

# Environmental Product Declaration Panduit Corporation Cable Ties

Cable Management Solutions  
Product Category



As a leading provider of the highest-quality infrastructure and connectivity solutions, we have established a business course that defines us not only by what we do, but how we do it. We are actively focused on minimizing our carbon footprint through the implementation of environmentally sustainable business practices across the organization.

Since we began our environmental sustainability journey, we have coalesced around a collective mindset that concentrates not only on reducing Panduit's carbon footprint but also on restoring and improving our environment through the development of innovative solutions, waste management, and supporting the circular economy. Our environmental sustainability mission: build a sustainable business for our customers, employees, and our world.

To successfully achieve this vision, we established the Environmental Stewardship Initiative to align, prioritize, and measure our global sustainability objectives. Co-sponsored by Panduit Executive Chairman, Andrew Caveney, and Senior Vice President of Operations, David Tallentire, the initiative is governed by a cross functional team with representatives from every Panduit business function and operating unit.

We walk the talk.

Our world headquarters, a LEED Gold® certified building, is a testament to our commitment to design and implement healthy, energy efficient, and sustainable business environments. Through our experience and expertise, we can help you build an infrastructure that can contribute toward your projects' LEED certification.

Environmental Product Declaration for Panduit Corporation Products:

## BT Cable Ties

Reference product: BT1M,-,0



# Environmental Product Declaration



Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025 and EN 15804+A2. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: 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.

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions 333 Pfingsten Road, Northbrook, IL 60611
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	UL Environment Product Declaration Program General Program Instructions v2.7 March 2022
MANUFACTURER NAME AND ADDRESS	Panduit Corporation 16530 W. 163rd Street Lockport, IL 60441 United States of America
DECLARATION NUMBER	4791654869.101.1
DECLARED PRODUCT & FUNCTIONAL UNIT	BT Cable Ties Cable Management Solutions Product Category; Mounting Systems Subcategory Functional Unit = To mount a cable or a tube at a point with a cable tie with a clamping capacity between Y mm (minimum) and C mm (maximum) for a service life of 20 years.
REFERENCE PCR AND VERSION NUMBER	Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 (PCR Part A) and PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B).
DESCRIPTION OF PRODUCT(S) APPLICATION/USE	Dome-Top® barb locking cable ties
PRODUCT RSL DESCRIPTION	20 years
MARKETS OF APPLICABILITY	North America and Europe
DATE OF ISSUE	February 21, 2025
PERIOD OF VALIDITY	5 years
EPD TYPE	Product Specific
DATASET VARIABILITY	N/A
EPD SCOPE	Cradle-to-Grave and Module D (A + B + C + D)
YEAR(S) OF REPORTED PRIMARY DATA	2023
LCA SOFTWARE & VERSION NUMBER	SimaPro v9.6.0.1
LCI DATABASE(S) & VERSION NUMBER	Ecoinvent v3.10 & USLCI v2.0
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1; CML 4.1; EN 15804+A2
The sub-category PCR review was conducted by:	Pep ecopassport
<p>This declaration was independently verified in accordance with ISO 14025: 2006. The IBU: Product Category Rules for Building-Related Products and Services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, based on EN 15804+A2 serves as the core PCR.</p> <p><input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL</p>	 Cooper McCollum, UL Solutions
<p>This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:</p>	 Ik-Kim

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building. This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of EN 15804+A2 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

# Environmental Product Declaration

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## General Information

### Description of Company/Organization

Panduit's industrial electrical and network infrastructure ensures smart, scalable, and efficient connectivity solutions to help you compete and succeed in a constantly evolving global marketplace.

