



Environmental Product Declaration

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

Program Operator: Smart EPD®

www.smartepd.com



SmartEPD-2026-138-0927-01

SuperLite® II-XL

Date of Issue

Jun 15, 2026

Expiration date

Jun 15, 2031

Last updated

Jun 15, 2026



Refer to the EPD Library at www.smartepd.com for the latest EPD listing information

General Information

SAFTI FIRST® - Safti And Fire Technology Inc

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Product Name:	SuperLite® II-XL
Declared Unit:	1 m2
Declaration Number:	SmartEPD-2026-138-0927-01
Date of Issue:	June 15, 2026
Expiration:	June 15, 2031
Last updated:	June 15, 2026
EPD Scope:	Cradle to gate A1 - A3
Market(s) of Applicability:	North America

General Organization Information

For over 40 years, SAFTI FIRST® has been manufacturing fire rated glass, framing and entrances in the USA. Today, we are a single-source, vertically integrated manufacturer of fire rated glass and framing systems headquartered in the USA.

SAFTI FIRST® manufactures fire rated doors, openings, storefronts, curtain walls, and floor systems with fire ratings up to two hours. Listed and labeled by Underwriters Laboratories (UL) and Intertek, their products are tested and certified to meet the most stringent fire and life-safety standards—while delivering large clear view areas. This combination provides architects and designers with design flexibility without compromising safety.

SAFTI FIRST® is a rated glass and framing manufacturer with approved components in the NFRC Component Modeling Approach (CMA) program, supporting energy performance modeling for today's high-performance buildings.

In addition to fire protection, SAFTI FIRST® systems can be customized to provide protection against bullets, blast, hurricane impact, forced entry, attack, UV and more. Energy-efficient and decorative options are also available to meet both performance and aesthetic goals.

All glass, framing, and door products are proudly manufactured in Merced, California, ensuring fast lead times, quality control, and competitive pricing.

Further information can be found at: safti.com

Limitations, Liability and Ownership

It is recognized that by following the typical ISO 21930:2017 definitions of module A1, A2 and A3 for a specific production facility, inconsistencies will occur in classifying individual processes as either A1 or A3 based on the scope of the operations that take place at a given facility. Care must be taken not to compare A1, A2 or A3 on an individual basis for a given product from various mill producers, but, instead on the aggregated total of A1, A2 and A3. Separate A1, A2 and A3 values are provided for a better understanding of the processes taking place at a given facility and a greater level of transparency.

Construction product environmental impact results provide a sufficient basis for comparison only when considered in the context of the construction works project. In all cases of comparing construction products, the principle that the basis for comparison of the assessment is the construction works level shall be maintained by ensuring that the same functional requirements are met and the criteria in ISO 21930:2017 Section 5.5 "Comparability of EPDs for construction products" are satisfied. A manufacturer shall not make claims based on an industry-average EPD which leads the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences in results upstream or downstream of the life cycle stages declared.

The EPD owner has sole ownership, liability, and responsibility for the EPD.

Reference Standards

Standard(s):	ISO 14025 and ISO 21930:2017
Core PCR:	Smart EPD® Part A Product Category Rules for Building and Construction Products and Services, 1000, v1.2 Date of issue: March 14, 2025 Valid until: March 14, 2030
Sub-category PCR review panel:	 Contact Smart EPD for more information.
General Program Instructions:	 Smart EPD General Program Instructions v.2.0, March 2025

Verification Information

LCA Author/Creator:	 Chris Carter  TrueNorth Collective  chris.carter@truenorthcollective.net
EPD Program Operator:	 Smart EPD  info@smarteprd.com  www.smarteprd.com  585 Grove St., Ste. 145, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071:  Anni Oviir  LCA Support  anni.oviir@lcasupport.com Independent external verification of EPD, according to ISO 14025 and reference PCR(s):  Anni Oviir  LCA Support  anni.oviir@lcasupport.com

External

External

Product Information

Declared Unit:	1 m2
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Mass:	72.2 kg
Product Specificity:	✓ Product Average ✗ Product Specific
Supply Chain Specific Data:	82.5 %

The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

Product Description

SuperLite® II-XL is a fire resistive glazing product designed for maximum fire and impact safety. It is tint-free and optically clear, making it suitable for applications where maximum transparency and fire protection is required. The glazing is fully tested and approved for various applications, including full-vision temperature-rise doors and wall applications, and can be customized for additional safety features such as bullet resistance, blast resistance, forced entry, and hurricane protection. It is available in custom architectural make-ups and is proudly manufactured in the USA for competitive pricing and fast lead times.

