



Environmental Product Declaration

IN ACCORDANCE WITH ISO 14025, 1404, 14044 AND ISO 21930:2017

Program Operator: Smart EPD®

www.smartepd.com



KI: Connection Zone Screen



SmartEPD-2026-124-0975-01

Date of Issue

Jul 06, 2026

Expiration Date

Jul 06, 2031

Last Updated

Aug 31, 2026

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



General Information

Krueger International

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🌐 [ki.com](https://www.ki.com)



Product Name:	Connection Zone Screens
Functional Unit:	1 m2 of workspace for a 10-year period
Declaration Number:	SmartEPD-2026-124-0975-01
Date of Issue:	July 06, 2026
Expiration:	July 06, 2031
Last updated:	August 31, 2026
EPD Scope:	Cradle to gate with other options A1 - A3, A4, B1, B4, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

Krueger International is a world-class contract furniture manufacturer. They make ergonomic seatings, cabinets, and other furniture used by businesses, health care organizations, government agencies, and educational institutions. Established in 1941, KI started as a company able to produce their products out of scrap material available in the war time. Even today, the environmentally conscious company finds new ways to use resources wisely and innovatively and protecting the environment has been established as one of the key principles of the company.

Further information can be found at: <https://www.ki.com/>

Limitations, Liability and Ownership

Disclaimer: This EPD conforms to ISO 14025, 14040, 14044, and 21930.

Environmental declarations issued under different programs in accordance with ISO 14025 may not be directly comparable.

To compare the environmental performance of products using EPD data, assessments must be based on the product's application and impact at the building level. Therefore, EPDs should not be used for comparison unless the building's energy use phase is considered, as required by this PCR.

EPD comparability is only valid when full compliance with the PCR is achieved, and all life cycle stages are accounted for. Nonetheless, variations and deviations may occur - for instance, differences in LCA software or background LCI datasets can result in discrepancies in the reported outcomes for upstream or downstream life cycle stages.

The PCR this EPD was based on was written to determine the potential environmental impacts of office workspace furniture products from cradle-to-gate with. It 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. The EPD owner has sole ownership, liability, and responsibility of this EPD.

Reference Standards

Standard(s):	ISO 21930:2017
Core PCR:	NSF BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814, v.2 Date of issue: March 01, 2025 Valid until: January 31, 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

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Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071:  Vijay Thakur  Individual Verifier  thakur.vijay3011@gmail.com Independent external verification of EPD, according to ISO 14025 and reference PCR(s):  Vijay Thakur  Individual Verifier  thakur.vijay3011@gmail.com

External

External

Product Information

Functional Unit:	1 m2 of workspace for a 10-year period
Mass:	28.9 kg
Product Specificity:	 Product Average  Product Specific

Product Description

For each of the product families below, a representative product was chosen for this study based on material type and amount utilized per functional unit. Specifically, models with additional features were chosen and when several materials options were available (i.e. wood vs plastic vs metal vs textile), the material with the highest global warming potential was chosen to be a conservative estimate due to the market demand for embodied carbon data. Because sizing can also vary, it was determined that on a functional unit basis and combined with the feature and material choices, these models were deemed worst-case scenario. Actual material content and features can vary.

Connection Zone Screens offers mobile, writable surfaces to foster idea sharing. These freestanding screens can stand alone or be combined to shape a dynamic workspace. The representative product (CZMSDS3672/SLDE) is an erasable worksurface screen with caster feet and a steel frame.

Further information can be found at: <https://www.ki.com/products/name/connection-zone-screens/>

Product Specifications

Product SKU(s):	Connection Zone: CZMSDS3672/SLDE
Product Classification Codes:	EC3 - Furnishings -> WorkSurfaces
Form Factor:	Furnishings >> WorkSurfaces

Product Composition Diagram





Table 1. Material Composition

Material/Component Category	Origin	Material weight (kg)	Mass % of product	Post consumer %	Post consumer weight (kg)	Pre-consumer %	Pre-consumer weight (kg)
Steel	Green Bay, WI	0.03	0.1%	25%	0.008	0%	0
Steel	Chicago, IL	0.26	0.9%	25%	0.065	0%	0
Steel	Oshkosh, WI	0.10	0.3%	25%	0.025	0%	0
Steel	Palatine, IL	14.17	49.1%	25%	3.543	0%	0
Steel	Mayville, WI	6.47	22.4%	25%	1.618	0%	0
Laminate Steel	St. Constant, QC Canada	4.98	17.3%	0%	0	0%	0
Laminate PP	St. Constant, QC Canada	0.26	0.9%	0%	0	0%	0
PP	Waterbury, CT	2.26	7.8%	0%	0	0%	0

Packaging Material	Origin	kg Mass
Cardboard	Minneapolis, MN	3.72
Plastic	Minneapolis, MN	0.42

Biogenic Carbon Content	kg C per m2 of workspace for a 10-year period
Biogenic carbon content in product	0
Biogenic carbon content in accompanying packaging	1.86

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.