### Product Description

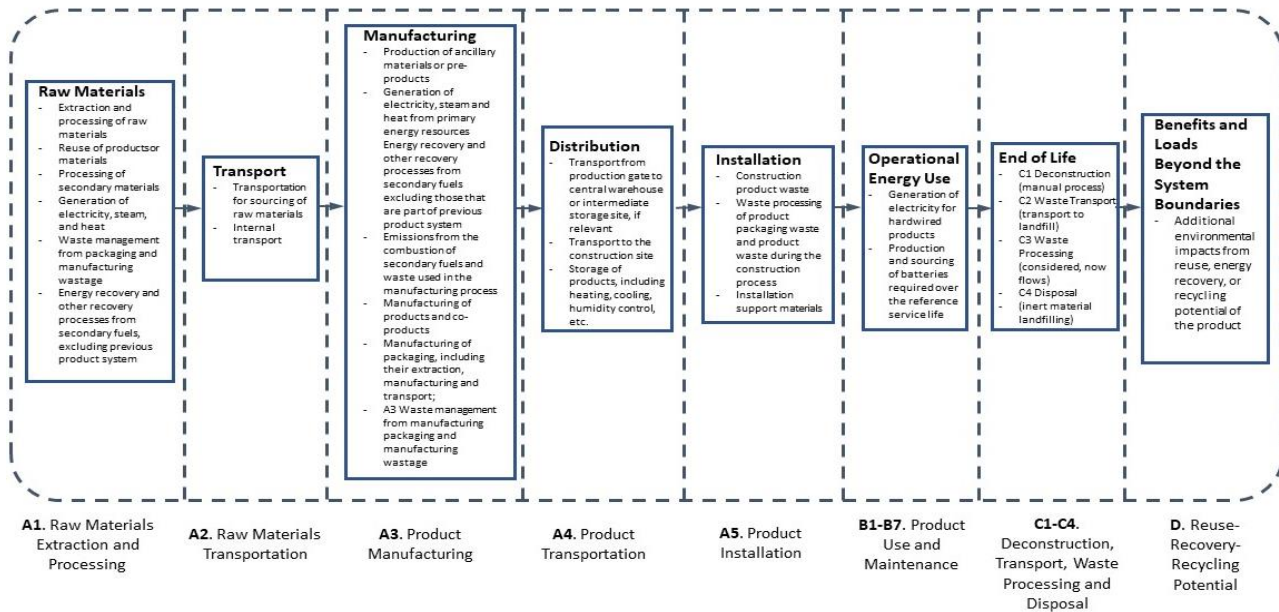
Product Name: BT1M-,0 Dome-Top® barb locking cable ties

Product Characteristic: Premium locking barb ties

The BT1M Dome-Top® barb locking cable ties provide consistent performance, reliability and infinite adjustability through the entire bundle range. Miniature cross section, 4.0" (102mm) length. Appropriate for indoor use, made of Nylon 6.6 natural color. Additional features include:

- BT1M-C0 black version is made with weather resistant Nylon 6,.6 with high resistance to ultraviolet light; can be used both for indoors or outdoor installations.
- High tensile strength, low thread force, anti-slip strap body, curved finger-tip grip.

### Flow Diagram



### Manufacturer Specific EPD

This product-specific EPD was developed based on the Cradle-to-Grave Life Cycle Assessment. This EPD represents the Panduit Corporation Costa Rica facility utilizing data from the Costa Rica site. The EPD accounts for raw material extraction and processing, transport, product manufacturing, distribution, installation, maintenance, disposal, and potential benefits and loads following the end of life disposal. Manufacturing data were gathered directly from company personnel. When updated company-specific data were not available the ratio of production units, within the 2023 calendar year, was used as a proxy. For any product group EPDs, an impact assessment was completed for each product and the highest impacts were reported as conservative representations of the product group. Product grouping was considered appropriate if the individual product impacts differed by no more than  $\pm 10\%$  in any impact category.

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### Material Composition

The primary product components and/or materials must be indicated as a percentage mass to enable the user of the EPD to understand the composition of the product in delivery status.

The composition of the BT Cable Ties product is as follows:

Material	Percent in Mass
Nylon	95.5-100%
Carbon Black & Polyethylene Carrier	0-5%
Stainless Steel	0.5-2%
Lubricant	0-1%
Additives	0-1%
<b>Total</b>	<b>100.00%</b>

### Technical Data

For the BT1M-,0 reference product, the following technical data is provided:

Technical Data	
Description	Technical Information
Material	Nylon 6.6
Overall Length (In.)	4
Overall Length (mm)	102
Body Width (In.)	0.095
Body Width (mm)	2.4
Body Thickness (In.)	0.036
Body Thickness (mm)	0.9
Maximum Bundle Diameter (In.)	0.9
Maximum Bundle Diameter (mm)	23
Minimum Bundle Diameter (In.)	0.06
Minimum Bundle Diameter (mm)	1.5
Minimum Loop Tensile Strength (N)	80
Minimum Loop Tensile Strength (lb)	18
Maximum Operating Temperature (°C)	85
Maximum Operating Temperature (°F)	185
Minimum Operating Temperature (°C)	-60
Minimum Operating Temperature (°F)	-76
Minimum Installation Temperature (°C)	-20
Minimum Installation Temperature (°F)	-4
For Use with the Following Installation Tools	GTS-E, GS2B-E, PTS, PPTS, STS2