Further information can be found at: <https://safti.com/fire-resistive/>

Product Specifications

Product SKU(s):	SuperLite® II-XL provides maximum fire and impact safety with hose stream and provides full radiant heat protection.
Product Classification Codes:	Masterformat - 088813
Form Factor:	FireAndSmokeProtection >> AppliedFireproofing >> IntumescentFireproofing

Material Composition

Material/Component Category	Origin	% Mass
Glass	United States	64%
SRIL	United States	27%
Polysulfide	United States	6%
Others	Unites States	3%

Packaging Material	Origin	kg Mass
Wood	United States	14.2
Fiberboard	United States	3.51
Others	United States	0.37

Biogenic Carbon Content	kg C per m2
Biogenic carbon content in product	0None
Biogenic carbon content in accompanying packaging	8.85

Hazardous Materials
None

EPD Data Specificity

- Primary Data Year:2024
- Manufacturing Specificity:

✗ Industry Average

✗ Manufacturer Average

✓ Facility Specific

Averaging:

Averaging was used for this EPD. As product specific data was available for the 45 min, 60 min, 90 min, and 120 min glass types, a weighted average was taken based on the 2024 production.

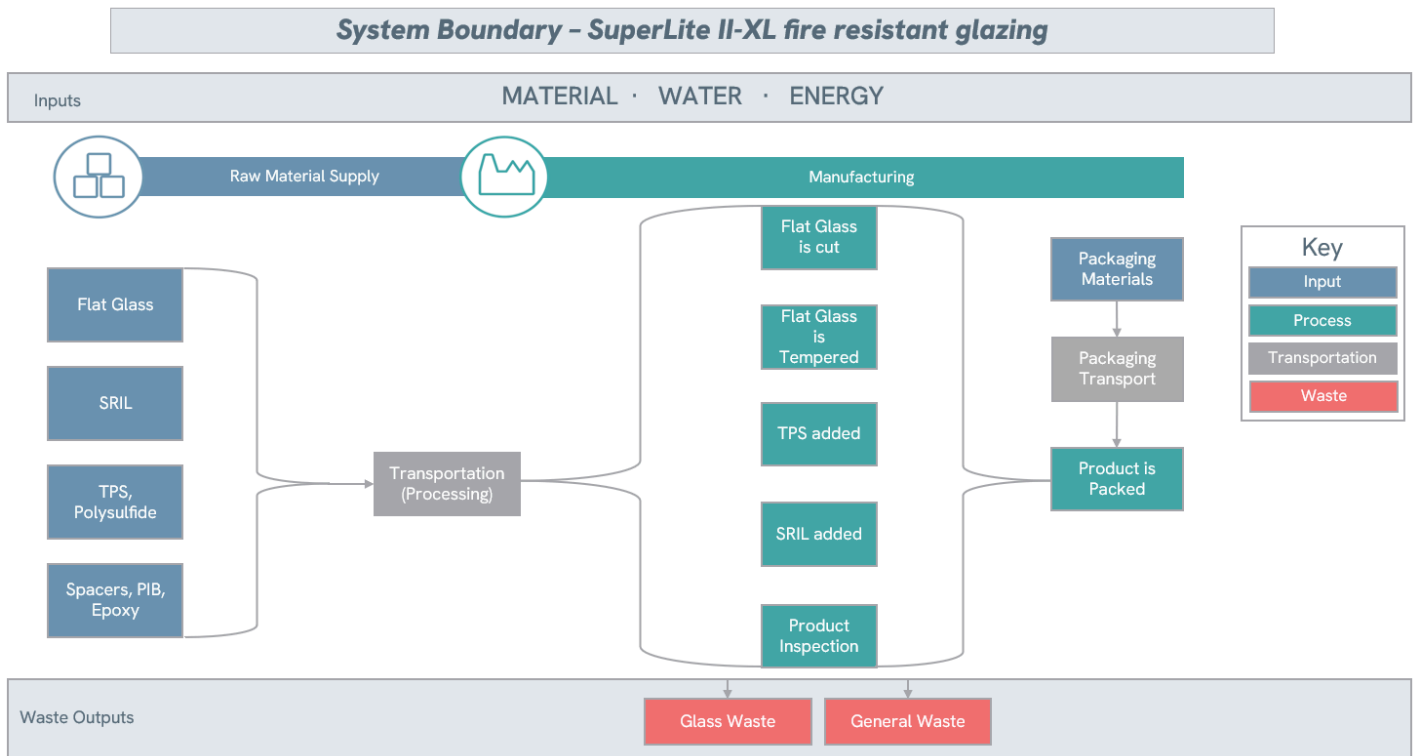
System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	ND
	A5	Assembly / Install	ND
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND

End of Life	C1	Deconstruction	ND
	C2	Transport	ND
	C3	Waste Processing	ND
	C4	Disposal	ND
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Note:
ND = Module not declared

Product Composition Diagram

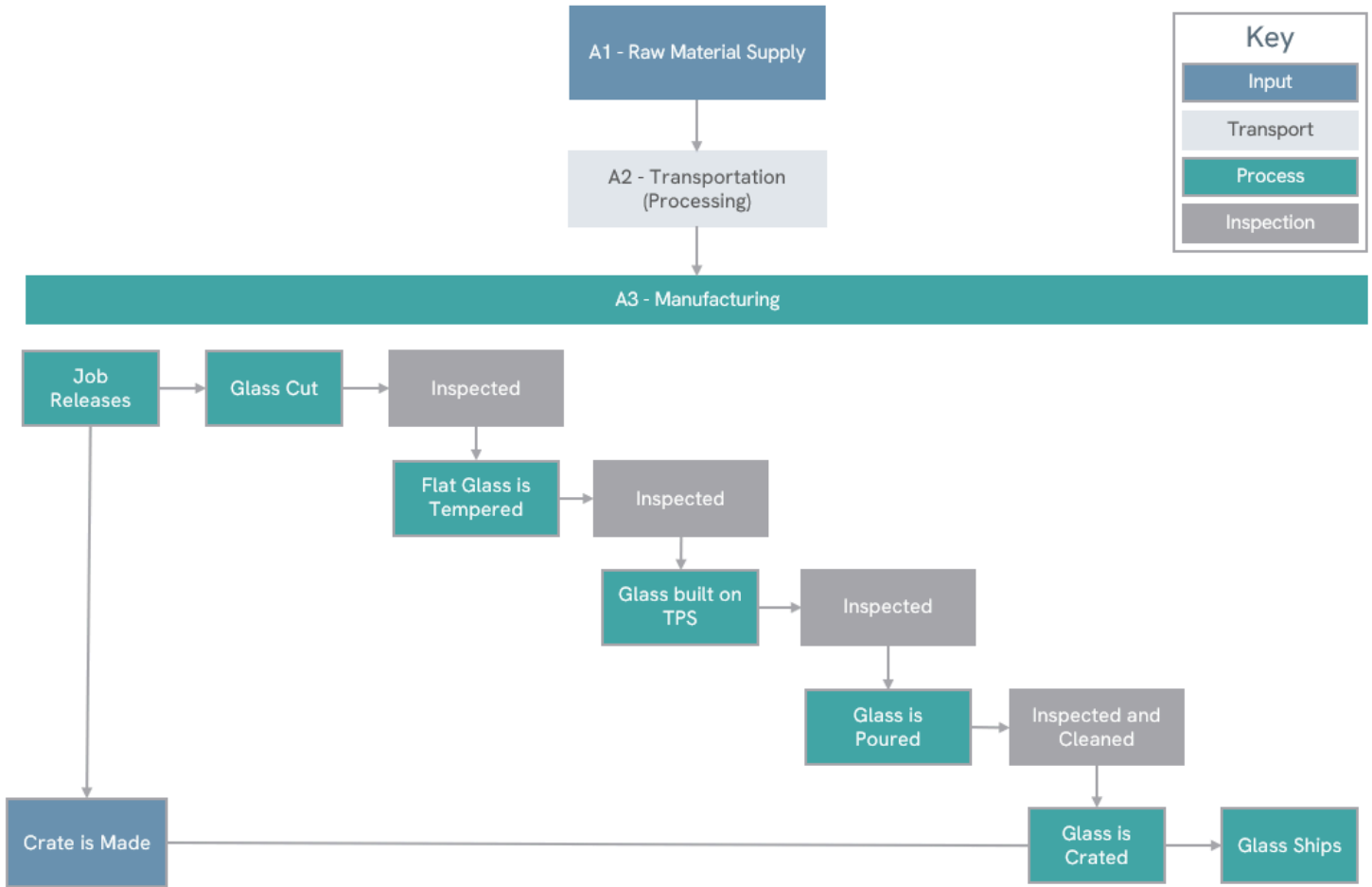


The processes modeled for raw material and includes energy purchases, water, and transport of production from supplier. The processes modeled for manufacturing processes include energy purchases, ancillary materials, water and associated packaging with transport.

Plants

 Merced, CA 220 S R St, Merced, CA 95341, USA

Product Flow Diagram



SuperLite® II-XL glass products utilize similar materials in different quantities to meet product requirements. Once an order is received, flat glass is cut to the required size, it is inspected, and it is tempered. TPS is added to the tempered glass sheets to create a void where SRIL is added and sealed. Upon passing quality inspection, the product is packaged and ready for shipment.

Software And Database

- LCA Software:
-  SimaPro v. 10.2
- LCI Foreground Database(s):
-  Ecoinvent v. 3.11
- LCI Background Database(s):
-  Ecoinvent v. 3.11

A foreground LCI database is the database used to model the primary, site-specific data collected for this EPD. A background LCI database is the database used to model generic or non-specific data.

Data Quality

The results of an LCA are only as good as the quality of the data used to create the study, and this study utilizes primary data from the manufacturer and secondary data that has been critically reviewed. This helps ensure data precision and completeness, consistency and reproducibility, and

representativeness while reducing uncertainty.