EPD Data Specificity

- Primary Data Year:2025
- Manufacturing Specificity:

✗ Industry Average

✗ Manufacturer Average

✓ Facility Specific

- Averaging:
- Electricity and resource consumption at the production facility were attributed to the pedestal products based on their sales price, using the manufacturer's annual revenue data for the 2025 calendar year.

- Due to the unavailability of primary data for upstream component fabrication, representative LCI datasets from the Ecoinvent database were utilized to model the processing of steel and plastic components.
- The Reference Service Life (RSL) of the products was determined using manufacturer-provided data, under the assumption that the products are installed, maintained, and used according to the recommended guidelines and intended application.
- At the end-of-life stage, the product and packaging materials are assumed to be transported 20 miles via a diesel truck to one of three destinations: a landfill, an incineration facility, or a material reclamation (recycling) center. Disposal processes for landfill and incineration are modeled using datasets from the Ecoinvent database.
- Recycling materials are modeled using the recycled content method - also referred to as the cut-off or 100-0 method - in which only the environmental burdens associated with reprocessing the waste material are assigned to the system utilizing the recycled input.

Table 2. System Boundary

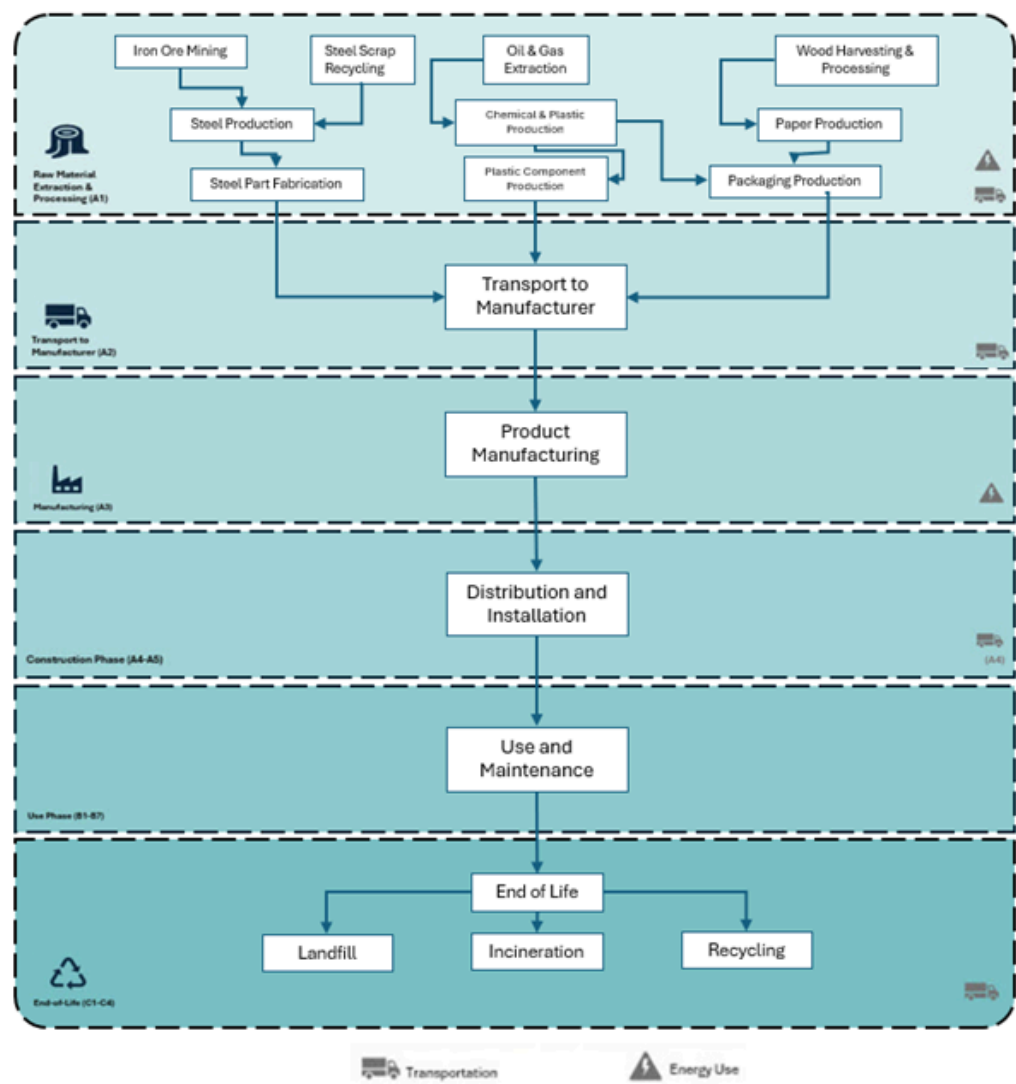
Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	ND
Use	B1	Use	✓
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	✓
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Note:
ND = Module not declared

