



Environmental Product Declaration

EFCO Storefront Windows



EFCO Series 403

This Environmental Product Declaration (EPD) was prepared in accordance with ISO 14025 and 21930 using the Earthsure Cradle to Gate Window Product Category Rule 30171600-2015. EPDs are not intended to make comparisons with other products due to varying background data in LCA softwares and/or varying program operator rules or Product Category Rules. An EPD is informational and does not warrant performance. Valid 22 May 2017 through 21 May 2022.

EFCO Corporation

EFCO is a leading manufacturer of architectural aluminum window, curtain wall, storefront and entrance systems for commercial architectural applications. Headquartered in Monett, Missouri, our mission is to be the most trusted supplier in commercial architecture. We seek to provide customers with the highest level of quality, innovation, value, and service.

LCA performed by Four Elements Consulting, LLC. EPD conformance with Earthsure PCR & ISO 14044 validated by LCA Certified Professional Rita Schenck. EPD and data were independently, externally, verified according ISO 14025. For more information contact anne@fourelementsllc.com or earthsure@iere.org.

Cradle-to-Gate Results Summary		
Declared unit: 1 m2		
Mass per m2: 34.5 kg		
Potential Environmental Impacts		
Global Climate Change	kg CO2 eq	150
Acidification	kg SO2 eq	0.94
Eutrophication	kg N eq	0.05
Ozone Depletion	kg CFC-11 eq	6.9E-06
Photochemical Smog Formation	kg O3 eq	8.5
Resources, Energy, & Waste		
Non-renewable Energy Resources	MJ HHV	1,800
Renewable Energy Resources	MJ HHV	430
Non-renewable Material Resources	kg	130
Renewable Material Resources	kg	1.6
Non-Hazardous Waste Production	kg	3.6
Hazardous Waste Production	kg	0
Freshwater Consumption	liter	150
Other Declarations		
Recyclable content: aluminum 38%, glass 56%		
Hazardous materials in >0.1% of window: none		

EFCO Storefront Windows

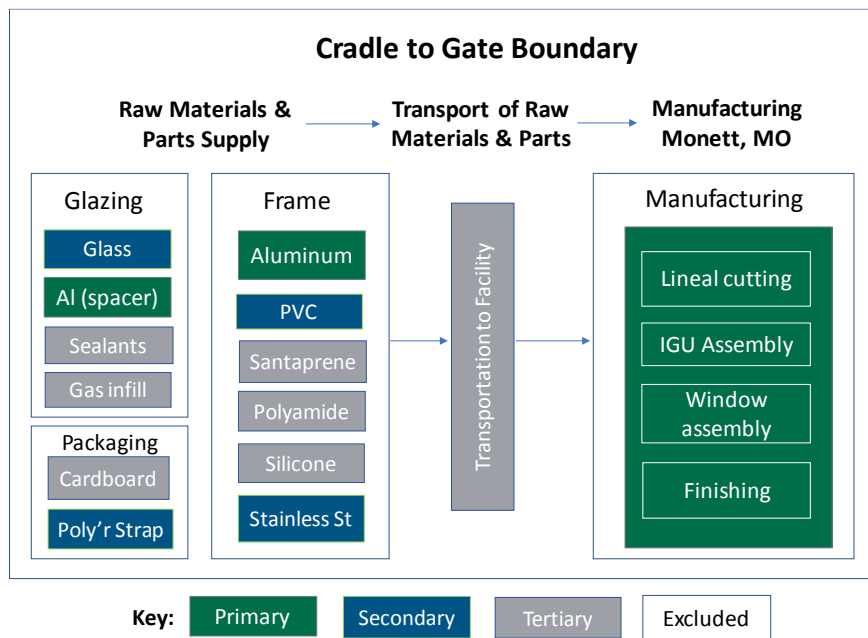


Economical and convenient, EFCO's storefront systems provide a quick, low-cost material and installation solution. Whether for retail, education, or other commercial low-rise applications, EFCO's storefront systems can be combined with entrance products for a holistic design solution.