Foreground data was sourced from primary information provided by Safti First and has been reviewed to ensure precision and completeness. In order to balance out seasonal variations, operations data over a 12-month period, corresponding to the 2024 calendar year that was used to represent production activities. Ecoinvent v3.11 was used as the database for background data, and this version was compiled in 2025. Ecoinvent is widely used in research and industry to support life cycle assessment practices. Each version of this database goes through thorough review process and documentation of precision and completeness is available by the provider.

Primary data were collected at the same level of granularity and from existing sources that are reported annually, so the consistency is assumed to be high. The representativeness of the datasets is chosen to be representative of North America where average technologies of the major producers and distributors and are of recent and modern vintage.

Data Sources

Material/Process Category	Module	Material/Process Name	Inventory Dataset Name	Dataset Geographic Region	Reporting Period/Year Dataset Represents	Reference	Amount (if relevant)	Unit
Raw Material	A1	Flat Glass	Published EPD	North America	2024	ND	4.57E+01	kg
SRIL	A1	Intumescent	proprietary	ND	2024	ecoinvent v3.11	1.97E+01	kg
Energy	A3	Electricity	Electricity, medium voltage {WECC, US only}	US (west)	2024	ecoinvent v3.11	8.89E+01	kWh

Life Cycle Module Description

A1: Primary data on materials purchased from suppliers was calculated by BOM data provided by Safti First and the glass waste measured for the reference year specified.