Plants

 KI - Manitowoc Manufacturing Facility 1400 South 41st Street, Manitowoc, WI, USA

Product Flow Diagram



Software And Database

LCA Software:

 Earthster v. 1.7

LCI Foreground Database(s):

 Ecoinvent v. 3.12

 North America

 Direct

 Ecoinvent v. 3.12

United States | Direct | Ecoinvent v. 3.12 | Rest-Of-World | Direct |
 Ecoinvent v. 3.12 | Global | Direct |
 Ecoinvent v. 3.12 | Global | Direct | Ecoinvent v. 3.12 |
 Rest-of-World | Direct

LCI Background Database(s):

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 data quality assessment addresses the following parameters: temporal representativeness, geographical representativeness, technological representativeness, data collection methods, and reliability of the data. Additionally, please note that the Ecoinvent database for this EPD uses the most up to date version, v3.12.

Data Quality Indicator	Data Quality Discussion	Data Quality Assessment Score
Temporal Representativeness	The most recent available datasets were used, based on other considerations such as data quality and similarity to the actual operation. This data is typically less than 3 years old. All the data used represented an average of at least one year's worth of data collection. Manufacturer-supplier data are based on annual production for 2025.	1
Geographical Representativeness	The data used in the analysis provides the best possible representation available with current data. Natural Gas used in the production stage is modeled using representative data from United States. Surrogate data used in the assessment are representative of global or US operations. Data representative of US operations is considered sufficiently similar to the actual process.	2
Technological Representativeness	In general, the data accurately reflects the technologies employed in processing design, operating conditions, manufacturing material quality, and processing scale. Fabrication datasets tailored to specific material types are used to appropriately represent the actual processes involved.	1
Data Collection Methods	The data used in this assessment reflects typical or average processes as reported across multiple sources, and thus broadly represents the range of actual production technologies and methods for these materials. While significant site-specific variations may occur, identifying them would require comprehensive data collection throughout the supply chain, extending to resource extraction.	2
Reliability	The precision of the data is considered high. Product engineers provided detailed bills of materials, and facility managers provided utility information for the manufacturing facilities. Precision can be increased via sub-metering individual manufacturing processes to better account for manufacturing processes rather than including overhead utility information.	2

Life Cycle Module Description

The first part of the Life Cycle Module is the Material Acquisition and Pre-Processing (A1-A2) which includes an aggregation of raw material extraction, supplier processing, delivery. Including:

- Extraction and processing of raw materials
- Processing of recycled raw materials from previous product system
- Processing of secondary materials
- Transportation up to factory gate, transportation included empty backhauls.

The raw materials used in the product are specific to that particular product or group of products. These products were modeled in Earthster to produce the potential environmental impacts over its lifetime. For the materials unavailable in the model, appropriate proxies were used. Specific descriptions of supplier unit processes can be shared through the Earthster Dataset documentation online at <https://app.earthster.org/>

Most of the raw materials for the product were obtained from various parts of the USA, Canada and China. The transport of raw materials to the manufacturing plant has been accounted for in the model. It is assumed the materials are delivered to the manufacturing facility via truck and via freight ship depending on the location of the supplier.

