Minimize our environmental footprint

Promote circularity in our products and processes

Prioritize the health and safety of our workforce and customers

Invest in our people and enrich the communities we serve

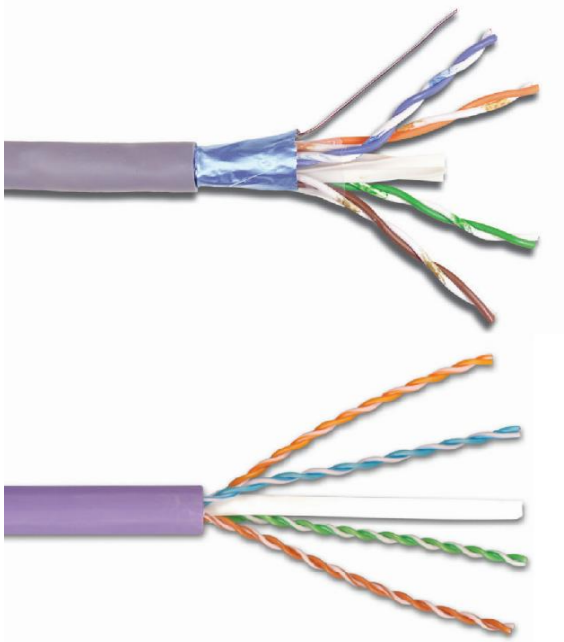
Support biodiversity and preserve natural ecosystems

SIEMON SUSTAINABILITY PLEDGE

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Siemon Category 6, 6A, 7 & 7A LSOH 4-Pair Communication Cables



EPD HUB, HUB-4844
Published on 14.01.2026, last updated on 14.01.2026, valid until 13.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Siemon
Address	101 Siemon Company Drive, 06795, Watertown, Connecticut, US
Contact details	Material-Compliance@siemon.com
Website	www.siemon.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021, ISO 14025:2006, ISO 21930:2017
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 PCR and PSR (PEP Association, Edition 4, 2021; PSR-0005, Edition 3.1, 2023)
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	A1-A3 (Cradle to gate) with options, A4-B6, and modules C1-C4, D Cradle to Grave
EPD author	Jonathan Ciccio
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour, as authorized verifier acting for EPD HUB Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PRODUCT

Product name	Siemon Category 6, 6A, 7 & 7A LSOH 4-Pair Communication Cables
Place(s) of raw materials	China
Place of production	China
Place(s) of installation and use	International
Period for data	Calendar Year 2025
Averaging in EPD	No Averaging
A1-A3 Specific data (%)	29.0

ENVIRONMENTAL DATA SUMMARY

Declared unit	One linear meter of Siemon 4-pair communication cable
Declared unit mass (kg)	0.046973
GWP-fossil, A1-A3 ($kgCO_2e$)	0.27
GWP-total, A1-A3 ($kgCO_2e$)	0.27
Secondary material, inputs (%)	8.76
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	0.86
Net freshwater use, A1-A3 (m^3)	0
Mass of packaging (kg)	0.0085

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Established in 1903, Siemon is an industry leader specializing in the design and manufacture of high-quality, high-performance IT infrastructure solutions and services for Data Centers, LANs, and Smart Buildings. Headquartered in Connecticut, USA, with global sales, technical, and logistics expertise spanning 150 countries, Siemon offers the most comprehensive suites of copper and optical fiber cabling systems, racks, cable management, and Intelligent Infrastructure Management solutions. With more than 400 patents specific to structured cabling, Siemon Labs invests heavily in R&D and the development of Industry Standards, underlining the company's long-standing commitment to its customers and the industry. Through an ongoing commitment to waste and energy reduction, Siemon's environmental sustainability benchmarks are unparalleled in the industry. Siemon OEM Technologies is a Siemon business unit comprised of a team of dedicated technical sales professionals supported by Siemon Labs, mechanical, electrical, and signal integrity engineers committed to solving industry and customer-driven interconnect challenges. We provide custom network infrastructure solutions to OEMs, Leading Manufacturers, Value-Added Resellers, and System Integrators.

PRODUCT DESCRIPTION

Siemon's Category 6, 6A, 7 & 7A cables provide unsurpassed link and channel performance exceeding ANSI/TIA-568.2-D requirements. When combined with our Z-MAX and UltraMAX outlets and modular cords, the result is best in class channel performance over the widest range of applications and environments. Further information can be found at: www.siemon.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material Origin
Metals, mass-%	35.1%	China
Minerals, mass-%	0%	-
Fossil materials, mass-%	64.9%	China
Bio-based materials, mass-%	0%	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0

PROPERTIES OF DECLARED PRODUCT AS SHIPPED

Siemon Copper Cable is delivered on 1000ft (305m) put-ups.