A2: The transportation for all raw materials is by truck, and the distance for glass and SRIL was obtained from primary supplier data. The distance for other raw materials is assumed to be the same for flat glass. For SRIL, a weighted average distance of propriety raw materials was calculated based on the mass of materials in SRILL and their transport distance obtained from primary data.

A3: Manufacturing data was collected for the 2024 production year from the Merced, California manufacturing plant. Once an order is received, flat glass is cut to the required size, it is inspected, and it is tempered. TPS is added to the tempered glass sheets to create a void where SRIL is added and sealed. Upon passing quality inspection, the product is packaged and ready for shipment.

LCA Discussion

Allocation Procedure

No co-products are created during the manufacturing process. Within manufacturing, all energy, packaging, water, and waste flows are allocated to products based on m2 of glass product produced.

Cut-off Procedure

For the processes within the system boundary, all energy and material flows were included in the model. No known flows were excluded. All upstream and downstream activities were included using a combination of primary and secondary data. While most inventory data were sourced from primary resources,

representative proxies were used to close gaps in the absence of primary data.

Renewable Electricity

Energy Attribute Certificates (EACs) such as ✗ No
Renewable Energy Certificates (RECs) or Power
Purchase Agreements (PPAs) are included in the
baseline reported results:

Results

Environmental Impact Assessment Results

IPCC AR6 GWP 100, TRACI 2.2
per 1 m2 of product.

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

Impact Category	Unit	Method	A1	A2	A3	A1 - A3
GWP-total	kg CO2 eq	IPCC AR6 GWP 100	9.42e+1	4.46e+0	4.85e+1	1.47e+2
GWP-fossil	kg CO2 eq	IPCC AR6 GWP 100	9.13e+1	4.46e+0	4.85e+1	1.44e+2
GWP-biogenic	kg CO2 eq	IPCC AR6 GWP 100	5.05e-1	1.01e-3	3.30e-2	5.39e-1
GWP-luluc	kg CO2 eq	IPCC AR6 GWP 100	8.25e-2	2.34e-3	2.50e-2	1.10e-1
ODP	kg CFC 11 eq	TRACI 2.2	1.01e-6	7.03e-8	3.02e-7	1.39e-6
AP	kg SO2 eq	TRACI 2.2	4.90e-1	2.32e-2	1.02e-1	6.15e-1
EP-marine	kg N eq	TRACI 2.2	3.86e-2	6.30e-3	1.70e-2	6.20e-2
POCP	kg O3 eq	TRACI 2.2	3.78e+0	7.47e-1	1.73e+0	6.26e+0

Note:
Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:
GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicator

per 1 m2 of product.

Indicator	Unit	A1	A2	A3	A1 - A3
RPRE	MJ	9.31e+1	8.24e-1	5.52e+2	6.46e+2
RPRM	MJ	0	0	0	0
RPRT	MJ	9.31e+1	8.24e-1	5.52e+2	6.46e+2
NRPRE	MJ	2.26e+3	6.21e+1	7.38e+2	3.06e+3
NRPRM	MJ	1.31e+2	0	0	1.31e+2
NRPRT	MJ	2.39e+3	6.21e+1	7.38e+2	3.19e+3
ADP-fossil	MJ	1.35e+3	7.18e+1	6.26e+2	2.05e+3
SM	kg	0	0	0	0
RSF	MJ	0	0	0	0
NRSF	MJ	0	0	0	0
FW	m3	8.28e-1	1.00e-2	3.58e-1	1.20e+0
RE	MJ	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRM or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 1 m2 of product.

Indicator	Unit	A1	A2	A3	A1 - A3
HWD	kg	0	0	0	0
NHWD	kg	0	0	1.80e+1	1.80e+1
HLRW	kg	0	0	0	0
ILLRW	kg	0	0	0	0
CRU	kg	0	0	0	0
MFR	kg	0	0	0	0
MER	kg	0	0	0	0
EEE	MJ	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals

per 1 m2 of product.

