Environmental Product Declaration

STANLEY® Access Technologies
Magic Access Automatic Swing Operators

STANLEY® Access Technologies

VERIFIED by SCS GLOBAL SERVICES ENVIRONMENTAL PRODUCT DECLARATION BASED ON LCA

Declaration Owner
STANLEY Access Technologies LLC
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Product

Magic Access Automatic Swing Operators

Functional Unit

1 square meter of door opening maintained and operated for 10 years.

Scope

The scope of this EPD is Cradle-to-Gate with Scenarios

EPD Number and Period of Validity

SCS-EPD-04775
EPD Valid December 15, 2017 through December 14, 2022
Version: November 28, 2018

Product Category Rule

Product Category Rule for Preparing an Environmental Product Declaration for Power-Operated Pedestrian and Revolving Doors. UNCPC 4212. ASTM International. September 2016.

Program Operator

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Disclaimers: *This Environmental Product Declaration (EPD) conforms to ISO 14025, 14040, ISO 14044, and ISO 21930.*

Scope of Results Reported: *The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.*

Accuracy of Results: *Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.*

Comparability: *The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.*

Only EPDs prepared from cradle-to-grave life-cycle-assessment results and based on the same function, quantified by the same functional unit, and meeting all the conditions in ISO 14025, Section 6.7.2 can be used to assist purchasers and users in making informed comparisons between products.

PCR review, was conducted by	Tom Gloria, Ph.D., Industrial Ecology Consultants (Chair)	
Approved Date: December 15, 2017 – End Date: December 14, 2022		
Independent verification of the declaration and data, according to ISO 14025:2006 and ISO 21930:2007	☐ internal	☑ external
Third party verifier	[signature] Tom Gloria, Ph.D., Industrial Ecology Consultants	

ABOUT STANLEY® Access Technologies

STANLEY® Access Technologies is committed to being an industry leader in door automation through exceptional service, high quality product innovation, and lowest total cost of ownership. For over 80 years, we have been designing, building, installing and servicing manual and automatic sliding, swinging, revolving and folding doors as well as sensors and controls.

Everywhere you go, you can find our trusted products throughout a wide variety of commercial, institutional, industrial and transportation applications.

Headquartered in Farmington, CT, STANLEY® Access Technologies is the largest manufacturer, installer and service provider of automatic doors in North America.

PRODUCT DESCRIPTION

The STANLEY Access Magic Access Automatic Swing Operators are manufactured in an ISO 9001 certified facility in Farmington, Connecticut.

The STANLEY Magic Access is a versatile electromechanical swing door operator that can be used in Low Energy swing door applications where the operator is surface mounted. The controller provides power to the operator and controls all the inputs from activation and safety sensors as well as door functions. The closing speed is controlled by employing the motor as a dynamic break. The closing spring is preloaded for positive closing action so the door will close with or without power. The Magic-Access is UL listed as a fire door operator and can be used in push or pull applications with doors weighing up to 125 lbs.

PRODUCT SPECIFICATION

Table 1. *Product specifications for the STANLEY Magic Access Automatic Swing Operators.*

Parameter	Value
Header Size	6 1/8" (152 mm) High x 4" (102 mm) deep
Swing Door Panels	Up to 42" (1,067 mm)
Door Panel Weight	Up to 125 pounds (57 kg)
Drive System	1/8 HP DC Motor, Gear Drive, "Low-energy"
Controller	Solid State, Electronic, with Built in "Reverse-on-obstruction" Magic-Touch® Activation
Activation Sensor Options	Mats, Motion Detectors, Radio Controls or Touch-less wave sensors
Breakout	Breakaway Door Stop Available
Power Required	120 VAC, 5 Amps Minimum

MATERIAL RESOURCES

The material composition and availability of raw material resources of the Magic Access Automatic Swing Operators are shown in Table 2. Information on product packaging is shown in Table 3.