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	One linear meter of Siemon 4-pair communication cable
Mass per declared unit	0.046973 kg
Functional unit	One linear meter of Siemon 4-pair communication cable
Reference service life	30 years

PLACING ON THE MARKET / APPLICATION RULES

Industry Standards	ANSI/TIA-568.2-E, IEC 61156-5, ISO/IEC 11801-1
Applications Standards	10GBASE-T, 2.5/5GBASE-T, 10/100/1000BASE-T, PoE (Type 1,2,3,4) and PoH
Safety & Certifications	LSOH: IEC 60332 series, IEC 60754, IEC 61034, and EN50399. View our Declarations of Performance (DoP).
ISO Compliance	ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
RoHS	Compliant without Exemption
REACH	Contains no REACH SVHC substances ≥ 0.01% (100ppm)
TSCA Section 8, EU POPs	Does not Contain PFAS Substances
Conflict Minerals	DRC Conflict-Free

SUBSTANCES, REACH - VERY HIGH CONCERN

No substances of high concerns

PRECHECKS

LEED	LEED v4 Option 1 and Option 2, LEED v4.1 Option 1 and Option 2 LEED v5 Tier 3. Published HPD can be found here.
BREEAM	This EPD is third-party verified and created using One Click LCA. This enables integration into whole-building LCA assessments for Mat 01 credits. This EPD is also product-specific, Type III, and independently verified, qualifying for Mat 02 credits.
WELL	Supports WELL Material Transparency credits
LBC Red List	No Red List chemicals present ≥ 0.01% (100ppm) - Screened against LBC Red List and Priority List

LEED EMBODIED CARBON OPTIMIZATION

Indicator	Unit	Baseline	Product	% Reduction vs Baseline	Pass Threshold	Meets Criteria?
EN 15804+A2 GWP-total (A1–A3)	kg CO2 eq./m	3.00E+00	2.66E-01	91.1%	>=20%	Yes
EN 15804+A2 Acidification (A1–A3)	mol H^+ eq./m	1.20E-02	2.14E-03	82.2%	>=5%	Yes
EN 15804+A2 Eutrophication (A1–A3)	mol N eq./m	4.00E-03	3.34E-03	16.5%	>=5%	Yes
EN 15804+A2 Ozone Depletion Potential (A1–A3)	kg CFC-11 eq./m	3.00E-07	2.20E-08	92.7%	>=5%	Yes
EN 15804+A2 Photochemical Ozone Creation (A1–A3)	kg NMVOC eq./m	3.00E-03	1.15E-03	61.7%	>=5%	Yes

Based on the following, this EPD is eligible for LEED v4, v4.1 Option 2, v5 Tier 1,2,&3 (2 product valuation):

LEED v4/v4.1 Option 2, v5 Eligibility Criteria	Actual	Meets Criteria?
Third-party verified EPD	Yes	Yes
GWP ≥20% reduction	91.1%	Yes
At least two additional indicators ≥5% reduction	4 additional indicators ≥5% reduction	Yes
Circularity Assessment	Yes (see page 16)	Yes

Baseline values reflect typical published EPD ranges for copper data communication cables under EN 15804+A2 and PSR-0005: GWP-total ≈ 3.0 kg CO2e/m, Acid ≈ 1.2e-2 mol H^+ eq./m, EP ≈ 4e-3 mol N eq./m, ODP ≈ 3e-7 kg CFC-11e/m, POCP ≈ 0.003 kg NMVOC eq./m.

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The manufacturing energy mix is market-based, reflecting the regional electricity grid where production occurs. The primary energy type used in cable manufacturing is electricity, which powers extrusion, shielding, and assembly processes. Consumption values are derived from average annual facility data, allocated to the declared unit based on production volumes. This approach ensures transparency and aligns with EN 15804+A2 and ISO 21930 requirements for data quality and representativeness.

The cable is manufactured using high-purity copper conductors, polymer insulation, shielding, and a low-smoke, zero-halogen (LSOH) jacket. Copper is drawn and annealed, while insulation and jacket materials are extruded and cooled. Shielding and fillers are applied during core assembly. Components are integrated via automated lines and tested for performance. Packaging consists of recyclable wooden reels or cardboard.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

This model assumes international transport of 9,000 km by boat and 1,000 km by truck to the installation site. Siemon LSOH cables are distributed through and installed by certified installation technicians adhering to local/national standards and requirements. No energy or power is consumed during installation. A material loss rate of 5% is applied to installable components during installation in accordance with the PCR. Packaging materials are disposed of in module A5.