Indicator	Unit	A1	A2	A3	A1 - A3
BCRP	kg CO2	0	0	0	0
BCEP	kg CO2	0	0	0	0
BCRK	kg CO2	0	0	-3.25e+1	-3.25e+1
BCEK	kg CO2	0	0	3.25e+1	3.25e+1

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNr = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

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Scaling Factors

Product Name and/or Product Attribute

This product-average EPD represents the weighted average results across four products: SuperLite II-XL 45 min, SuperLite II-XL 60 min, SuperLite II-XL 90 min, and SuperLite II-XL 120 min. The weighted averages were calculated by applying the 2024 production percentages to the corresponding results for each product, and the results of the individual products were compared to average EPD results to verify they are within the +-10%. For impacts that exceeded the 10% threshold, the worst case was used to represent the product-average EPD, and the impact categories were the worst case product was applied are as follows: GWP-luluc, ODP, EP-marine, and POCP.

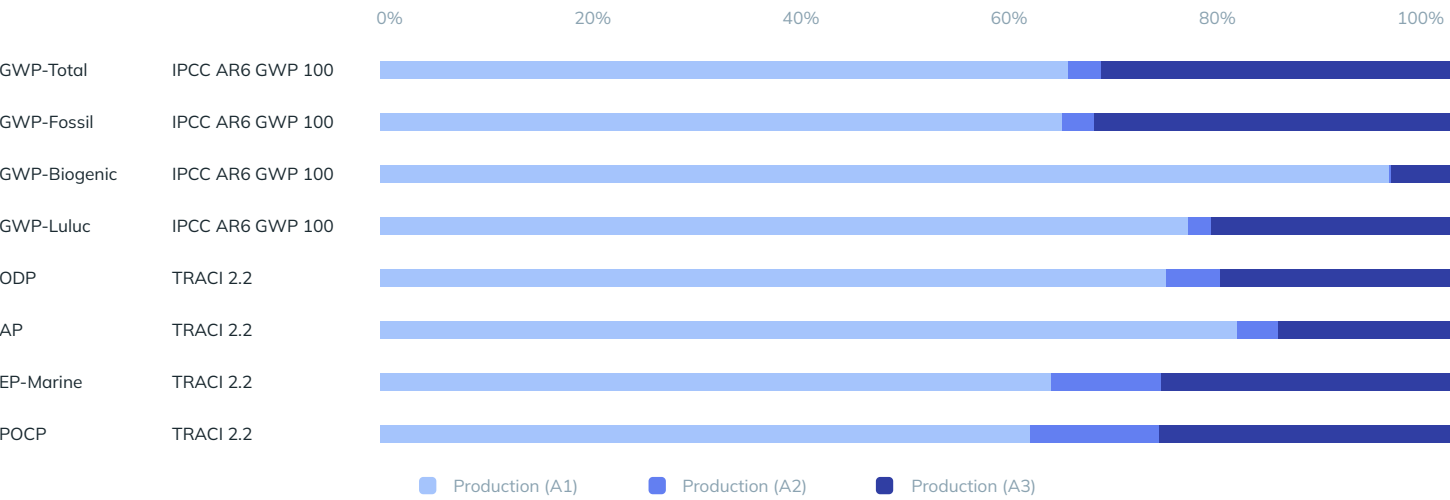
Interpretation

The analysis of SAFTI FIRST fire resistive glass provides useful insights regarding the life cycle environmental impacts. The LCA results also identify where substantial impacts are occurring to allow further process and materials improvements to be implemented by SAFTI FIRST.

The raw materials module (A1) contributes the most to each impact category for the product, and the manufacturing module (A3) is the next largest contributor for each impact category.

For raw materials module (A1), the flat glass is the largest single contributor to most every impact category with the exception of GWP 100-luluc where Polysulfide is a slightly larger contributor.

Within the manufacturing module (A3), impacts associated with electricity consumption were the largest driver for all impacts with the exception of GWP 100-luluc where it was driven by wood packaging.



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