Table 2. *Material composition of* the *STANLEY Access Magic Access Swing Operators.*

Component	Material	Availability				Magic Access	
		Renewable	Non-Renewable	Recycled (% pre-/post-consumer)	Origin of Materials	(kg/m²)	(%)
Recycled Aluminum	Aluminum	Mineral, Abundant		30%/40%	North America	0.76	9.6%
Aluminum	Aluminum	Mineral, Abundant		0%	Global	4.3	54%
Steel	Steel	Mineral, Abundant		0%	Global	2.6	33%
Plastic	Plastic		Fossil, Limited	0%	Global	3.9×10^{-2}	0.48%
Electronic Components	Steel, Plastic,	Mineral, Abundant	Fossil, Limited	0%	Global	0.25	3.1%
Total						**8.0**	**100%**

Table 3. *Material composition of packaging for the STANLEY Access Magic Access Swing Operators.*

Component	Material	Availability				Magic Access	
		Renewable	Non-Renewable	Recycled (% pre-/post-consumer)	Origin of Materials	(kg/m²)	(%)
Styrofoam	Polystyrene		Fossil, Limited	0%	Global	0.12	19%
Cardboard	Corrugated	Abundant		0%	Global	0.51	81%
Plastic Wrap	Plastic		Fossil, Limited	0%	Global	-	-
Total						**0.62**	**100%**

ADDITIONAL ENVIRONMENTAL INFORMATION

STANLEY® Access Technologies is the only automatic door manufacturer with two US manufacturing facilities; Indianapolis, IN and Farmington, CT.

Stanley's Refurbish Equipment Program means no dumpsters required and no landfills used; oil and grease is recycled.

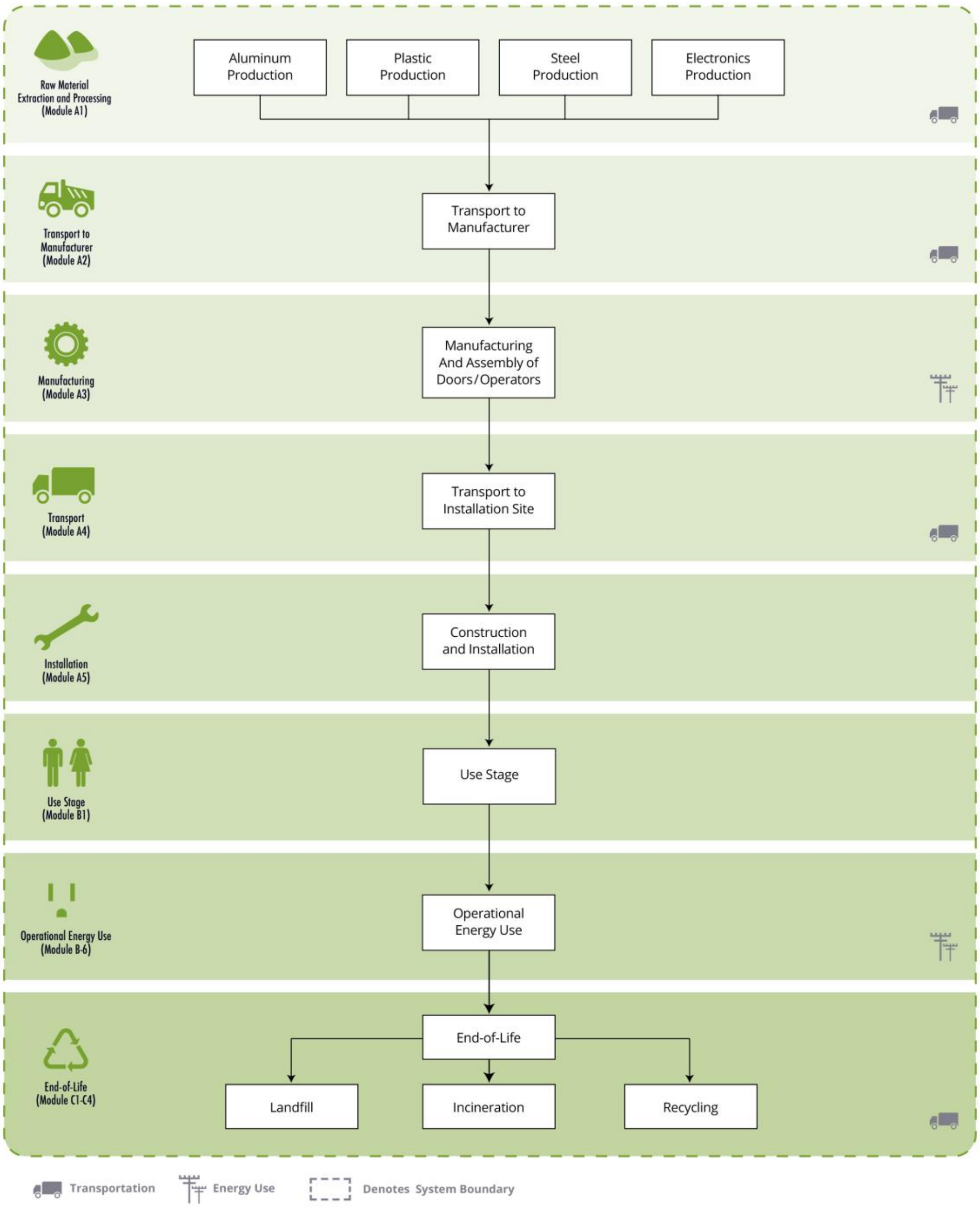
Our Plant Recycling Program recycles oil and grease, cardboard, white paper and scrap aluminum and steel.

