

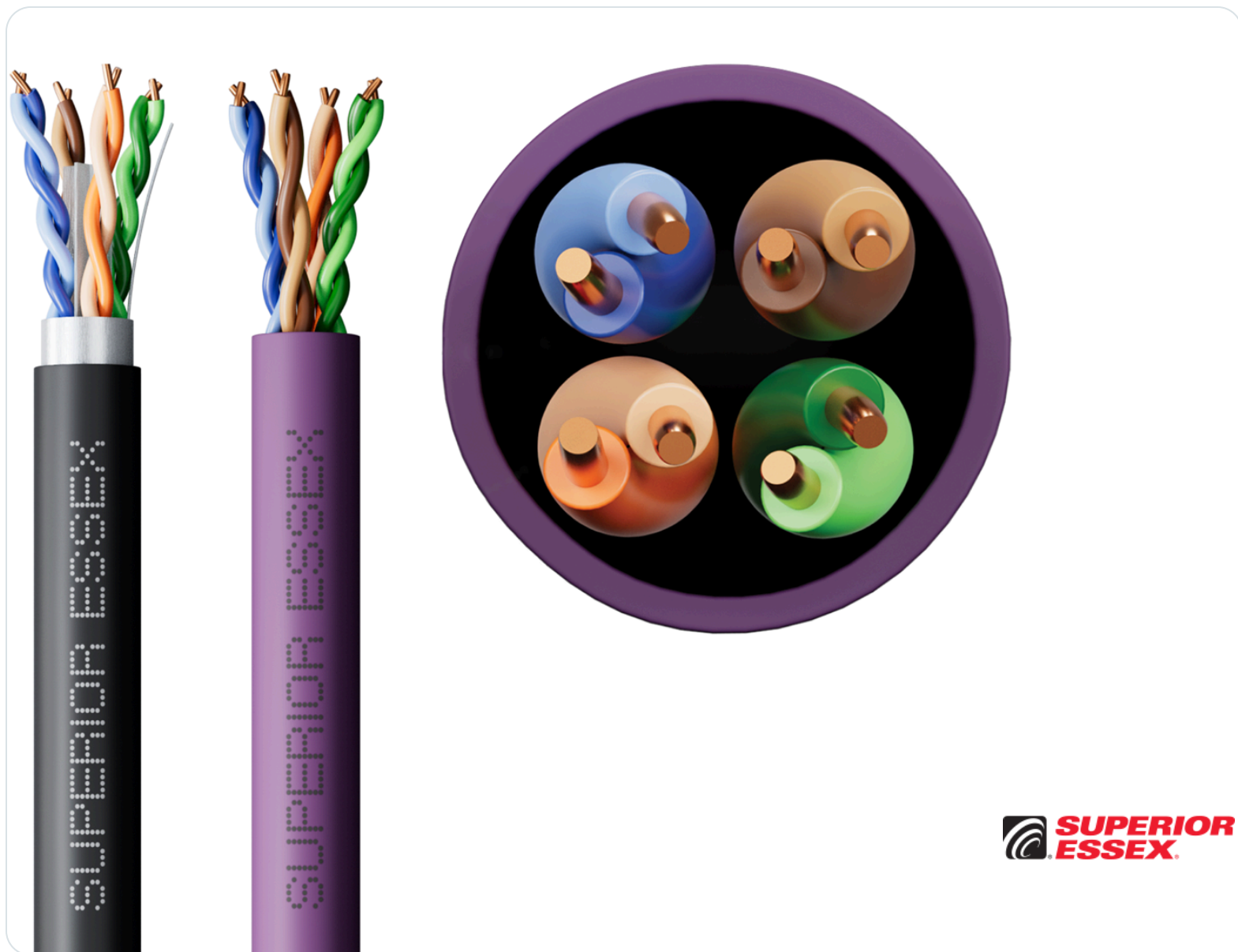


Environmental Product Declaration

Program Operator: Smart EPD®

www.smartepd.com

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017



**SUPERIOR
ESSEX**

SmartEPD-2026-121-0775-01

Communications Cables with Specialty Jackets

Date of Issue

Mar 06, 2026

Expiration Date

Mar 06, 2031

Last Updated

Mar 06, 2026



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

General Information

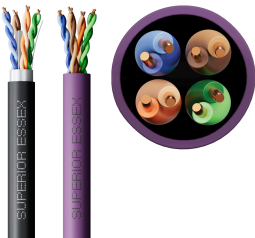
Superior Essex Communications

📍 Powers Ferry Road Northwest, Atlanta, GA 30342

☎ +1.877.263.2818

✉ Comm.TechSupport@spsx.com

🌐 superioressexcommunications.com



Product Name:	Communications Cables with Specialty Jackets
Declared Unit:	1 m (transmit a communication signal on 1 m of installed communication cable, including waste treatment at end-of-life, for 60 years with a 70% use rate)
Declaration Number:	SmartEPD-2026-121-0775-01
Date of Issue:	March 06, 2026
Expiration:	March 06, 2031
Last updated:	March 06, 2026
EPD Scope:	Cradle to grave A1 - A3, A4, A5, B1 - B7, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

Superior Essex Communications is a leading manufacturer and supplier of communications products for the telecommunications, energy, and industrial sectors. The company was founded in 1930 and has since expanded to operate globally, with locations in North America, Europe, Asia-Pacific, and South America.

The company specializes in the manufacturing of copper and optical fiber cables used in various applications such as network infrastructure, power transmission, and industrial automation. Their products are used in a wide range of industries including telecommunications, energy distribution, transportation, and construction.

Superior Essex Communications prides itself on its commitment to innovation and sustainability. The company is constantly investing in research and development to create new products that meet the evolving needs of their customers. They also have a strong focus on sustainability, with initiatives in place to reduce their environmental impact and promote social responsibility.

Superior Essex has been a driving force in meeting and exceeding wire and cable requirements for automotive, industrial, commercial, residential, energy, and communications markets for over 90 years. With a rich history dating back to the foundation of Essex Wire Corporation in 1930 and the establishment of Superior Cable Corporation in 1954, the company's journey has been one of growth and innovation. Today, as the industry leader in communications cable product innovation and manufacturing, Superior Essex continues to expand its product portfolio and contribute to the development of cutting-edge telecommunications networks worldwide.