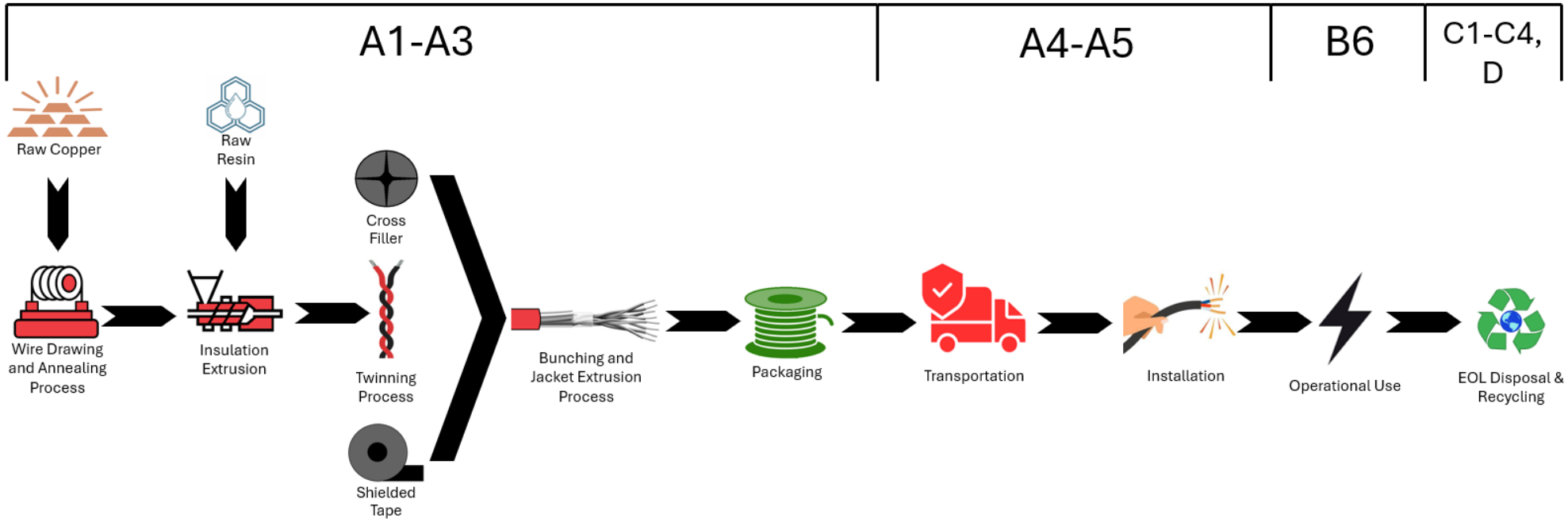
PRODUCT USE AND MAINTENANCE (B1-B7)

The cable operates passively and requires no maintenance throughout its service life. Operational energy use (B6) is modeled as transmission losses during use, calculated in accordance with IEC 61156-5. No impacts are associated with use-related emissions (B1), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), or operational water use (B7).
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At end-of-life, 60% of metal materials by weight are recycled, while 40% are landfilled. For plastic components, 60% are incinerated with energy recovery and 40% are landfilled. Module D accounts for the environmental benefits of copper recycling and electricity recovery from plastic incineration, modeled using Ecoinvent datasets for avoided burdens.

SYSTEM DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

All materials and processes have been included in the assessment.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. The product is packaged at the production factory, using wooden reels or cardboard packaging. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

Estimation for transport to the building site (A4) was assumed to be worst case of 9,000 km by boat and 1000km by truck.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CATEGORY 6A FUTP LSOH 4-PAIR COPPER CABLE 23AWG SIEMON PN 9A6L4-A5

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	4.83E-01	1.93E-01	5.52E-04	7.21E-02	2.66E-01	9.43E-03	2.40E-02	1.38E-01	0.00E+00	5.06E-03	1.98E-04	3.97E-02	-1.36E-01
GWP – fossil	kg CO_2e	4.79E-01	1.93E-01	5.51E-04	7.95E-02	2.73E-01	9.43E-03	1.43E-02	1.37E-01	0.00E+00	5.06E-03	1.98E-04	3.97E-02	-1.31E-01
GWP – biogenic	kg CO_2e	3.79E-03	5.55E-04	1.25E-07	-7.43E-03	-6.88E-03	1.83E-06	9.65E-03	1.01E-03	0.00E+00	1.15E-06	-6.66E-07	2.54E-06	-5.16E-03
GWP – LULUC	kg CO_2e	2.95E-04	1.49E-04	2.47E-07	2.63E-05	1.75E-04	4.61E-06	9.13E-06	1.03E-04	0.00E+00	2.26E-06	2.57E-07	3.78E-07	-1.96E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}e$	3.51E-08	2.15E-08	8.14E-12	5.06E-10	2.20E-08	1.38E-10	1.11E-09	1.17E-08	0.00E+00	7.46E-11	1.31E-12	1.59E-11	-1.10E-09
Acidification potential	mol H^+e	3.08E-03	1.73E-03	1.88E-06	4.07E-04	2.14E-03	1.57E-04	1.16E-04	6.37E-04	0.00E+00	1.72E-05	1.36E-06	9.88E-06	-3.28E-03
EP-freshwater[2)]	kg Pe	1.44E-04	1.05E-04	4.29E-08	1.45E-05	1.19E-04	5.31E-07	6.06E-06	1.79E-05	0.00E+00	3.94E-07	8.78E-08	1.40E-07	-2.32E-03
EP-marine	kg Ne	4.96E-04	2.14E-04	6.18E-07	9.05E-05	3.05E-04	4.36E-05	1.82E-05	1.17E-04	0.00E+00	5.66E-06	4.83E-07	5.46E-06	-9.50E-04
EP-terrestrial	mol Ne	5.36E-03	2.36E-03	6.72E-06	9.70E-04	3.34E-03	4.82E-04	1.98E-04	1.22E-03	0.00E+00	6.16E-05	3.68E-06	4.73E-05	-1.38E-02
POCP ("smog")[3)]	kg NMVOCe	1.73E-03	8.82E-04	2.77E-06	2.67E-04	1.15E-03	1.38E-04	6.65E-05	3.39E-04	0.00E+00	2.54E-05	1.12E-06	1.23E-05	-2.71E-03
ADP-minerals & metals[4)]	kg Sbe	1.11E-05	1.04E-05	1.54E-09	9.42E-08	1.04E-05	1.83E-08	5.24E-07	7.89E-08	0.00E+00	1.41E-08	4.49E-09	2.95E-09	-4.23E-05
ADP-fossil resources	MJ	5.94E+00	3.00E+00	8.00E-03	7.36E-01	3.74E+00	1.27E-01	1.96E-01	1.79E+00	0.00E+00	7.34E-02	1.91E-03	1.03E-02	-1.52E+00
Water use[5)]	m^3e depr.	6.52E+00	7.14E-02	3.95E-05	1.24E-02	8.39E-02	5.12E-04	4.44E-03	6.42E+00	0.00E+00	3.62E-04	4.02E-05	2.64E-03	-6.19E-02