In 2017, STANLEY® Access Technologies' Farmington factory installed a combustion-free Bloom Energy Server for clean energy. This server will deliver enhanced sustainability benefits including high efficiency greenhouse gas emissions, avoid air pollutants and significantly reduce water use.

Our aluminum vendors are ISO 14001 and ISO 50001 certified to control their energy usage and environmental impacts.

PROCESS FLOW DIAGRAM

The diagram below is a representation of the most significant contributions to the life cycle of the STANLEY Access Magic Access Automatic Swing Operators. The following life cycle stages are included: production (Modules A1-A3); construction & installation (Module A4-A5); product use (Modules B1. B6, and B7); and end-of-life (Modules C1-C4).



LIFE CYCLE ASSESSMENT OVERVIEW

The system boundary is cradle-to-gate with options and includes resource extraction and processing, product manufacture and assembly, distribution/transport, use, and end-of-life. The diagram below illustrates the life cycle stages included in this EPD.

Product			Construction Process		Use							End-of-Life			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Raw Material Extraction and Processing	Transport to the Manufacturer	Manufacturing	Transport	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal
X	X	X	X	X	X	MND	MND	MND	MND	X	X	X	X	X	X

X = Included;
MND = Module Not Declared

The following provides a brief overview of the Modules included in the product system for the STANLEY Access Magic Access Automatic Swing Operators.

Module A1: Raw material extraction and processing

This module includes the potential environmental impacts associated with the extraction and processing of raw materials for various component parts in the door products. The primary components are fabricated of aluminum and steel. The impacts from fabrication processes were based on representative datasets for metal product manufacturing.

Module A2: Transportation

This module includes transportation of processed raw materials and product components to the STANLEY manufacturing facilities in Connecticut.

Module A3: Manufacture of the Door Products

This stage includes all the relevant manufacturing processes and flows, including the impacts from energy use and emissions at the facility. Production of capital goods, infrastructure, manufacturing equipment, and personnel-related activities are not included. This stage also includes the production and disposal (including transport) of the product packaging materials.

Module A4: Transportation & Delivery to the Installation Site

This module includes the impacts associated with delivery of door product to the installation site.

Module A5: Construction & Installation

This module includes installation of the products.

Module B1: Normal use of the product

This module includes environmental impacts arising through normal anticipated use of the product. Energy use is accounted for in Module B6: Operational Energy Use.

Module B2: Maintenance

This module considers the impacts associated with cleaning and maintenance of the product over the product Reference Service Life (RSL).
Module Not Declared.

Module B3: Repair

This module includes any anticipated repair events during the reference service life of the automatic doors.
Module Not Declared.

Module B4-B5: Replacement and Refurbishment

These modules include anticipated replacement or refurbishment events during the reference service life associated with replacing a whole product (Module B4) and restoration of parts to a condition in which the products can perform its required function (Module B5).
Modules Not Declared.