Further information can be found at: <https://superioressexcommunications.com/about-us>

Limitations, Liability and Ownership

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

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 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.

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
Sub-category PCR:	Smart EPD® Part B PCR for Electrical Cables and Wires, 1000-007, v1 (adapted from EPD Norge)
	Date of issue: April 02, 2025
	Valid until: April 02, 2028
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:	 Matthew Neiman
	 matt.neiman@truenorthcollective.net
EPD Program Operator:	 Smart EPD
	 info@smartepd.com
	 www.smartepd.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:
	 Alison Lee  Independent Contractor  alisonleeconroy@gmail.com
	Independent external verification of EPD, according to ISO 14025 and reference PCR(s):
	 Alison Lee  Independent Contractor  alisonleeconroy@gmail.com

External

External

Product Information

Declared Unit:	1 m (transmit a communication signal on 1 m of installed communication cable, including waste treatment at end-of-life, for 60 years with a 70% use rate)
Mass:	0.0334 kg
Reference Service Life:	60 Years
Product Specificity:	✓ Product Average ✗ Product Specific
Supply Chain Specific Data:	20.5 %
Variation in GWP Result (Products):	-10% to +7%
Variation in GWP Result (Facilities):	0% to 0%

Product Description

Copper cable products are used in a wide variety of communications applications, each offering their own unique properties and attributes. This EPD covers riser-rated twisted pair copper cable. Riser-rated products are cables that are not installed through building air pathways which can spread fire and smoke, so they are not subject to the same material flammability constraints as other cables. The typical make-up of cables covered by this EPD are copper wires that are coated with a thermoplastic insulation and then wound around one another in 4 pairs. These pairs are then packaged together into a protective jacket. Each wire can be used to transmit digital data and, in some applications, electrical power. Different mechanical and electrical performance can be achieved by varying material types and weights as well as including additional components such as separators between twisted pairs or an aluminum tape shield inside the jacket.