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterization method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.
Modules B1–B5 and B7 have no reported environmental impacts

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Particulate matter	Incidence	2.58E-08	1.50E-08	5.52E-11	6.18E-09	2.13E-08	7.59E-10	1.13E-09	1.96E-09	0.00E+00	5.06E-10	8.73E-11	6.64E-11	-2.88E-08
Ionizing radiation[6)]	kBq U235e	1.41E-01	7.21E-03	6.97E-06	2.02E-03	9.24E-03	8.79E-05	4.69E-04	1.31E-01	0.00E+00	6.39E-05	1.04E-05	1.45E-05	-9.02E-03
Ecotoxicity (freshwater)	CTUe	9.54E+00	8.36E+00	1.13E-03	4.03E-01	8.76E+00	1.44E-02	4.40E-01	2.13E-01	0.00E+00	1.04E-02	4.06E-03	9.20E-02	-2.09E+02
Human toxicity, cancer	CTUh	2.21E-10	1.40E-10	9.10E-14	5.65E-11	1.97E-10	2.63E-12	1.02E-11	6.77E-12	0.00E+00	8.35E-13	7.41E-13	3.40E-12	-1.20E-10
Human tox. non-cancer	CTUh	1.19E-08	9.69E-09	5.18E-12	8.32E-10	1.05E-08	7.07E-11	5.44E-10	5.41E-10	0.00E+00	4.75E-11	8.41E-12	1.19E-10	-5.16E-09
SQP[7)]	-	1.68E+00	9.27E-01	8.06E-03	3.80E-01	1.32E+00	7.80E-02	7.17E-02	1.26E-01	0.00E+00	7.39E-02	9.75E-03	7.81E-03	-2.46E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

Modules B1–B5 and B7 have no reported environmental impacts

USE OF NATURAL RESOURCES

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	8.83E-01	2.00E-01	1.10E-04	5.19E-02	2.52E-01	1.41E-03	-9.83E-02	7.26E-01	0.00E+00	1.01E-03	2.74E-04	3.34E-04	-6.29E-01
Renew. PER as material	MJ	0.00E+00	0.00E+00	0.00E+00	3.93E-02	3.93E-02	0.00E+00	-3.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	8.83E-01	2.00E-01	1.10E-04	9.12E-02	2.92E-01	1.41E-03	-1.38E-01	7.26E-01	0.00E+00	1.01E-03	2.74E-04	3.34E-04	-6.29E-01
Non-re. PER as energy	MJ	5.24E+00	2.12E+00	8.00E-03	7.13E-01	2.85E+00	1.27E-01	1.51E-01	2.63E+00	0.00E+00	7.34E-02	1.91E-03	-5.95E-01	-1.52E+00
Non-re. PER as material	MJ	0.00E+00	8.77E-01	0.00E+00	-3.26E-02	8.44E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.44E-01	0.00E+00
Total use of non-re. PER	MJ	5.24E+00	3.00E+00	8.00E-03	6.80E-01	3.69E+00	1.27E-01	1.51E-01	2.63E+00	0.00E+00	7.34E-02	1.91E-03	-1.44E+00	-1.52E+00
Secondary materials	kg	4.81E-03	4.12E-03	3.41E-06	3.36E-04	4.46E-03	5.66E-05	2.36E-04	1.60E-05	0.00E+00	3.12E-05	3.49E-06	7.67E-06	-7.60E-03
Renew. secondary fuels	MJ	8.02E-04	7.62E-04	4.33E-08	5.63E-07	7.62E-04	4.52E-07	3.82E-05	4.14E-09	0.00E+00	3.97E-07	2.78E-07	2.41E-07	-6.86E-05
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	3.83E-03	1.79E-03	1.18E-06	2.98E-04	2.09E-03	1.45E-05	1.07E-04	1.56E-03	0.00E+00	1.08E-05	9.72E-07	4.76E-05	-1.43E-03

8) PER = Primary energy resources. Modules B1–B5 and B7 have no reported environmental impacts