Module B6: Operational Energy Use

This module includes the primary energy consumption (electricity) associated with the operational use of these products. Operational energy use is estimated by the manufacturer as 37 kWh/yr based on the power rating of the product and assumed frequency of use.

Module B7: Operational Water Use

No water use occurs during the operation of the product and impacts are zero.

Module C1-C4: End-of-Life

The end-of-life stage of the product starts when it is replaced, dismantled or deconstructed from the building. Impacts for deconstruction and dismantling processes were not modeled in the LCA as it is a manual process with hand tools, and does not require any energy input for removal of the product. The impacts associated with transportation of waste materials to processing facilities, waste processing of material components and waste disposal of the product are included in these modules.

LIFE CYCLE IMPACT ASSESSMENT

Impact category indicators are calculated using the TRACI 2.1 and CML-IA characterization methods. TRACI 2.1 impact category indicators include global warming potential (100 years), acidification potential, smog potential, ozone depletion potential, and eutrophication potential. CML-IA impact category indicators include global warming potential (100 years), acidification potential, eutrophication potential, Photochemical Ozone Creation potential, ozone depletion potential, and abiotic resource depletion, in accordance with the PCR. The LCIA results are calculated using SimaPro 8.3 software. The results for these indicators are shown in Table 4.

Table 4. *Results for 10 years of use of the STANLEY Access Magic Access Automatic Swing Operators.*

Impact Category	Total	Production			Construction & Installation	Use	End-of-Life
		A1	A2	A3	A4-A5	B1, B6, B7	C1-C4
TRACI Impact Indicators							
Global Warming Potential ($kg\ CO_2\ eq$)	190	75	1.6	3.8	4.6	100	0.36
	100%	40%	0.86%	2.0%	2.5%	54%	0.19%
Acidification Potential ($kg\ SO_2\ eq$)	0.85	0.43	7.4×10^{-3}	1.9×10^{-2}	2.1×10^{-2}	0.38	1.6×10^{-3}
	100%	50%	0.87%	2.2%	2.5%	44%	0.19%
Eutrophication Potential (kg N eq)	1.4	0.58	1.8×10^{-3}	8.9×10^{-3}	5.2×10^{-3}	0.82	2.3×10^{-3}
	100%	41%	0.13%	0.63%	0.36%	58%	0.17%
Smog Potential ($kg\ O_3\ eq$)	7.0	3.6	0.18	8.1×10^{-2}	0.50	2.6	2.7×10^{-2}
	100%	51%	2.5%	1.2%	7.2%	37%	0.39%
Ozone Depletion Potential (kg CFC-11 eq)	1.3×10^{-5}	3.2×10^{-6}	3.0×10^{-7}	2.4×10^{-7}	8.6×10^{-7}	8.4×10^{-6}	3.5×10^{-8}
	100%	24%	2.3%	1.8%	6.6%	65%	0.27%
CML Impact Indicators							
Global Warming Potential ($kg\ CO_2\ eq$)	190	76	1.6	4.0	4.7	100	0.39
	100%	40%	0.86%	2.1%	2.5%	54%	0.20%
Acidification Potential ($kg\ SO_2\ eq$)	0.88	0.43	6.5×10^{-3}	2.1×10^{-2}	1.9×10^{-2}	0.40	1.3×10^{-3}
	100%	49%	0.74%	2.4%	2.1%	46%	0.15%
Eutrophication Potential ($kg\ PO_4^{3-}\ eq$)	0.63	0.26	1.5×10^{-3}	3.9×10^{-3}	4.2×10^{-3}	0.36	1.0×10^{-3}
	100%	41%	0.23%	0.61%	0.66%	57%	0.16%
Photochemical Ozone Creation Potential ($kg\ C_2H_4\ eq$)	4.9×10^{-2}	2.9×10^{-2}	2.8×10^{-4}	1.3×10^{-3}	7.9×10^{-4}	1.8×10^{-2}	1.0×10^{-4}
	100%	59%	0.56%	2.6%	1.6%	36%	0.21%
Ozone Depletion Potential (kg CFC-11 eq)	1.3×10^{-5}	3.2×10^{-6}	3.0×10^{-7}	2.4×10^{-7}	8.6×10^{-7}	8.5×10^{-6}	3.5×10^{-8}
	100%	24%	2.3%	1.8%	6.6%	65%	0.27%
Abiotic Depletion Potential, Elements (kg sb eq)	2.8×10^{-3}	2.8×10^{-3}	4.8×10^{-6}	1.7×10^{-6}	1.4×10^{-5}	3.0×10^{-5}	2.8×10^{-7}
	100%	98%	0.17%	0.06%	0.49%	1.1%	0.01%
Abiotic Depletion Potential, Fossil Fuels (MJ eq)	2,100	740	26	56	74	1,200	3.5
	100%	35%	1.2%	2.7%	3.5%	57%	0.16%