Further information can be found at: https://products.superioressexcommunications.com/search?product_class%5B0%5D=Premises%20Copper¶meters.jacket%5B0%5D=Low%20smoke%20FEP¶meters.jacket%5B1%5D=PVDF

Product Specifications

Product SKU(s):	This is a product-average EPD covering a range of riser-rated copper communications cable products at Superior Essex Communications. The indicator results and other technical parameters refer to the chosen reference product: 66-2xy-xP, which is the standard Category 6 product. This EPD covers additional cable products. Results for these products can be determined using the scaling factor table: in this table the user can find additional information regarding specific products covered by this EPD, a description of these products, their cable category and instructions for calculating results using the scaling factors.
Product Classification Codes:	Masterformat - 271005 UNSPSC - 26121609

Material Composition

Material/Component Category	Origin	% Mass
Copper	None	51.9%

Material/Component Category	Origin	% Mass
FEP	None	46.5%
Ink/Colorant	None	1.6%

Packaging Material	Origin	kg Mass
Polypropylene	United States	2.98E-03
Wood	United States	9.97E-03
Fiber/Plastic Mix	United States	3.72E-03
Cardboard	United States	3.72E-03

Biogenic Carbon Content	kg C per m
Biogenic carbon content in product	0None
Biogenic carbon content in accompanying packaging	0.00651

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

EPD Data Specificity

Primary Data Year: 2023

Manufacturing Specificity:

- ✗ Industry Average
- ✗ Manufacturer Average
- ✓ Facility Specific

Averaging:

Products in this EPD are averaged by choosing a representative product.

ISO 21930 requires that the products included in a product-average EPD do not differ in the aggregate life cycle impact by more than 10% for any environmental impact indicator in scope. Since this EPD leverages a scaling factor table, it was checked that the product-specific results for each product does not differ by more than 10% from the predicted indicator values calculated via product-specific scaling factors. In some cases it was found that the calculated values were more than 10% higher than the product specific values - then the calculated values provided in this EPD are a conservative estimate.

System Boundary

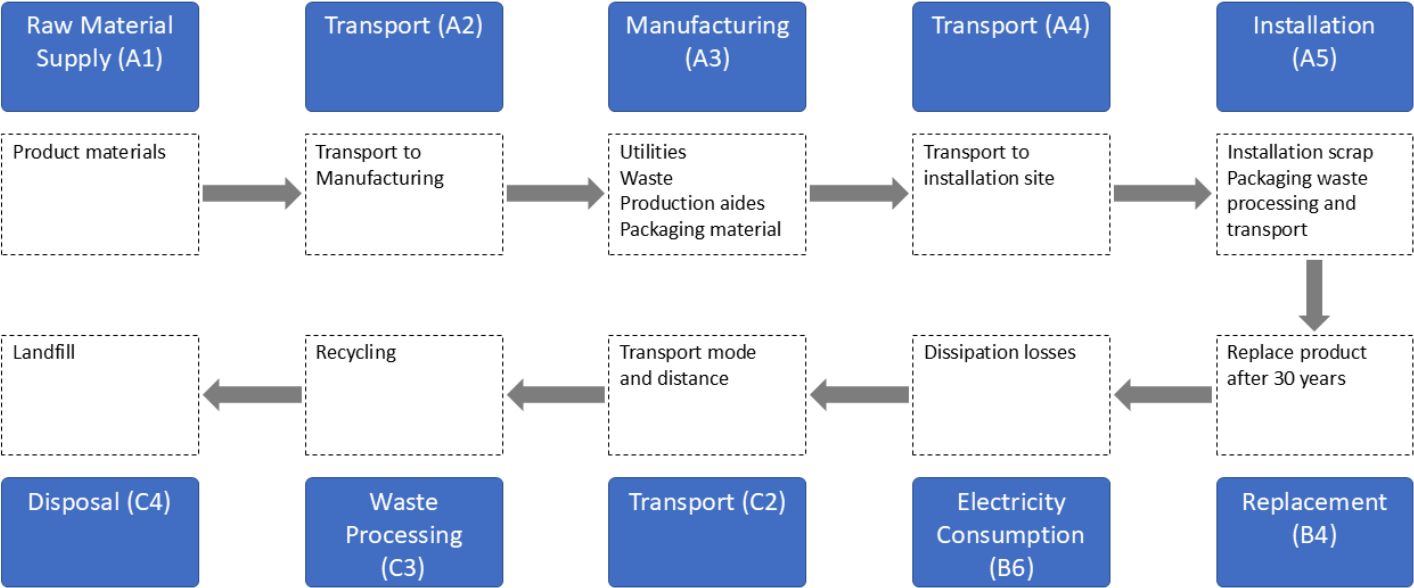
Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓

Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	✓
	B2	Maintenance	✓
	B3	Repair	✓
	B4	Replacement	✓
	B5	Refurbishment	✓
	B6	Operational Energy Use	✓
	B7	Operational Water Use	✓
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

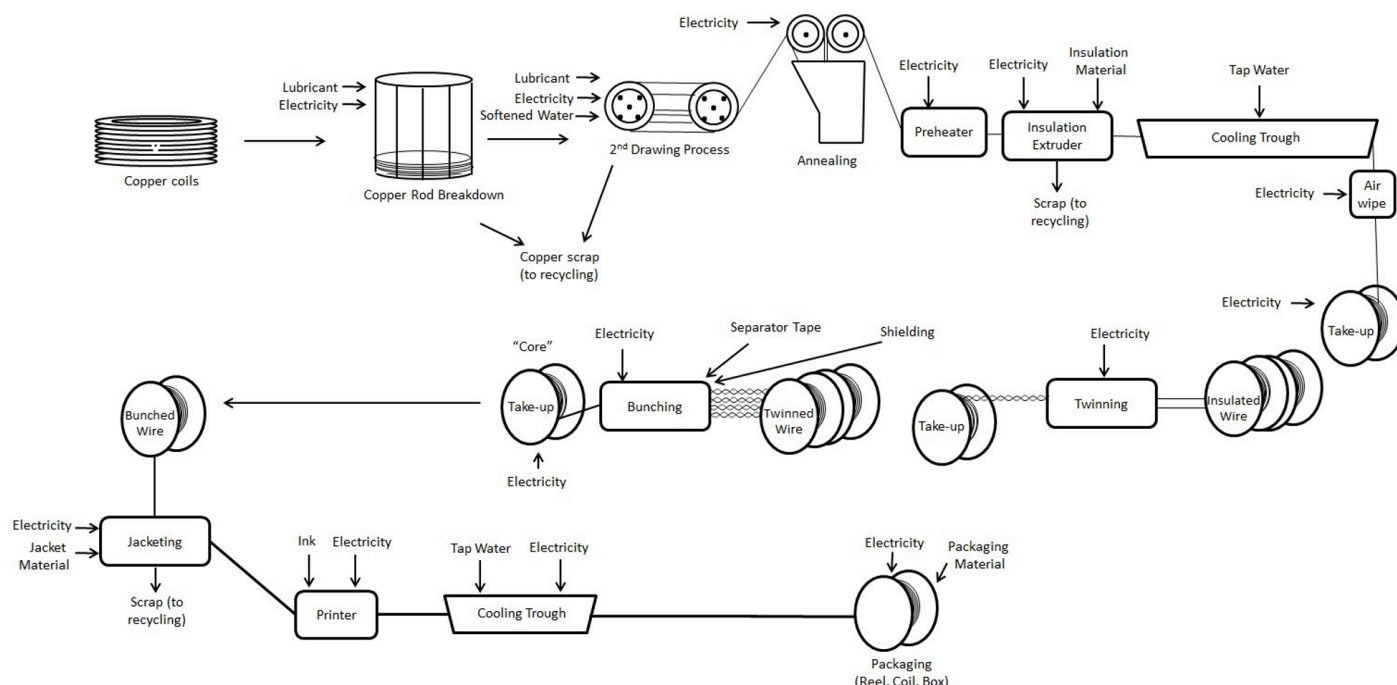
Product Composition Diagram



Plants

 Hoisington 75 KS-4, Hoisington, KS 67544

Product Flow Diagram



The first step in manufacturing twisted pair cables is wire-drawing: the copper wire first goes through an initial drawing process and then a second drawing process with an immediate subsequent annealing. The wire continues down the line to an electric pre-heater and insulation extruder, where the insulation material is applied to the wire. After extrusion, the insulated wire is cooled and dried.