This module also includes an aggregation of raw material processing, component assembly (A3) by KI and their suppliers, including:

- Manufacturing of products and co-products
- Production of ancillary materials (not applicable)
- Generation of energy and water inputs
- Energy recover (not applicable)
- Manufacturing waste generation, processing and disposal

Production begins when raw materials are received from suppliers. Steel, aluminum and plastic parts are selected and cut to specification, finished and assembled to create the body of the product. Assembly may occur by manual or electrical means, depending on the parts.

Energy and resources used in the manufacturing process include electricity, natural gas, diesel, propylene, and water. The manufacturing facility sourced all the electricity through the access to power grid, and no onsite electricity generation is used. Electricity production datasets from Earthster are used to assess the generation, distribution, and transmission of electricity. There are no carbon offsets or renewable energy credits utilized in the inventory.

In this module, the product is transported to the building site and installed (A4-A5). Considered in this stage are the following:

- Transportation from the manufacturing gate to the construction site. Product is manufactured and stored at one facility in Manitowoc, WI. No interfacility transportation is included in the life cycle.
- Storage of products (not applicable)
- Electricity used to power the installation tools (not applicable as the installation is assumed to be done manually if any)
- Installation of product in the building using tools (A5, not applicable as the amount of product that can be installed with one tool is high enough to make the impacts per functional unit negligible)

The product is assumed to be delivered to the customer via truck. The transportation from the manufacturing facility to construction site is assumed to be 1,250 km.

In the final stage of this module, the use of the product, product waste and packaging waste are considered (B1-C4). Included in this stage are the following:

- Usage (B1, B6, B7, no energy or water is required for the use of this product, impacts per functional unit are negligible)
- Repairing and maintenance (B2-B5, no repairing is needed given the lifetime warranty of the products, and the products only need basic cleaning, which is integrated with routine office cleaning, impacts per functional unit are negligible)
- Collection – This includes product disassembly, and the tools required for this. As with installation, these impacts are insignificant as the amount of product that can be disassembled with one tool is sufficiently high to ensure the impacts per functional unit are negligible.
- Transportation to recycling or disposal – Estimated fuel requirements made based on weight of product and average distance to end of life facility.
- Waste processing for reuse, recycling, energy recovery and/or reclamation (C3).
- Waste disposal – All pre-treatment, required resource inputs and management activities of the disposal site included through the use of secondary Earthster dataset.
- Processes relevant to waste processing are assigned to the product system that generates the waste until the system boundary between product systems is reached.

This LCA study follows the modularity principal boundary. Therefore, each environmental aspect and its potential impact is reported during the life cycle stage to which it belongs.

LCA Discussion

Allocation Procedure

Manufacturing resource consumption was allocated to individual products based on their sales price using a cost-based allocation method. This approach provides a more accurate representation of each individual product's share of energy use during the manufacturing stage versus the mass allocation method. The allocation was derived from 2024 sales data, and deviations greater than 20% were not anticipated for this analysis.

Transportation-related impacts were allocated based on material weight and the distance each material was transported. A potential deviation greater than 20% was anticipated for transportation distances. Accordingly, a sensitivity analysis was performed to assess the influence of this variation on the overall results. A sensitivity analysis was performed on the assumption of the distance to the customer. The assumption in the original results was 1,250 km via truck, so the sensitivity of this assumption was determined by modeling 625 km via truck and 2,500 km via truck. The results of this analysis showed that the threshold change was less than 10%, deeming an insignificant effect on the total impact and therefore the assumption is deemed valid.

The product system incorporates recycled materials, allocated through the recycled content method. Under this approach, inputs containing recycled content bear no environmental burden from their previous life cycle, aside from the energy and resources required for reprocessing. At the end of their life, recycled materials exit the system without incurring further impacts.

Cut-off Procedure

All available input data were incorporated into the analysis. Data from the system should be considered over a 100-year span starting from the year the original dataset was created. If a longer duration is appropriate, it must be applied and explained in the project documentation. Material inputs exceeding 1% of the final product's total mass, as well as renewable and non-renewable primary energy usage above 1%, were included within the scope. Inputs below the 1% threshold were considered if adequate data supported their inclusion or if they were deemed to have a significant environmental impact. Overall, excluded material and energy inputs represent less than 5% of the total weight and energy usage of the functional unit.