ADDITIONAL ENVIRONMENTAL PARAMETERS

ISO 21930 requires that several parameters be reported in the EPD, including resource use, waste categories and output flows, and other environmental information. The results for these parameters are shown in Table 5.

Table 5. *Results for 10 years of use of the STANLEY door product by module. Results representing energy flows are calculated using lower heating (i.e., net calorific) values.*

Impact Category	Total	Production			Construction & Installation	Use	End-of-Life
		A1	A2	A3	A4-A5	B1, B6, B7	C1-C4
Energy Resource Consumption							
Non-renewable (MJ)	2,700	800	26	80	76	1,700	4.2
	100%	30%	0.99%	3.0%	2.8%	63%	0.16%
Non-renewable - nuclear (MJ)	530	53	0.42	23	1.2	450	0.73
	100%	10%	0.08%	4.4%	0.23%	85%	0.14%
Renewable (MJ)	210	120	0.32	4.6	0.91	89	0.33
	100%	56%	0.15%	2.2%	0.42%	41%	0.15%
Renewable - biomass (MJ)	33	17	0.13	4.3	0.38	11	0.13
	100%	51%	0.41%	13%	1.2%	34%	0.38%
Material Resource Consumption							
Non-renewable (kg)	INA	INA	INA	INA	INA	INA	INA
	INA	INA	INA	INA	INA	INA	INA
Renewable (kg)	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
Water (m^3)	11	3.4	1.8×10^{-2}	6.9×10^{-2}	5.2×10^{-2}	7.3	1.3×10^{-2}
	100%	31%	0.17%	0.63%	0.48%	67%	0.12%
Waste Flows							
Hazardous (kg)	6.2×10^{-3}	3.3×10^{-3}	1.5×10^{-5}	2.4×10^{-5}	4.2×10^{-5}	2.9×10^{-3}	3.3×10^{-6}
	100%	53%	0.24%	0.38%	0.68%	46%	0.05%
Non-hazardous (kg)	25	11	1.2	0.79	3.3	3.4	5.6
	100%	43%	4.7%	3.2%	13%	14%	22%
Radioactive (kg)	9.4×10^{-3}	1.6×10^{-3}	1.7×10^{-4}	2.3×10^{-4}	4.9×10^{-4}	6.9×10^{-3}	2.6×10^{-5}
	100%	17%	1.8%	2.5%	5.2%	73%	0.27%