The insulated wire is then taken to an electric twinning machine, where two insulated wires are continually spiraled around each other. Four twinned wires, along with separator tape and shielding material (if applicable) are then fed into an electric bunching machine where the internal contents of the cable are assembled. The bunched wire is then fed into a jacketing machine, where jacket material is extruded onto the bunched cable. The cable is cooled and spooled for packaging. Various packaging options exist, but most product is shipped in 1000-foot length spools or boxes.

Software And Database

LCA Software:

SimaPro v. 9.6

LCI Foreground Database(s):

Ecoinvent v. 3.10 | RoW | Cut-off

LCI Background Database(s):

Ecoinvent v. 3.10 | RoW | Cut-off

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

Life cycle inventory data used in this study are evaluated on:

Precision and completeness: Foreground data are sourced from primary information provided by Superior Essex and has been reviewed internally to ensure precision and completeness. In order to balance out seasonal variations, operations data over a 12-month period is used to represent production activities. Key model inputs such as mass balance, energy balance and emission inventory were reviewed by TrueNorth Collective team.

Ecoinvent v3.10 cut-off by classification is used as the main database for background data. Ecoinvent is widely used in research and industry to support life cycle assessment practices, and the version used was published in 2024. Each version of this database goes through thorough review process and documentation of precision and completeness.

Consistency and reproducibility: To ensure consistency, primary data were collected at the same level of granularity. All input and output information, modelling assumptions and dataset choices were provided in the LCA report for the purpose of reproducibility by 3rd party review.

Representativeness: The manufacturing process utilized at Hoisington, Kansas plant is representative of typical communications cable manufacturing, and the US-SERC electricity grid mix was used to represent the local electricity grid. Additionally, the background dataset used to represent natural gas is consistent with the provided emission data provided. Proxy datasets were used as needed for raw material inputs to address lack of data for a specific material, and these proxy datasets were chosen for their technological representativeness of the actual materials. Primary data from Superior Essex represents facility-wide manufacturing and production data from 1/1/2023 to 12/31/2023.

No known data was excluded in this study.

Data Sources

Material/ProcessModule Category		Material/ProcessInventory Name	Dataset Name	Dataset Geographic Region	Reporting Period/Year Dataset Represents	Reference	Amount (if relevant)	Unit
Metal	A1	Copper	Copper, cathode {GLO}} market for copper, cathode Cut-off, U	Global	2023	ND	ND	kg
Plastic	A1	FEP	A.130.07.126. 230701 PTFE (Teflon, Polytetrafluoro ethylene)	Global	2023	ND	ND	kg
Energy	A3	Electricity	Electricity, medium voltage {US-SERC}} market for electricity, medium voltage Cut-off, U	US-SERC	2023	ND	ND	kWh
Energy	B6	Electricity	Electricity, medium voltage {US}} market group for electricity, medium voltage Cut-off, U	US	2023	ND	ND	kWh

Life Cycle Module Description

Raw Material Supply (A1):

Superior Essex provided Bills of Materials (BOMs) on the riser products studied including component composition and weights per kft of cable. From these BOMs, a comprehensive library of all material types used in these products was created and manufacturing scrap rates were applied to understand total amounts of raw materials needed for each product.

Transportation to Factory (A2):

The distance and weights of the supplied materials was used to calculate the transportation impacts in delivering raw materials to the manufacturing facility.

Manufacturing (A3):

All energy, water, waste, and packaging flows for manufacturing were allocated to riser products and accounted for. This includes the transport and disposal of manufacturing waste.

Transportation to Customer (A4):

The average distance for each transport mode per the Product Category Rules used.

Installation (A5):

A 5% scrap rate is assumed to account for any off-cuts or other discarded lengths of cable during installation. To account for the scrap, the additional length of cable and packaging are taken into account. The transport and disposal of product scrap and packaging disposal is also accounted for.

Product Replacement (B4):

1 replacement is needed based on the reference service life of 60 years and expected product lifetime of 30 years. This includes all processes from other information modules within the system boundary, except for operational electricity use.

Operational Energy Use (B6):

The dissipation of power through the use of the riser cable is accounted for. A 70% use rate is assumed from the Product Category Rules.

End of Life:

C2: Includes the transport of product to final disposal at end of life.