### Application

The BT1M Dome-Top® premium locking ties are designed for a wide range of indoor and/or outdoor applications that require high strength and superior performance. Exceeds industry and Aerospace Standards SAE MS23190A; available in four tensile strengths.

### Placing on the Market / Application Rules

The standards that can be applied for BT5LH cable ties are:

- UL 62275 (File E56854)
- CSA-C22.2 No. 62275
- 11130200
- NRC 10CFR50
- QPL-AS23190
- CSA Certified
- RoHS Compliant

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### Properties of Declared Product as Shipped

Available in standard packages of 100 or 1000 cable ties.

Cable Ties are packed in LDPE bags, and bags are placed in cartons of 1,000 or 50,000 pieces. Wood pallets are used to place a group of 224 or 12 cartons to be shipped.

### Methodological Framework

#### Functional Unit

The functional unit is to mount a cable or a tube at a point with a cable tie with a clamping capacity between Y mm (minimum) and C mm (maximum) for a service life of 20 years.

For the reference BT1M- cable tie, the functional unit is to mount a cable or a tube at a point with a cable tie with a clamping capacity between 1.5 mm and 23 mm for a service life of 20 years.

Part Number	Suffix	Total Weight (kg/piece)	"Y" Min Diameter (mm)	"C" Max Diameter (mm)	Service Life (years)
BT1M	-	3.37E-04	1.5	23.0	20
BT1M	-0	3.37E-04	1.5	23.0	20
BT1.5M	-	3.76E-04	1.5	38.0	20
BT1.5M	-0	3.76E-04	1.5	38.0	20
BT2M	-	5.33E-04	1.5	51.0	20
BT2M	-0	5.33E-04	1.5	51.0	20
BT4M	-	9.20E-04	1.5	102.0	20
BT4M	-0	9.20E-04	1.5	102.0	20
BT1.5I	-	5.63E-04	0.8	38.0	20
BT1.5I	-0	5.63E-04	0.8	38.0	20
BT2I	-	7.13E-04	0.8	51.0	20
BT2I	-0	7.13E-04	0.8	51.0	20
BT3I	-	1.19E-03	0.8	76.0	20
BT3I	-0	1.19E-03	0.8	76.0	20
BT4I	-	1.51E-03	0.8	102.0	20
BT4I	-0	1.51E-03	0.8	102.0	20
BT2S	-	1.15E-03	1.5	51.0	20
BT2S	-0	1.12E-03	1.5	51.0	20
BT3S	-	1.84E-03	1.5	76.0	20
BT3S	-0	1.82E-03	1.5	76.0	20
BT4S	-	2.28E-03	1.5	102.0	20
BT4S	-0	2.28E-03	1.5	102.0	20
BT2LH	-	2.83E-03	4.8	51.0	20
BT2LH	-0	2.83E-03	4.8	51.0	20
BT3LH	-	3.76E-03	4.8	76.0	20
BT3LH	-0	3.76E-03	4.8	76.0	20
BT4LH	-	4.76E-03	4.8	102.0	20
BT4LH	-0	4.48E-03	4.8	102.0	20
BT5LH	-	5.38E-03	4.8	127.0	20
BT5LH	-0	5.56E-03	4.8	127.0	20
BT6LH	-	7.60E-03	4.8	152.0	20
BT6LH	-0	6.31E-03	4.8	152.0	20
BT7LH	-	8.57E-03	4.8	178.0	20
BT7LH	-0	8.57E-03	4.8	178.0	20
BT8LH	-	9.82E-03	4.8	203.0	20
BT8LH	-0	9.82E-03	4.8	203.0	20
BT9LH	-	1.11E-02	4.8	229.0	20
BT9LH	-0	1.11E-02	4.8	229.0	20

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## System Boundary

This is a Cradle-to-Grave and Module D (A + B + C + D) Environmental Product Declaration.