END OF LIFE – WASTE

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Hazardous waste	kg	4.46E-02	3.26E-02	1.36E-05	8.96E-03	4.15E-02	1.95E-04	2.13E-03	1.68E-05	0.00E+00	1.24E-04	1.92E-05	6.15E-04	-3.11E-02
Non-hazardous waste	kg	7.10E-01	5.62E-01	2.51E-04	7.22E-02	6.34E-01	3.26E-03	4.20E-02	9.05E-03	0.00E+00	2.30E-03	5.86E-04	1.85E-02	-4.27E-01
Radioactive waste	kg	1.61E-05	1.78E-06	1.71E-09	6.33E-07	2.41E-06	2.15E-08	1.22E-07	1.35E-05	0.00E+00	1.56E-08	2.55E-09	3.65E-09	-2.22E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.02E-02	0.00E+00	0.00E+00	1.55E-03	1.55E-03	0.00E+00	8.61E-03	2.96E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	3.71E-07	0.00E+00	0.00E+00	3.54E-07	3.54E-07	0.00E+00	1.77E-08	1.55E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	8.50E+07	0.00E+00	0.00E+00	8.10E-07	8.10E-07	0.00E+00	4.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	4.69E-01	1.92E-01	5.48E-04	7.03E-02	2.63E-01	9.38E-03	1.38E-02	1.38E-01	0.00E+00	5.03E-03	3.73E-04	3.97E-02	-1.31E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	3.01E-08	1.48E-08	6.49E-12	1.13E-10	1.49E-08	1.10E-10	7.52E-10	1.43E-08	0.00E+00	5.96E-11	1.10E-12	1.41E-11	-9.69E-10
Acidification	kg SO_2e	2.54E-03	1.48E-03	1.44E-06	2.93E-04	1.77E-03	1.23E-04	9.58E-05	5.32E-04	0.00E+00	1.32E-05	1.08E-06	7.04E-06	-2.23E-03
Eutrophication	kg PO_4^3e	1.84E-03	1.57E-03	3.50E-07	7.39E-05	1.64E-03	1.64E-05	8.32E-05	9.75E-05	0.00E+00	3.21E-06	4.16E-07	2.57E-06	-8.15E-04
POCP (“smog”)	kg C_2H_4e	1.48E-04	9.39E-05	1.28E-07	1.70E-05	1.11E-04	6.75E-06	5.98E-06	2.27E-05	0.00E+00	1.17E-06	1.81E-07	4.80E-07	-1.09E-04
ADP-elements	kg Sbe	1.10E-05	1.03E-05	1.50E-09	4.11E-08	1.04E-05	1.79E-08	5.20E-07	7.89E-08	0.00E+00	1.38E-08	4.47E-09	2.09E-09	-4.22E-05
ADP-fossil	MJ	5.70E+00	2.89E+00	7.89E-03	6.20E-01	3.52E+00	1.26E-01	1.85E-01	1.79E+00	0.00E+00	7.24E-02	1.74E-03	1.01E-02	-1.38E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	4.79E-01	1.93E-01	5.51E-04	7.95E-02	2.73E-01	9.43E-03	1.43E-02	1.37E-01	0.00E+00	5.06E-03	1.98E-04	3.97E-02	-1.31E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterization factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

Modules B1–B5 and B7 have no reported environmental impacts

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	Total	A1	A2	A3	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	4.65E-01	1.91E-01	5.44E-04	6.93E-02	2.60E-01	9.31E-03	1.37E-02	1.36E-01	0.00E+00	4.99E-03	3.52E-04	3.98E-02	-1.30E-01
Ozone Depletion	kg $CFC_{-11}e$	3.71E-08	1.97E-08	8.59E-12	1.26E-10	1.98E-08	1.45E-10	1.00E-09	1.60E-08	0.00E+00	7.87E-11	1.40E-12	1.67E-11	-1.21E-09
Acidification	kg SO_2e	2.58E-03	1.45E-03	1.67E-06	3.21E-04	1.78E-03	1.35E-04	9.70E-05	5.50E-04	0.00E+00	1.53E-05	1.29E-06	9.20E-06	-2.68E-03
Eutrophication	kg Ne	8.62E-04	6.25E-04	1.76E-07	3.67E-05	6.62E-04	6.41E-06	3.39E-05	1.56E-04	0.00E+00	1.61E-06	2.39E-07	2.26E-06	-1.04E-03
POCP (“smog”)	kg O_3e	3.04E-02	1.36E-02	4.25E-05	5.12E-03	1.88E-02	2.84E-03	1.12E-03	6.99E-03	0.00E+00	3.90E-04	1.97E-05	2.76E-04	-5.60E-02
ADP-fossil	MJ	2.09E+00	9.96E-01	8.01E-03	6.15E-01	1.62E+00	1.28E-01	8.99E-02	1.78E-01	0.00E+00	7.35E-02	1.93E-03	2.88E-03	0.00E+00

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation (A3)

Market group for electricity, medium voltage. Data based on average annual facility consumption, allocated to the declared unit. Dataset: Ecoinvent v3.10.1/3.11, “Market for electricity, medium voltage, northEastChinaGrid, Ecoinvent, 1.40 kgCO2e/kWh”

Transport scenario documentation – (A4)

International Transport: 9,000 km by ocean freight (container ship) from Taiwan to the United States. “Market for transport, freight, sea, container ship”.

Domestic Transport: 1,000 km by truck to installation site. “Market for transport, freight, lorry >32 metric ton, EURO5”.

Installation scenario documentation – (A5)

Installation: No energy or power is consumed during installation. Installation performed by certified technicians.

Material Loss: 5% material loss rate applied to installable components, per PCR.

Packaging Disposal: Packaging materials (wooden reels or cardboard) are disposed of in A5, with fractions sent to recycling, incineration, or landfill according to local practices.