EFCO storefront windows include the following product lines: Series 403, Series 403-I, Series

406, Series 433 Triple Set, Series 403X, Series 406X.

System Boundaries and Data



Capital equipment

Personnel impacts

Non-window components

Mat'ls to recycling

The LCA evaluated the cradle to gate of the window as required by the PCR. Primary data are 2015 from the Monett, MO, facility. Secondary and tertiary data come from the U.S. LCI and

EcoInvent databases. EcoInvent data are customized to U.S. conditions. The selection of these databases ensures a plausible set of generic and background data. Commercially-available SimaPro LCA software was used to model the window.



Contribution Analysis Results

1 m2 Storefront Window		Raw Materials Production	Transport to Plant	Manuf- acturing	Total
Impact Category	Units				
Global Climate Change	kg CO2 eq	90%	1.6%	7.9%	150
Acidification	kg SO2 eq	92%	1.8%	5.8%	0.94
Eutrophication	kg N eq	89%	1.9%	9.1%	0.05
Ozone Depletion	kg CFC-11 eq	80%	0%	20%	6.91E-06
Photochemical Smog Formation	kg O3 eq	89%	5.7%	5.0%	8.5
Inventory Result	Units				
Non-renewable Energy Resources	MJ HHV	87%	1.9%	11%	1,800
Renewable Energy Resources	MJ HHV	99%	0%	1.0%	430
Non-renewable Material Resources	kg	99%	0%	0.8%	130
Renewable Material Resources	kg	93%	0%	6.6%	1.6
Non-Hazardous Waste Production	kg	96%	0%	4.4%	3.6
Hazardous Waste Production	kg	n/a	n/a	n/a	0
Freshwater Consumption	liter	83%	0%	17%	150

May not add to 100% due to rounding. 0% means less than 0.1%

Performance Standards & Certifications

EFCO products are tested, certified and labeled for the following performance standards:

- AAMA/WDMA/CSA 101/IS2/A440 (NAFS-North American Fenestration Standard/Specification for windows, doors, and skylights)
- ASTM E283, AAMA 501 and NFRC 400 Air Leakage
- ASTM E331 and AAMA 501 Water Penetration
- ASTM E330 and AAMA 501 Static Structural Performance
- AAMA 1503, AAMA 507 and NFRC 100 Thermal Transmittance – U-Factors
- AAMA 1503, CSA A440.2 and NFRC 500 Condensation Resistance (CRF,I,CR)
- AAMA 507 and NFRC 200 Overall Solar Heat Gain Coefficient and Visible Transmittance (SHGC) & (VT)
- AAMA 1801, ASTM E90 and ASTM E1425 Sound Transmission (STC, OITC)



References

Earthsure. "Cradle to Gate Window Product Category Rule." September 2015, v.1.02. Earthsure PCR Cradle-to-Gate 30171600:2015.

ISO 14040:2006, The International Standard of the International Standardization Organization, Environmental management. Life cycle assessment. Principles and framework.

ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO 14025:2006, Environmental Labels and Declarations – Types III Environmental Declarations – Principles and Procedures.

ISO 21930-2007 Sustainability in building construction – Environmental declaration of building products.

Ecoinvent Centre, Ecoinvent data v2.2 (US-EI) (Dübendorf: Swiss Centre for Life Cycle Inventories), retrieved from SimaPro (2013 update).

National Renewable Energy Laboratory (NREL): U.S. Life-Cycle Inventory Database. 2005. Golden, CO. Found at: <http://www.nrel.gov/lci/database>.

PRé Consultants: SimaPro 8.0 LCA Software. 2013. The Netherlands.

Tool for the Reduction and Assessment of Chemical and other Environmental Impacts (TRACI) version 2.1 - User's Manual. Washington, D.C.: U.S. EPA.