The following life cycle phases were considered:

Product Stage			Construction Process Stage		Use Stage							End of Life Stage*				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	Reuse-Recovery- Recycling potential
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

Description of the System Boundary Stages Corresponding to the PCR

(X = Included; MND = Module Not Declared)

\*This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

Any stages not reported have an impact value of 0.

## Reference Service Life

The service life of each cable tie is 20 years, in accordance with PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B).

## Allocation

Allocation was determined on a per kilogram basis for primary data. For secondary data, cut-off methodology was used.

## Cut-off Criteria

Processes whose total contribution to the final result, with respect to their mass and in relation to all considered impact categories, is less than 1% can be neglected. The sum of the neglected processes may not exceed 5% by mass of the considered impact categories. For that a documented assumption is admissible.

For Hazardous Substances the following requirements apply:

- The Life Cycle Inventory (LCI) of hazardous substances will be included, if the inventory is available.
- If the LCI for a hazardous substance is not available, the substance will appear as an input in the LCI of the product, if its mass represents more than 0.1% of the product composition.
- If the LCI of a hazardous substance is approximated by modeling another substance, documentation will be provided.

This EPD is in compliance with the cut-off criteria. No processes were neglected or excluded. Capital items for the production processes (machine, buildings, etc.) were not taken into consideration.

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### Data Sources

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Primary data were collected for every process in the product system under the control of Panduit Corporation. Secondary data from ecoinvent & USLCI v2.0 databases were utilized. These data were evaluated and have temporal, geographic, and technical coverage appropriate to the scope of this Environmental Product Declaration.

### Data Quality

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The data sources used are complete and representative of North America in terms of the geographic and technological coverage and are a recent vintage (i.e. less than ten years old). The data used for primary data are based on direct information sources of the manufacturer. Secondary data sets were used for raw materials extraction and processing, end of life, transportation, and energy production flows. Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty.

### Period Under Review

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The period under review is the full calendar year of 2023.

### Treatment of Biogenic Carbon

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The uptake and release of biogenic carbon throughout the product life cycle follows EN 15804+A2.

### Comparability and Benchmarking

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A comparison or an evaluation of EPD data is only possible if all data sets to be compared were created according to EN 15804+A2 and the building context, respectively the product-specific characteristics of performance, are taken into account. Environmental declarations from different programs may not be comparable. Full conformance with the Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 and PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 allows EPD comparability only when all stages of the product's life cycle have been considered. However, variations and deviations are possible.

### Estimates and Assumptions

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#### End of Life

The end-of-life scenario was modeled based on the requirements in the PSR, and therefore the study assumes the final product is 50% landfilled and 50% sent to incineration with energy recovery at the end of its life. Additionally, per the PSR, 100 km is the distance assumed that waste travels via truck before reaching the final disposal destination.

### Units

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The LCA results within this EPD are reported in SI units.



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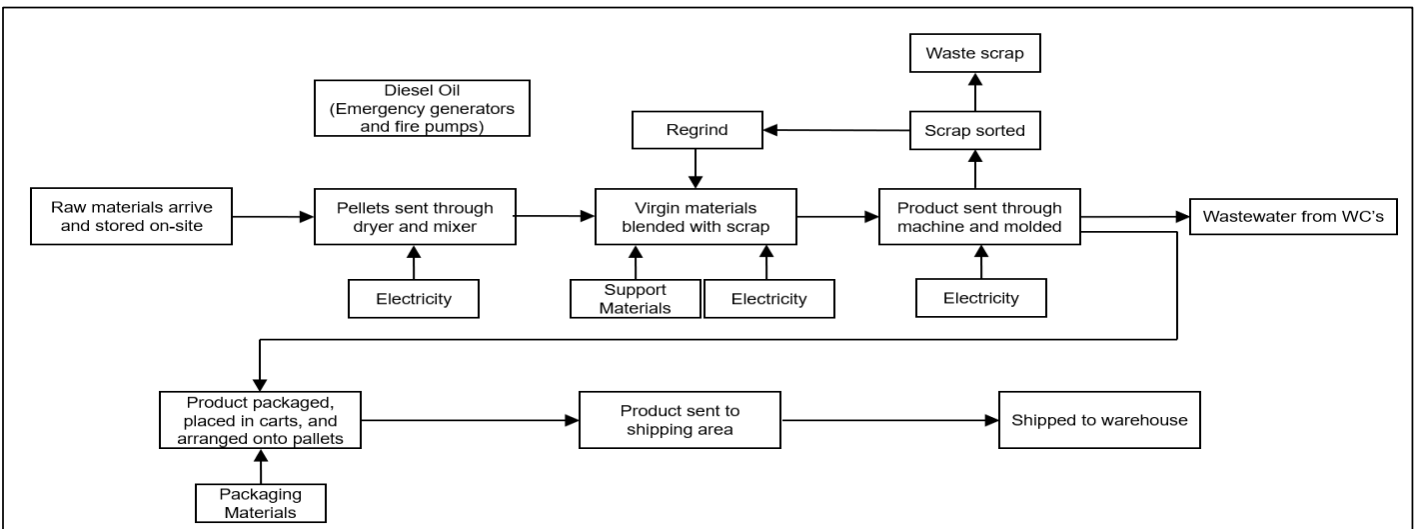
## LCA: Scenarios and Additional Technical Information