INA = Indicator not assessed

SUPPORTING TECHNICAL INFORMATION

Data Sources. *Data sources used for the LCA.*

Component	Material Dataset	Processing Dataset	Data Source	Publication Date
PRODUCT COMPONENT				
Recycled Aluminum	Aluminium, primary, ingot {IAI Area, North America, without Quebec} | aluminium production, primary, ingot | Alloc Rec	Metal working, average for steel product manufacturing {GLO}| market for | Alloc Rec	EI v3.3; EI v3.3	2016; 2016
	Aluminium scrap, new {GLO} | aluminium scrap, new, Recycled Content cut-off | Alloc Rec		EI v3.3	2016
	Aluminium scrap, post-consumer {GLO} | aluminium scrap, post-consumer, Recycled Content cut-off | Alloc Rec		EI v3.3	2016
Aluminum	Aluminium, primary, ingot {IAI Area, North America, without Quebec}| aluminium production, primary, ingot | Alloc Rec	Sheet rolling, aluminium {GLO}| market for | Alloc Rec;	EI v3.3; EI v3.3	2016; 2016
		Metal working, average for aluminium product manufacturing {GLO}| market for | Alloc Rec	EI v3.3	2016
Steel	Steel, low-alloyed {GLO}| market for | Alloc Rec	Sheet rolling, steel {GLO}| market for | Alloc Rec;	EI v3.3; EI v3.3	2016; 2016
		Metal working, average for steel product manufacturing {GLO}| market for | Alloc Rec	EI v3.3	2016
Plastic	Nylon 6 {GLO}| market for | Alloc Rec;	Injection moulding {GLO}| market for | Alloc Rec	EI v3.3; EI v3.3	2016; 2016
	Acrylonitrile-butadiene-styrene copolymer {GLO}| market for | Alloc Rec;		EI v3.3	2016
	Polyvinylchloride, emulsion polymerised {GLO}| market for | Alloc Rec;		EI v3.3	2016
	Synthetic rubber {GLO}| market for | Alloc Rec		EI v3.3	2016
Electronics	Electronics, for control units {GLO}| market for | Alloc Rec (46% steel (housing), 32% plastics, 14% printed wiring boards and 8% cables)	Included with material dataset	EI v3.3	2016
PACKAGING				
Styrofoam	Polystyrene, expandable {GLO}| market for | Alloc Rec	Included with material dataset	EI v3.3	2016
Cardboard	Corrugated board box {GLO}| market for corrugated board box | Alloc Rec	Included with material dataset	EI v3.3	2016
Plastic Wrap	Packaging film, low density polyethylene {GLO}| market for | Alloc Rec	Included with material dataset	EI v3.3	2016
TRANSPORTATION				
Road transport	Diesel Truck	Transport, freight, lorry 16-32 metric ton, EURO4 {GLO}| market for | Alloc Rec	EI v3.3	2016
Ship transport	Transoceanic Ship	Transport, freight, sea, transoceanic ship {GLO}| market for | Alloc Rec	EI v3.3	2016
RESOURCES				
Electricity	NEWE eGRID sub-region electricity grid	Electricity, medium voltage, at grid/NEWE	EI v2.2	2015
Electricity	US average electricity grid	Electricity, medium voltage, {US} | market for | Alloc Rec	EI v3.3	2016
Natural gas combustion	Natural gas	Heat, central or small-scale, natural gas {GLO} | market group for | Alloc Rec	EI v3.3	2016

Data Quality

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage Age of data and the minimum length of time over which data should be collected	The most recent available data are used, based on other considerations such as data quality and similarity to the actual operations. Typically, these data are less than 10 years old (typically 2016). All of the data used represented an average of at least one year's worth of data collection, and up to three years in some cases. Manufacturer-supplied data (primary data) are based on annualized production for 2016.
Geographical Coverage Geographical area from which data for unit processes should be collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data for the appropriate eGRID and Canadian electricity grid mixes. Surrogate data used in the assessment are representative of North American or global operations. Data representative of global operations are considered sufficiently similar to actual processes. Data representing product disposal are based on US statistics.
Technology Coverage Specific technology or technology mix	For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative datasets are used to represent the actual processes, as appropriate.
Precision Measure of the variability of the data values for each data expressed (e.g. variance)	Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one or more years and over multiple operations, which is expected to reduce the variability of results.
Completeness Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the door products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded. In total, these missing data represent less than 5% of the mass or energy flows.
Representativeness Qualitative assessment of the degree to which the data set reflects the true population of interest (i.e. geographical coverage, time period, and technology coverage)	Data used in the assessment represent typical or average processes as currently reported from multiple data sources, and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.
Consistency Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards Ecoinvent v3.3 data where available. Different portions of the product life cycle are equally considered; however, it must be noted that final disposition of the product is based on assumptions of current average practices in the United States.
Reproducibility Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.
Sources of the Data Description of all primary and secondary data sources	Data representing energy use at STANLEY's manufacturing facilities represent an annual average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI datasets, Ecoinvent v2.2 and v3.3 LCI data are used, with a bias towards Ecoinvent v3.3 data.

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