Excluded materials and energy inputs include:

- Powder coat materials (<0.9%)
- Foam shelf material (<0.3%)
- Bumper rubber material (<0.004%)
- Installation tools, which are reusable across multiple installations; their per-functional unit impact is negligible and thus excluded
- Certain material inputs, potentially omitted within Earthster datasets used in this study; all datasets were critically reviewed and meet the exclusion criteria outlined in the Product Category Rules (PCR)

In alignment with PCR requirements, the following processes are excluded from the defined system boundary:

- Construction-installation
- Maintenance
- Repair
- Refurbishment
- Operation energy use
- Operation water use
- Reuse, recovery and/or recycling potential



Renewable Electricity

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

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	38.43/ l/100km
Vehicle Type:	Truck - Heavy-duty Diesel
Transport Distance:	1,250 km
Capacity Utilization:	78% %
Packaging Mass:	4.14 kg
Gross density of products transported:	33 kg/m3
Weight of products transported:	1,320 kg
Volume of products transported:	40 m3
Capacity utilization volume factor:	=1
Assumptions for scenario development:	It is assumed that the product is transported directly from the manufacturing facility to the consumer site. Empty haul backs were included in this study.

Use (B1)

B1 Module

Declared Product Properties:
It is assumed that there are no associated impacts involved within the use of the products lifetime. As a result, the impact assessment and resource use calculations will reflect a value of zero.

Replacement (B4)

B4 Module

Further assumptions for scenario development: It is assumed that over a 10-year period no replacements are required for the product. As a result, the impact assessment and resource use calculations will reflect a value of zero.

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected with Mixed Construction Waste: 28.9 kg

Recovery

Recycling: 9.05 kg
Landfill: 16.06 kg
Incineration: 3.41 kg

Assumptions for scenario development:

Deconstruction impacts are considered insignificant, as the quantity of product that can be dismantled using a single tool is too small to generate meaningful impacts per functional unit. Therefore, these impacts are assumed to be negligible. Material is transported to a disposal site 20 miles (32.19 km) away from the consumer site. Landfill emissions should be calculated over a 100-year period following the time the material was placed in the landfill.

Results

Table 3. Environmental Impact Assessment Results

IPCC AR5 GWP 100, IPCC AR6 GWP 100, TRACI 2.1

per 1 m2 of workspace for a 10-year period 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 - A3	A4	B1	B4	C1	C2	C3	C4	Total
GWP-total	kg CO2 eq	IPCC AR5 GWP 100	1.07e+2	7.30e+0	0	0	0	2.15e-1	1.17e+0	1.28e+0	1.17e+2
GWP-biogenic	kg CO2 eq	IPCC AR6 GWP 100	1.60e+0	1.63e-3	0	0	0	4.79e-5	1.25e-4	9.73e-1	2.57e+0
ODP	kg CFC 11 eq	TRACI 2.1	1.02e-6	1.05e-7	0	0	0	3.08e-9	1.46e-9	3.74e-9	1.13e-6
AP	kg SO2 eq	TRACI 2.1	3.67e-1	2.24e-2	0	0	0	6.61e-4	5.32e-4	8.89e-4	3.91e-1
EP	kg N eq	TRACI 2.1	4.74e-1	1.13e-2	0	0	0	3.33e-4	6.81e-4	1.22e-1	6.08e-1
POCP	kg O3 eq	TRACI 2.1	7.04e+0	5.46e-1	0	0	0	1.61e-2	1.53e-2	2.36e-2	7.64e+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, 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.

Table 4. Resource Use Indicator

per 1 m2 of workspace for a 10-year period of product.

Indicator	Unit	A1 - A3	A4	B1	B4	C1	C2	C3	C4	Total
RPRE	MJ	1.05e+2	1.41e+0	0	0	0	4.14e-2	2.66e-2	3.55e-2	1.07e+2
RPRM	MJ	5.88e+1	0	0	0	0	0	0	0	5.88e+1
RPRT	MJ	1.64e+2	1.41e+0	0	0	0	4.14e-2	2.66e-2	3.55e-2	1.66e+2
NRPRE	MJ	1.33e+3	1.00e+2	0	0	0	2.96e+0	1.11e+0	2.99e+0	1.44e+3
NRPRM	MJ	1.35e+2	0	0	0	0	0	0	0	1.35e+2
NRPRT	MJ	1.46e+3	1.00e+2	0	0	0	2.96e+0	1.11e+0	2.99e+0	1.57e+3
RE	MJ	0	0	0	0	0	0	3.70e+0	0	3.70e+0
FW	m3	5.59e-1	1.34e-2	0	0	0	3.96e-4	1.88e-3	-9.64e-3	5.65e-1
SM	kg	5.26e+0	0	0	0	0	0	0	0	5.26e+0