### Background data

For life cycle modeling of the considered products, SimaPro developed by PRé Sustainability, is used. The ecovinent and USLCI databases contains consistent datasets which are documented. To ensure comparability of results in the LCA, the basic data of the SimaPro database were used for energy, transportation and auxiliary materials.

### Manufacturing

Raw materials are transported to the Costa Rica facility and stored on-site before entering the manufacturing process. Nylon pellets are sent through the dryer and mixer and these virgin materials are blended with scrap materials, as well as support materials. The mixed product is then sent through the molding machine, and any scrap generated from the molding process is sorted. From this sorting process, any scrap that is viable and passes an internal quality inspection is reground and sent to be blended with virgin materials. Once the final product is molded and ready for packaging, it is packaged, placed into carts, and arranged onto pallets for shipping. The final pallets and packages are sent to the shipping area and are shipped to a warehouse for distribution.



### Packaging

The packaging material is composed of plastic wrap, paper, cardboard, adhesive tape, and wood pallets as listed below.

Packaging Material	Unit	Amount
Cardboard	kg per kg	6.77E-02
Paper		2.39E-03
LDPE		2.74E-02
Wood		9.90E-02
Tape		1.43E-04

### Transportation

Transport to Building Site (A4)		
Product Distribution Transportation	Unit	Quantity
Truck Transportation	km / 1	2.33E+03
Ocean Transportation	Function Unit	4.96E+03



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### Product Installation

During installation, cable ties are installed manually and require no additional installation materials. To install BT cable ties into a building, some scrap will be generated. A 5% scrap rate is assumed for excess cable tie scrap during the installation process, and this scrap rate includes upstream impacts. Packaging waste is also generated; this waste is assumed to be treated as 100% incineration, in accordance with the PSR. Note that disposal in commercial incineration facilities is permissible and should be done in accordance with local, state, and federal regulations. Finally, installation waste is assumed to be transported 100 km by truck, per the PSR.

Installation into the building (A5)		
Name	Unit	Quantity
Ancillary Materials	-	0.0
Installation Scrap Rate	-	5%
Packaging Waste (Incineration)	-	100%
Truck Transportation	km / 1 Functional Unit	100

### Product Use

This study assumes that modules B1, B2, B3, B4, B5, B6, and B7 are null. BT cable tie products require no maintenance, repair, or refurbishment during the reference service life. And finally, as the life cycle of this product is only 20 years, no additional replacements are required.

### Disposal

The end-of-life scenario was modeled based on the requirements in the PSR, and therefore the study assumes the final product is 50% landfilled and 50% sent to incineration with energy recovery at the end of its life. Additionally, per the PSR, 100 km is the distance assumed that waste travels via truck before reaching the final disposal destination.

End of life (C1-C4)		
Name	Quantity	Unit
Landfill	50%	-
Incineration with Energy Recovery	50%	-
Truck Transportation	100	km

### Re-use Phase

The end-of-life scenario was modeled based on the requirements in the PSR and assumes the final product is 50% landfilled and 50% sent to incineration with energy recovery at the end of its life.

