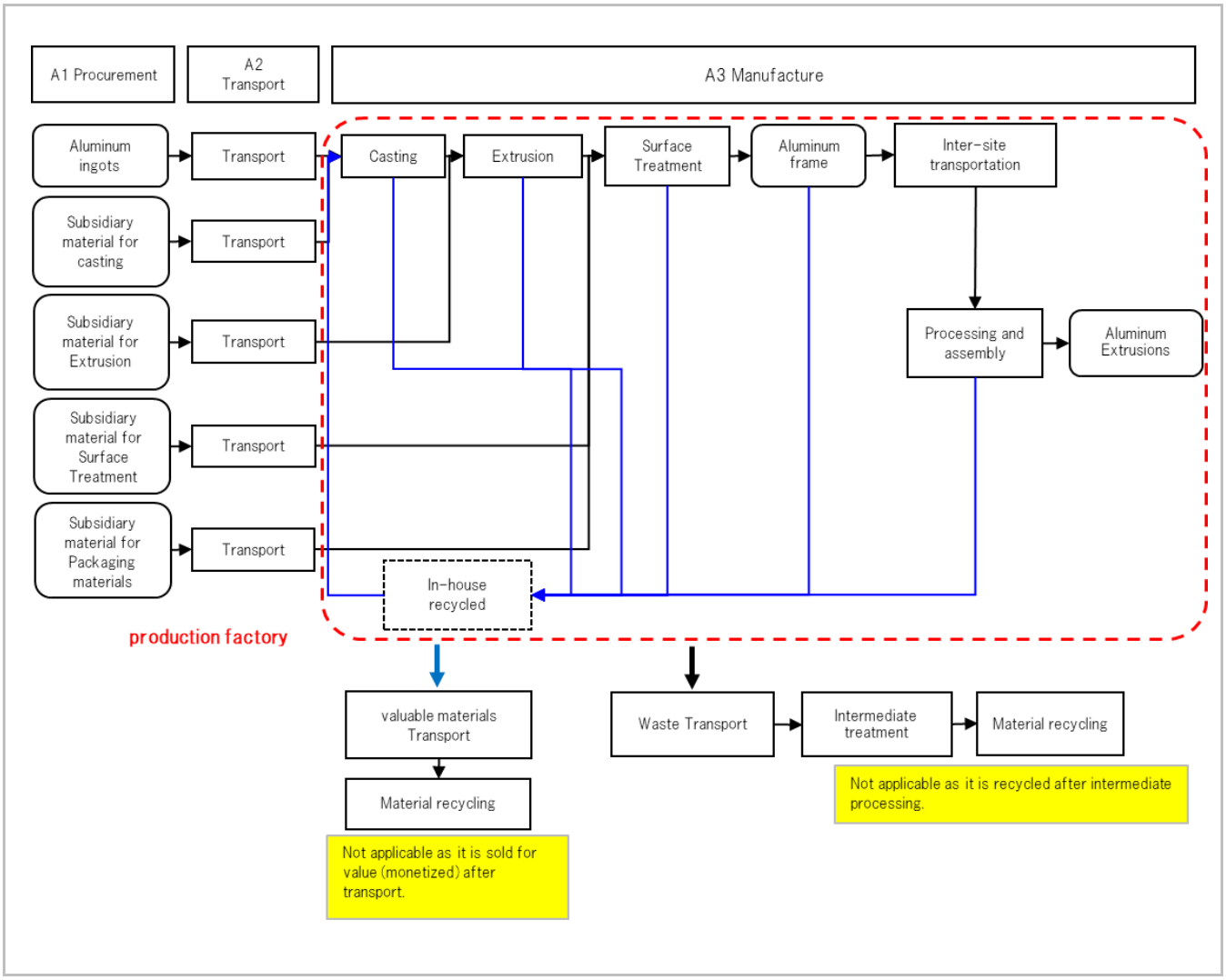
＞Scenario

Modules	Description
A2	Calculation is performed using primary data for the transport distance of the main raw material, aluminum. Others are based on the Annex B Transport Scenarios of the Core-PCR for "Construction Products and Construction Services." The scenario assumes that aluminum ingots and alloying materials are imported from overseas and transported to each factory.
A3	Site-to-site transportation is calculated using primary data for the transport distance. For sea transport distances between Thailand/Vietnam and Japan, SEARATE distances are used (Thailand to Japan: 5,420.8 km, Vietnam to Japan: 4,475.19 km). For overseas land transport, 46.0 km from map software is used, and for domestic (Japan) land transport, 78.3 km is used. Others are based on the Annex B Transport Scenarios of the Core-PCR for "Construction Products and Construction Services."