Note:

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

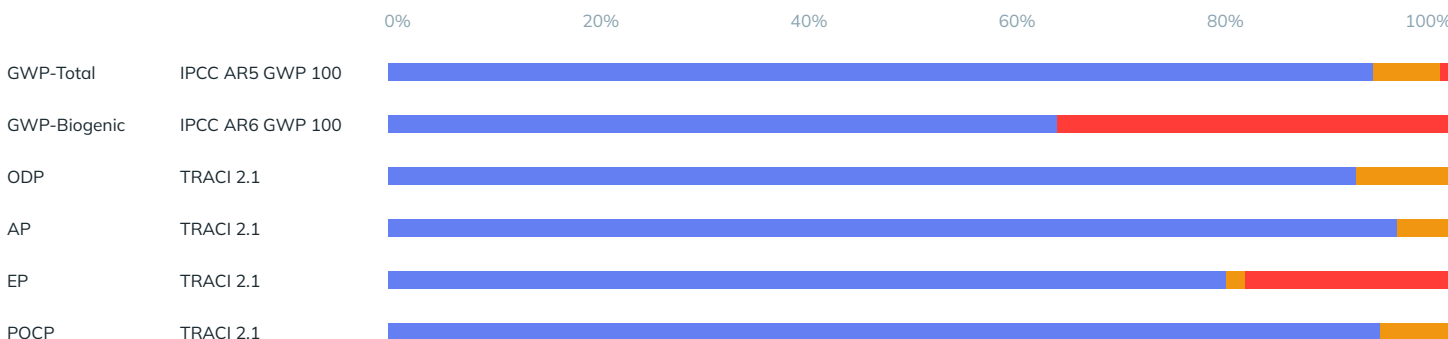
Abbreviations:

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, NRPRT 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.

Important Note: Results presented in this report are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks. Given the product's material composition and manufacturing process, there are no associated impacts from land-use changes, nor are carbonation-related environmental effects considered relevant to this product system. No dangerous substance materials are used in the single occupant. RPRM and NRPRM are estimated as the energy content of the renewable and no-renewable used as raw materials throughout the products life cycle. This is calculated assuming the lower calorific value of paper and cardboard to be 15.8 MJ/kg and mixed plastics to be ~46 MJ/kg. The net use of freshwater is calculated in compliance with ISO 14046. Secondary renewable and non-renewable fuel sources were not used in this study

Interpretation

A dominance analysis was conducted across all products in the LCA to identify which life cycle stages contributed most significantly to environmental impacts. For KI's Connection Zone Screen, the majority of the impacts were concentrated in the production phase (A1-A3), which encompasses material acquisition and raw material pre-processing. A further breakdown within this phase revealed that steel materials were the primary contributors to these impacts - largely due to the substantial quantity of steel used and its relatively high environmental footprint per kilogram compared to other materials.



■ Production (A1 - A3) ■ Construction (A4 - A5) ■ Use (B1 - B7) ■ End of Life (C1 - C4)

Table 5. Environmental Activities and Certifications

Certification
Indoor Advantage Gold - Furniture
ANSI/BIFMA e3-2019 LEVEL®
Health Product Declaration v3.0

References

1. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.

2. ISO 14025: 2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.

3. ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.

4. BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814 v2, NSF 1101-25, valid through January 31, 2030.

5. Environmental Data Sheet: Connection Zone Screens. (2025). <https://ki.widen.net/s/b6wfgslk9d/connection-zone-acrylic-screens-environmental-data-sheet>

6. SCS Global Service Certified Green Products Guide Available at: <https://www.scsglobalservices.com/certified-green-products-guide>

7. Bare, J.C., G.A. Norris, D.W. Pennington, and T. McKone (2003). TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. *Journal of Industrial Ecology* 6(3), pp. 49-78

8. Bare, J, Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) Version 2.1 User's Guide EPA/600/R-12/554 2012.

9. Earthster at: <https://app.earthster.org/>

10. Ecoinvent v3.12 at: <https://ecoinvent.org/>

11. Alit, I. B. Susana, G. B. Mara, M. (2022). Conversion of LDPE and PP Plastic Waste into Fuel by Pyrolysis Method. *Global Journal of Engineering and Technology Advances*, 10(3), 073-078. <https://gjeta.com/sites/default/files/GJETA-2022-0055.pdf>

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