C3: Accounts for the amount of product that is recycled at end of life.

C4: Accounts for the amount of product that is incinerated and landfilled at end of life.

The following modules are included within the system boundary but have no impacts:

Use (B1), Maintenance (B2), Repair (B3), Refurbishment (B5), Operational Water Use (B7), and Deconstruction (C1)

LCA Discussion

Allocation Procedure

The inputs and outputs to the manufacturing plant are allocated per the stepwise method detailed in ISO 21930, Section 7.2.4, 7.2.5, and 7.2.6. Most plant inputs and outputs are assigned across total production volume using length-based allocation. Subdivision for product and packaging raw material inputs and scrap amounts is possible through product bills of materials (BOMs).

This EPD uses the cut-off method for recycling. In this approach, the first life of a material bears the environmental burdens of its production (e.g., raw material extraction and processing) and the second life (e.g., scrap input) bears the burdens of refurbishment (e.g., collection and refining of scrap). Secondary data taken from ecoinvent v3.10 cut-off by classification has allocation applied to it.

Cut-off Procedure

No known flows relevant to the product system are deliberately excluded from this LCA.

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:

Scenarios

Transport to the building/construction site (A4)

[A4 Module](#)

Liters of Fuel:	25.9 l/100km
Vehicle Type:	Diesel truck
Transport Distance:	592 km
Capacity Utilization:	30% %
Packaging Mass:	2.04E-02 kg
Weight of products transported:	3.34E-02 kg
Assumptions for scenario development:	No data was available regarding product-specific average transport distances by mode, so the PCR was used to establish distance and modes.

Installation in to the building/construction site (A5)

[A5 Module](#)

Installation Scrap Rate Assumed:	5 %
Net Fresh Water Consumption Specified by Water	0 m3
Source and Fate:	
Other Resources:	0 kg
Electricity Consumption:	0 kWh
Other Energy Carriers:	0 MJ
Product Lost per Declared/Functional Unit:	1.76E-03 kg
Mass of Packaging Waste Specified by Type:	2.15E-02 kg
Biogenic Carbon Contained in Packaging (kg C):	6.97E-03 kg
Assumptions for scenario development:	Product loss is due to the assumed 5% scrap rate during installation while packaging waste includes all of the product packaging plus the 5% scrap rate.

Replacement (B4)

B4 Module

Reference Service Life:	30 Years
Replacement Cycle:	1 (ESL/RSL)-1

Operational Energy Use (B6) & Operational Water Use (B7)

B6 & B7 Modules

Net Fresh Water Consumption Specified by Water	0 m3
Source and Fate:	

Further assumptions for scenario development:

Assuming a use rate of 70% per the PCR, a total of 367,920 hours of active use is assumed for the 60-year service life. The assumed dissipation rate is 0.565 mW/m, and this is used with active hours to determine electricity use over the service life.

End of Life (C1 - C4)

C1 - C4 Modules

Recovery

Reuse:	0 kg
Recycling:	1.28E-02 kg
Landfill:	2.06E-02 kg
Incineration:	0 kg
Incineration with Energy Recovery:	0 kg
Energy Conversion:	0 kg

Disposal

Product or Material for Final Disposal:	3.34E-02 kg
Removals of Biogenic Carbon:	0 kg CO2