＞Electricity Modelling

Data on the average Japanese, Thai, and Vietnamese grid mixes in 2021 were used for the calculation of electricity used at the respective factories.

＞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	4.89E+00	3.01E-02	2.16E+00	7.07E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
GWP - fossil	kg-CO_2eq	4.88E+00	3.01E-02	2.15E+00	7.06E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
GWP - biogenic	kg-CO_2eq	1.82E-03	5.77E-06	1.35E-03	3.17E-03	–	–	–	–	–	–	–	–	–	–	–	–	–	–
GWP - land use and land use change	kg-CO_2eq	7.54E-03	3.11E-05	1.69E-03	9.27E-03	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ODP: Ozone depletion potential	kg-CFC-11eq	1.21E-07	1.33E-12	4.07E-08	1.61E-07	–	–	–	–	–	–	–	–	–	–	–	–	–	–
EP: Eutrophication potential	kg-PO_4^3-eq	1.38E-05	1.42E-10	5.57E-07	1.44E-05	–	–	–	–	–	–	–	–	–	–	–	–	–	–
AP: Acidification potential	kg-SO_2eq	2.32E-02	4.28E-05	4.32E-03	2.76E-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
POCP: Photochemical oxidant creation potential	kg-C_2H_4eq	1.27E-05	2.87E-07	1.27E-05	2.57E-05	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Optional indicators																			
ADP - elements	kg-Sbeq	7.83E-05	1.25E-10	6.02E-06	8.43E-05	–	–	–	–	–	–	–	–	–	–	–	–	–	–
GWP - aircraft	kg-CO_2eq	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

＞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	3.18E+01	1.73E-04	9.45E+00	4.13E+01	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RPR_M*	MJ	6.60E-02	2.83E-07	1.32E-03	6.73E-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$NRPR_E$*	MJ	9.94E+01	3.30E-01	3.75E+01	1.37E+02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$NRPR_M$*	MJ	1.86E-01	1.11E-06	5.06E-02	2.37E-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	5.73E-01	1.23E-07	1.45E-03	5.74E-01	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RSF： Renewable secondary fuels	MJ	1.45E-02	8.05E-08	9.26E-04	1.54E-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
NRSF： Non-renewable secondary fuels	MJ	6.21E-03	4.96E-07	4.76E-04	6.68E-03	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RE： Use of recovered energy	MJ	1.37E-02	8.36E-07	3.10E-02	4.47E-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	6.17E+01	4.08E-01	3.35E+01	9.56E+01	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Consumption of freshwater resources	m^3	1.49E-02	8.52E-07	9.23E-04	1.58E-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–

＞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	1.52E-02	1.52E-02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
non-hazardous waste disposed	kg	6.00E-01	2.70E-05	7.04E-03	6.07E-01	–	–	–	–	–	–	–	–	–	–	–	–	–	–
high-level radioactive waste	㎥	1.59E-10	1.10E-15	3.65E-11	1.95E-10	–	–	–	–	–	–	–	–	–	–	–	–	–	–
intmd. and low-level radioactive waste	㎥	6.64E-08	4.59E-13	1.53E-08	8.17E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Materials for recycling		kg	0.00E+00	0.00E+00	1.89E-01	1.89E-01	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Material for energy recovery		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Exported energy from waste (energy recovery efficiency≧60%)		MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Incineration of waste (energy recovery efficiency＜60%)	Waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Recovered energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Waste disposed in landfill and energy recoved from landfill gas	Waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Recovered energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	–	–	–	–	–	–	–	–	–	–	–	–	–	–

＞Description of LCA Results

・Transport Scenario Summary: Transport between countries is calculated using actual distance data, while all other transport is calculated according to the PCR scenario.
・Note on EPD Validity: The EPD may be updated or its publication discontinued if circumstances change. To confirm the latest version and validity of this EPD, please check the following URL: https://ecoleaf-label.jp/epd

●Additional Environmental Information

＞Additional Environmental Information not related to LCA

Produced in factories certified under ISO 14001.

＞Information on Hazardous Substances

Hazardous materials name	CAS No.	Standards or regulations
Nickel sulfate	7786-81-4	Chemical Substances Control Law (CSCL)＜Priority Assessment Chemical Substance＞：Used in factory
Boric acid	10043-35-3	Pollutant Release and Transfer Register Law (PRTR Law)＜Class I Designated Chemical Substance＞：Used in

Release of dangerous substances from construction products
The release of dangerous substances from aluminum extruded shapes is not anticipated.

●Definitions of Terms

●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
・ISO21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services

●Version History