Wooden Reel: “Treatment of waste wood, untreated, municipal incineration”, “Transport: 80km “Market for transport, freight, lorry >32 metric ton, EURO5”

Steel Bolts: “Treatment of scrap steel, municipal incineration”. “Transport: 80km “Market for transport, freight, lorry >32 metric ton, EURO5”

Use Phase Scenario (B6)

Operational Energy Use: Modeled as transmission losses during use, calculated in accordance with IEC 61156-5. Losses may vary depending on network topology, load, and operational practices; an average scenario representative of typical installations is applied. “Electricity - MIXED - Midcontinent Independent System Operator, Inc. (LCA Commons 2023)”.

End-of-Life Scenario (C1–C4, D)

C1-C4 Metals: 60% of metal materials by weight are recycled; 40% are landfilled. “Treatment of inert waste, inert material landfill, for final disposal)”. “Treatment of metal scrap, mixed, for recycling, unsorted, sorting”. “Transport: 1000km “Market for transport, freight, lorry >32 metric ton, EURO5”.

C1-C4 Plastics: 60% are incinerated with energy recovery; 40% are landfilled. “Treatment of waste plastic, mixture, municipal incineration”. “Treatment of inert waste, inert material landfill, for final disposal)”. “Transport: 1000km “Market for transport, freight, lorry >32 metric ton, EURO5”.

Module D: Accounts for environmental benefits from copper recycling and energy recovery from plastic incineration, using Ecoinvent datasets for avoided burdens. “Copper production, cathode, solvent extraction and electrowinning process”. “Electricity, from municipal waste incineration to generic market for electricity, medium voltage”.

All scenario datasets are from Ecoinvent v3.10.1/3.11 and One Click LCA databases, with parameters and rates aligned to the EPD Hub PCR, PSR-0005, and ISO 21930/EN 15804+A2 requirements.

LIFE-CYCLE INTERPRETATION

DATA QUALITY ASSESSMENT

The purpose of this data quality assessment is to evaluate the reliability, consistency, and accuracy of the data used in the Life-Cycle Assessment (LCA) report. This assessment ensures that the data utilized in the LCA study meets the required standards for quality and is suitable for deriving meaningful and reliable conclusions. The data quality assessment has been conducted on the life cycle modules that are considered mandatory according to ISO 21930/EN 15804 and the respective Product Category Rules (PCR) and Product Specific Rules (PSR) used in this study:

PEP Association. Product Category Rules for Electrical, Electronic and HVAC-R Products, Edition 4, September 6, 2021
PEP Association. PSR-0005 for Wires, Cables and Accessories, Edition 3.1, December 8, 2023

Modules A1–A3 represent primary and measured data over which the manufacturer has direct control. Inventory data for the product stage (A1–A3) have been collected via a questionnaire and direct communication with a representative of the manufacturer. The collected information includes primary data about annual quantities of raw and supplementary materials used (including production losses), as well as information about suppliers, transportation types and distances, energy and water consumption, and waste generation. Where specific data has been unavailable, secondary data sources have been used — including the Ecoinvent database, statistical data, peer-reviewed papers, and published EPDs. When available, published EPDs have been used for raw materials, and their quality is considered very good. Otherwise, generic datasets from the Ecoinvent database have been used.

All significant materials and processes are included in the assessment. The cut-off rules of EN 15804, ISO 21930, ISO 14040, ISO 14044, and the referenced PCR and PSR apply, so data can be considered complete and consistent. Data collection was conducted by trained personnel, and procedures were documented to ensure traceability. Data sources were evaluated for their reliability based on their publication and peer-review status, with preference given to sources with established credibility.

INTERPRETATION OF THE RESULTS

This Life Cycle Assessment presents the cradle-to-grave environmental performance of the Siemon Plenum 4-Pair Copper Cable. The results show that Energy Use (A3) and Operational Energy Use (B6) contribute 50% to the total Global Warming Potential. This is primarily due to transmission losses during the use phase, modeled in accordance with IEC 61156-5. The product stage (A1–A3) contributes approximately 40% of the total GWP, driven by the extraction and processing of copper conductors and polymeric materials for insulation and jacketing. End-of-life impacts (C1–C4) are influenced by the disposal and recycling rates of metals and plastics, while Module D captures environmental benefits from copper recycling and energy recovery from plastic incineration. These findings highlight opportunities for impact reduction through material efficiency, increased recycling, and optimized manufacturing processes.

ASSUMPTIONS AND LIMITATIONS ASSOCIATED WITH THE INTERPRETATION

Life-Cycle Assessment (LCA) is a comprehensive method used to evaluate the environmental impacts associated with all stages of a product's life cycle. However, certain assumptions and limitations are inherent to this methodology, which must be considered when interpreting the results. The system boundaries define which processes are included in the LCA. All significant processes contributing to the environmental impact are included within these boundaries. The data used in the LCA, whether primary or secondary, is accurate and representative of the actual processes. Some materials/energy in small amounts (less than 1%) are excluded due to lack of data or unavailable proxies. The recycling and incineration rates modeled in the end-of-life scenario reflect the current situation on the market where the product is sold and used. Transmission losses during the use phase (Module B6) are modeled in accordance with IEC 61156-5. These losses can vary depending on the characteristics of the electrical networks where the cable is installed, including network topology, load conditions, and operational practices. It is assumed that the chosen method (mass-based) appropriately reflects the impact distribution. All other assumptions are listed in their respective sections under Product Life Cycle.