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.2

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

Impact Category	Method	Indicator	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
GWP-total	IPCC AR5 GWP 100	ND	3.84e-1	6.56e-3	2.15e-2	0	0	0	4.13e-1	0	9.78e-2	0	0	5.27e-4	0	1.29e-4
GWP-fossil	IPCC AR5 GWP 100	ND	3.82e-1	6.56e-3	2.14e-2	0	0	0	4.10e-1	0	9.76e-2	0	0	5.27e-4	0	1.29e-4
GWP-biogenic	IPCC AR5 GWP 100	ND	1.12e-3	1.03e-6	5.94e-5	0	0	0	1.18e-3	0	3.65e-5	0	0	8.15e-8	0	3.15e-8
GWP-luluc	IPCC AR5 GWP 100	ND	1.07e-3	2.65e-6	5.70e-5	0	0	0	1.13e-3	0	4.90e-5	0	0	2.09e-7	0	6.63e-8
ODP	TRACI 2.2	ND	4.04e-8	8.21e-11	2.14e-9	0	0	0	4.27e-8	0	1.21e-9	0	0	8.04e-12	0	3.94e-12
AP	TRACI 2.2	ND	9.09e-3	3.63e-5	4.83e-4	0	0	0	9.62e-3	0	2.31e-4	0	0	2.72e-6	0	8.23e-7
EP	TRACI 2.2	ND	6.95e-3	7.39e-6	3.68e-4	0	0	0	7.33e-3	0	4.80e-4	0	0	5.83e-7	0	1.54e-7
POCP	TRACI 2.2	ND	3.81e-2	1.01e-3	2.14e-3	0	0	0	4.14e-2	0	2.61e-3	0	0	7.67e-5	0	2.19e-5
ADP-fossil	TRACI 2.2	ND	3.11e-1	7.17e-5	1.64e-2	0	0	0	3.28e-1	0	4.42e-3	0	0	5.71e-6	0	1.49e-6

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

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
RPRE	MJ, LHV	8.93e-1	1.24e-3	4.72e-2	0	0	0	9.41e-1	0	2.01e-1	0	0	9.71e-5	0	2.93e-5
RPRM	MJ, LHV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRPRE	MJ, LHV	4.41e+0	9.52e-3	2.34e-1	0	0	0	4.66e+0	0	1.10e+0	0	0	7.57e-4	0	2.05e-4
NRPRM	MJ, LHV	5.10e-4	0	2.69e-5	0	0	0	5.37e-4	0	0	0	0	0	0	0
SM	kg	3.96e-3	0	2.08e-4	0	0	0	4.17e-3	0	0	0	0	0	0	0
RSF	m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m3	4.54e-3	1.23e-5	2.44e-4	0	0	0	4.80e-3	0	6.56e-4	0	0	9.87e-7	0	3.29e-6

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 PENRM = 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

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
HWD	kg	1.02e-5	0	5.37e-7	0	0	0	1.07e-5	0	0	0	0	0	0	0
NHWD	kg	7.05e-3	0	3.71e-4	0	0	0	7.42e-3	0	0	0	0	0	0	0
RWD	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	6.52e-3	0	3.43e-4	0	0	0	1.97e-2	0	0	0	0	0	1.28e-2	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0	0	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

Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
BCRK	kg CO2	-3.12e-2	0	7.18e-3	0	0	0	-2.40e-2	0	0	0	0	0	0	0
BCEK	kg CO2	0	0	2.40e-2	0	0	0	2.40e-2	0	0	0	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:

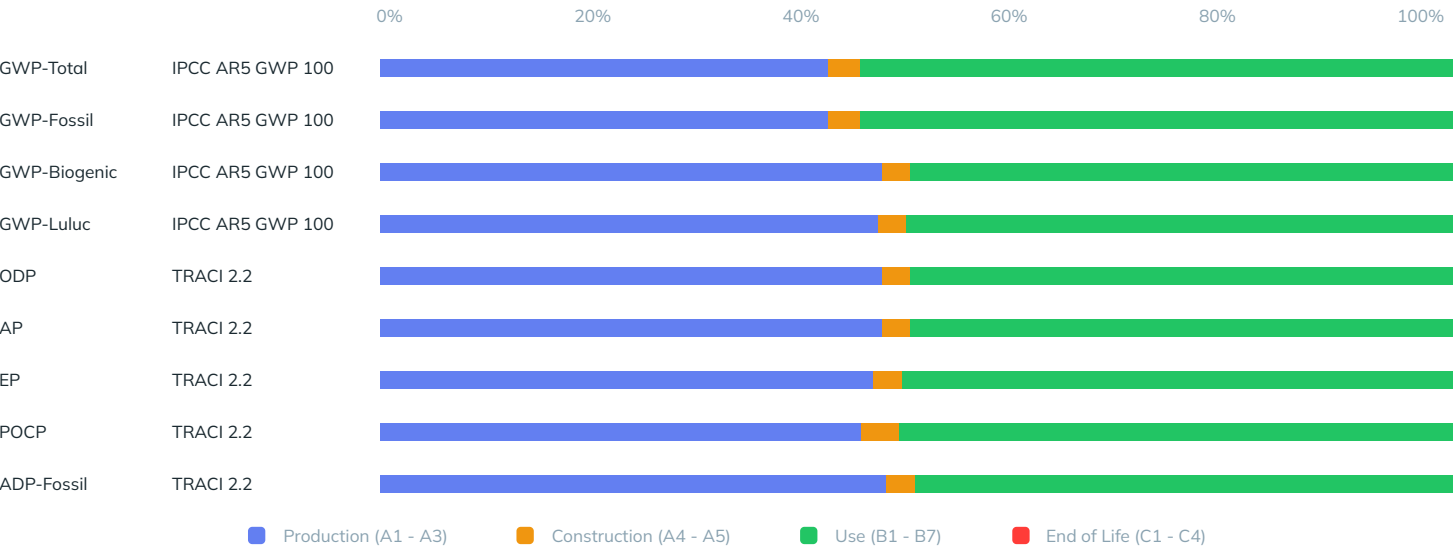
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = 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.

Interpretation

The majority of impacts are driven by raw materials (A1) with important contributions also coming from manufacturing (A3) and electricity consumption during use (B6). The need to replace the product one time in order to meet the 60-year reference service life doubles all the embedded impacts.

Detailed information on the inputs and outputs of the products was gathered with every effort made to perform a comprehensive analysis. An attempt was made to include as much detail as possible, even for processes that were found to be largely negligible in the environmental impact assessment. Processes were mass balanced before allocation to ensure all waste and emissions were captured. This was done to ensure completeness.

The products were modeled in a consistent manner. System boundaries for all products were defined in a similar manner. Therefore, any differences in overall potential environmental impacts should not be due to inconsistent modeling or data.



References

ACLCA. (2019). ACLCA Guidance to Calculating Non-LCIA Inventory Metrics in Accordance with ISO 21930:2017. ACLCA.

Bare, J., Gloria, T., & Norris, G. (2006). Development of the Method and U.S. Normalization Database for Life Cycle Impact Assessment and Sustainability Metrics. Environmental Science & Technology.

Bare, J., Norris, G., Pennington, D., & McKone, T. (2003). TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. Journal of Industrial Ecology.

Boulay A.M., B. J. (2018). The WULCA consensus characterization model for 108 water scarcity footprints: Assessing impacts of water consumption based on available water remaining (AWARE). . The International Journal of Life Cycle Assessment.

Center of Environmental Science, L. U. (2016). CML-IA Characterisation Factors.

Ecoinvent 3.10. (2024).

Frischknecht, R., Jungbluth, N., Althaus, H., Doka, G., Dones, R., Hischier, R., . . . Nemecek, T. (2007). Implementation of Life Cycle Impact Assessment Methods: Data v2.0. Dübendorf, Switzerland: ecoinvent report No. 3, Swiss centre for Life Cycle Inventories.

IPCC, I. P. (2013). IPCC Fifth Assessment report. The PhysicalScience Basis. Retrieved from <http://www.ipcc.ch/report/ar5/wg1/>.

ISO 14025. (2006). ISO 14025:2006: Environmental labels and declarations — Type III environmental declarations — Principles and procedures. International Organization for Standardization.

ISO 14040. (2006). ISO14040:2006/Amd 1:2020 -- Environmental management -- Life cycle assessment -- Principles and framework. International Organization for Standardization.

ISO 14071:2024. (n.d.). ISO 14071:2024 Environmental management - Life cycle assessment - Critical review processes and reviewer competencies. International organization for Standards (ISO).

ISO. (2006). ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework. International Organization for Standardization (ISO).

ISO. (2006). ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines. International organization for Standardization (ISO).

ISO 21930. (2017). Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services.

SmartEPD. (2022, November). General Program Instructions, v1.0.

SmartEPD. (2024). Part A Product Category Rules for Building and Construction Products and Services, Standard 1000, version 1.01.

SmartEPD. (2025). EPD-Norge Product Category Rules Addendum, Part B: Electrical Cables and Wires, Standard 1000-0xx, version 1.0.

Weidema B P, B. C. (2013). Overview and methodology. Data quality guideline for the ecoinvent database version 3. St. Gallen: The ecoinvent Centre.