CONCLUSIONS AND RECOMMENDATIONS

Optimization of the supply chain for raw materials (modules A1 and A2) and the manufacturing process (module A3) can help reduce the product's environmental impacts. The actions taken to decrease environmental impacts in product stage (A1-A3) have a multiplicative effect on further life cycle modules as well. Possible solutions can be use of recycled and alternative raw materials, renewable energy and the use of more sustainable transport options. Use of recycled materials will help to reduce impacts, and the emissions will decrease in proportion to the ratio of recycled content. Electricity generated from renewable energy sources should be used in the manufacturing plant and sustainable transportation options should be preferred instead of conventional transportation.

DETAILED CUT-OFF DOCUMENTATION

This LCA includes all relevant industrial processes from raw material acquisition through production, distribution, installation, and end-of-life stages. The study covers modules A1–A3 in accordance with ISO 21930/EN 15804 and the applicable PCR and PSR (PEP Association, Edition 4, 2021; PSR-0005, Edition 3.1, 2023). No mandatory modules or processes have been excluded. To ensure modeling efficiency and due to limitations in available data, constituents representing less than 1% of the product mass have been excluded. These primarily consist of ancillary materials used in trace amounts during manufacturing and are not expected to significantly influence the overall environmental impact. The total excluded input and output flows do not exceed 5% of the cumulative energy use or mass per life cycle stage, in accordance with ISO 14040, ISO 14044, and the referenced PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available, are included in the calculation.

DATA QUALITY INDICATORS (PER EN 15941:2024)

Dataset	Temporal	Geographical	Technological	Source	Completeness
Copper Cable Materials	2025	China	High	Primary	High
Energy (Electricity)	2025	China	High	Primary	High
Packaging	2025	China	High	Primary	High

ADDITIONAL ENVIRONMENTAL INFORMATION

CIRCULARITY SUMMARY (FOR LEED V5 TIER 3)

Siemon's Category 6, 6A, 7 & 7A LSOH 4-Pair Communication Cables are designed and manufactured with a strong emphasis on circularity, resource efficiency, and end-of-life (EOL) material recovery.

Recycled Content and Material Efficiency: The cable contains 10% secondary (recycled) material inputs by mass, primarily in the copper conductor and thermoplastic components. Siemon's supply chain prioritizes responsible sourcing and maximizes recycled content where technically feasible, reducing demand for virgin resources.

Design for Disassembly and Recycling: The cable is constructed for mechanical separation of copper and polymer components, facilitating efficient recycling at end-of-life. At EOL, 60% of metal materials by weight are recycled, with copper recovery rates typically exceeding 95% in established recycling streams. Plastic components are managed through energy recovery (incineration with energy capture) and landfill, with ongoing efforts to increase polymer recyclability.

Sustainable EOL Material Reclamation Program: Siemon offers a global decommissioning and sustainable EOL material reclamation service, supporting customers in the responsible removal, sorting, and recycling of decommissioned cabling and other IT infrastructure. The program ensures that valuable materials, including copper, are reclaimed and reintroduced into the supply chain, minimizing landfill and supporting a circular economy. Customers receive documentation of recovered material volumes and recycling outcomes, supporting their own sustainability and LEED reporting. The formal documentation of waste handling, recycling/reclamation, and waste stream mapping provides an array of potential customer benefits: from leveraging responsible, Earth-friendly practices in the company's overall sustainability program, to providing quantifiable project-level environmental impact mitigation metrics, and even re-investing the recycled material proceeds into other sustainability initiatives.

Packaging Circularity: Cables are shipped on recyclable wooden reels or cardboard packaging with minimal plastic use. Packaging materials are selected for high recycled content (>75%) and recyclability.

Durability and Extended Service Life: Siemon cables are engineered for long service life (30+ years), reducing the frequency of replacement and associated resource use.

Certifications and Transparency: Siemon manufacturing locations are ISO 14001:2015 certified for environmental management. Product compliance with RoHS, REACH, and absence of ILFI Red List and PFAS substances is verified. Siemon publishes HPDs and third-party verified EPDs for key product lines, supporting full material transparency.

SIEMON SUSTAINABILITY AND CERTIFICATIONS

Siemon has long integrated sustainability principles into our core values and business operations, recognizing our responsibility to protect people and the environment, and contribute positively to the communities where we operate. Our commitment is deeply rooted in our engineering heritage, driving us to create efficient, long-lasting solutions while minimizing our operational footprint. Our dedication is exemplified across our global manufacturing locations in the US, Mexico, China, and India, which operate under stringent environmental, safety, and quality controls and incorporate energy-efficient practices. Siemon is dedicated to minimizing environmental impact throughout the product lifecycle and across our global footprint, pursuing ongoing reductions in energy consumption, waste generation, and emissions through continuous improvement programs. We believe in corporate transparency and accountability. Siemon is committed to providing clear insight into the impact of our business activities on people and the environment through comprehensive annual ESG reporting. Our reporting process is guided by and aligned with established frameworks and standards, including the Responsible Business Alliance (RBA), the UN Global Compact (UNGC), the Global Reporting Initiative (GRI), and the EU Corporate Sustainability Reporting Directive (CSRD). A key focus of our transparency efforts is reporting on the global warming potential (GWP) associated with our products and activities. We are assessing the climate impact of our business operations, supported by platforms like Greenly and aligning our reduction efforts with frameworks such as the Science Based Targets initiative (SBTi) according to the GHG Protocol. For our products, we provide detailed environmental performance data through third-party verified Environmental Product Declarations (EPDs) and Health Product Declarations (HPDs), both of which are pre-screened to LEED v4 and 4.1. We have set a goal to publish HPDs and EPDs covering 80% of our product sales by 2029. Siemon's environmental, safety and operational stewardship activities include:

ISO 14001:2015 Certification: Maintaining Environmental Management System certification at our manufacturing locations, demonstrating a systematic approach to environmental responsibility.
ISO 9001:2015 Certification: Ensuring all Siemon manufacturing facilities adhere to the rigorous Quality Management System standard, reflecting our commitment to producing reliable, high-quality products. Designing high-performance, durable network infrastructure solutions built to last, reducing the need for frequent replacements and minimizing associated environmental impact and waste.

ISO 45001:2018 Certification: Achieving Occupational Health and Safety Management System certification at key facilities, underscoring our commitment to providing a safe and healthy work environment for all employees.

Energy Management: Implementing comprehensive energy management programs across our facilities focused on operational efficiency and exploring the expanded use of renewable energy sources.
Compliance: Strict adherence to environmental and material compliance regulations, including thorough supply chain assessments and supplier engagement to ensure responsible sourcing of materials. Publishing Health Product Declarations (HPDs) and Environmental Product Declaration (EPDs) for key product lines, providing detailed insight into material ingredients to demonstrate that our products are safe for people and the environment. Product regulations and standards include UL, CUL, Anatel, CE, Rohs, Reach and Conflict Minerals and can be found on our Product Compliance Page.

REFERENCE TABLE – SIEMON CATEGORY 6,6A,7&7A LSOH 4-PAIR COMMUNICATION CABLES

Contact material-compliance@siemon.com for further information. These additional tables are provided for reference and present environmental impact results for other Siemon cable constructions. These values have been derived using the same LCA methodology and assumptions as the main model.

Impact category		Unit	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4	A1-A3, A4-A5, B6, C1-C4
Product Weight		kg/m	0.046973	0.050220	0.055856	0.063080	0.049400	0.052330	0.053308	0.033689	0.049203	0.058260
Product Description		-	CAT 6A F/UTP 9A6L4-A5	CAT 6A TL UTP 9U6L4-A5	CAT 6A U/FTP 9D6B24-A5	CAT 6A S/FTP 9T6L4-A5	CAT 6A S/FTP Class Cca 9T6C14-A5	CAT 6A F/FTP 9N6J4-A5	CAT 6 UTP 9C6L4-E3	CAT 6 UTP 9C6L4-E2	CAT 7 S/FTP 9T7L4-E6	CAT 7A S/FTP 9T7L4-E10
EN 15804 +A2	GWP – total	kg CO2e	4.83E-01	4.99E-01	5.04E-01	6.06E-01	5.46E-01	5.01E-01	3.44E-01	2.64E-01	5.76E-01	6.31E-01
	GWP – fossil	kg CO2e	4.79E-01	4.95E-01	5.00E-01	5.80E-01	5.42E-01	4.98E-01	3.38E-01	2.58E-01	5.71E-01	6.26E-01
	GWP – biogenic	kg CO2e	3.79E-03	3.97E-03	4.06E-03	1.44E-02	3.76E-03	2.96E-03	6.07E-03	5.96E-03	4.65E-03	3.75E-03
	GWP – luluc	kg CO2e	2.95E-04	2.98E-04	2.72E-04	1.16E-02	3.39E-04	2.65E-04	3.43E-04	1.98E-04	3.51E-04	3.79E-04
TRACI 2.1	Global Warming Pot.	kg CO2e	4.65E-01	4.80E-01	4.87E-01	5.74E-01	5.28E-01	4.85E-01	3.35E-01	2.55E-01	5.57E-01	6.11E-01
	Ozone Depletion	kg CFC-11e	3.71E-08	3.97E-08	4.11E-08	7.13E-08	4.19E-08	4.33E-08	1.69E-08	1.55E-08	4.00E-08	4.13E-08
	Acidification	kg SO2e	2.58E-03	2.64E-03	2.93E-03	3.30E-03	3.04E-03	2.94E-03	1.83E-03	1.53E-03	3.35E-03	3.58E-03
	Eutrophication	kg Ne	8.62E-04	1.08E-03	6.14E-04	1.38E-03	1.27E-03	5.89E-04	7.89E-04	6.88E-04	1.06E-03	1.23E-03
	POCP (“smog”)	kg O3e	3.04E-02	3.12E-02	3.34E-02	3.79E-02	3.51E-02	3.36E-02	2.04E-02	1.60E-02	3.84E-02	4.14E-02
	ADP-fossil	MJ	2.09E+00	2.72E+00	1.42E+00	2.75E+00	1.95E+00	1.27E+00	2.09E+00	1.44E+00	1.86E+00	2.87E+00

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Yazan Badour, as authorized verifier acting for EPD HUB Limited
14.01.2026