The equation below shows how the net benefits/net flows in Module D are calculated from the product that is sent to incineration with energy recovery:

Electricity Energy (MJ) = 50% of product weight in kg x 28.76 MJ/kg for nylon materials x 40% recovery

Within the SimaPro model, the calculated incinerated with energy recovery materials are modeled as a net benefit with electricity recovered in the next system boundary ("next life cycle"). The ecoinvent 3 United States market group electricity dataset was used to model the recovered electricity.

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## BT Cable Ties Results per Functional Unit

### Reference Product BT1M- Over the Reference Service Life of 20 Years

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment												
Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
GWP	Global warming potential	kg CO <sub>2</sub> -Eq.	3.24E-03	1.28E-04	1.76E-04	0.00E+00	0.00E+00	0.00E+00	3.13E-06	4.02E-04	1.40E-05	-2.51E-04
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	3.16E-12	4.87E-15	1.73E-13	0.00E+00	0.00E+00	0.00E+00	1.19E-16	1.59E-13	5.33E-14	-3.14E-12
AP Air	Acidification potential for air emissions	kg SO <sub>2</sub> -Eq.	1.19E-05	1.07E-06	6.04E-07	0.00E+00	0.00E+00	0.00E+00	1.87E-08	8.37E-08	1.27E-08	-5.79E-07
EP	Eutrophication potential	kg N-Eq.	5.61E-06	5.49E-08	2.77E-07	0.00E+00	0.00E+00	0.00E+00	1.04E-09	9.47E-08	7.51E-06	-1.24E-06
SP	Smog formation potential	kg O <sub>3</sub> -Eq.	1.48E-04	2.78E-05	8.55E-06	0.00E+00	0.00E+00	0.00E+00	5.11E-07	2.55E-06	3.20E-07	-6.78E-06
FFD	Fossil Fuel Depletion	MJ-surplus	2.09E-04	2.45E-04	2.46E-05	0.00E+00	0.00E+00	0.00E+00	5.99E-06	1.35E-07	3.02E-08	-1.15E-05

\*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

Results shown below were calculated using CML 2001 - April 2016 Methodology.

CML 4.1 Impact Assessment												
Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
GWP	Global warming potential	kg CO <sub>2</sub> -Eq.	3.29E-03	1.29E-04	1.78E-04	0.00E+00	0.00E+00	0.00E+00	3.14E-06	4.01E-04	1.51E-05	-2.52E-04
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.12E-12	4.82E-15	1.19E-13	0.00E+00	0.00E+00	0.00E+00	1.18E-16	1.32E-13	3.92E-14	-1.34E-12
AP Air	Acidification potential for air emissions	kg SO <sub>2</sub> -Eq.	1.20E-05	9.01E-07	5.98E-07	0.00E+00	0.00E+00	0.00E+00	1.54E-08	6.50E-08	1.06E-08	-5.92E-07
EP	Eutrophication potential	kg(PO <sub>4</sub> ) <sup>3</sup> -Eq.	3.16E-06	1.48E-07	1.60E-07	0.00E+00	0.00E+00	0.00E+00	2.73E-09	4.83E-08	2.70E-06	-5.57E-07
POCP	Formation potential of tropospheric ozone	kg C <sub>2</sub> H <sub>4</sub> -Eq.	5.65E-07	3.38E-08	2.74E-08	0.00E+00	0.00E+00	0.00E+00	7.11E-10	1.40E-09	2.66E-09	-2.81E-08
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	2.25E-09	0.00E+00	1.04E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-11	4.22E-12	-3.41E-10
ADPF	Abiotic depletion potential for fossil resources	MJ	5.94E-03	1.64E-03	3.67E-04	0.00E+00	0.00E+00	0.00E+00	4.02E-05	1.48E-05	3.30E-06	-1.23E-03

\*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

Results below contain the resource use throughout the life cycle of the product.

EN15804+A2 – Core environmental indicators, units and models												
Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
GWP-total	Climate change - total	kg CO <sub>2</sub> -Eq.	3.23E-03	1.29E-04	2.59E-04	0.00E+00	0.00E+00	0.00E+00	3.15E-06	4.02E-04	1.58E-05	-2.55E-04
GWP-fossil	Climate change - fossil	kg CO <sub>2</sub> -Eq.	3.32E-03	1.29E-04	1.79E-04	0.00E+00	0.00E+00	0.00E+00	3.15E-06	4.02E-04	1.57E-05	-2.53E-04
GWP-biogenic	Climate change - biogenic	kg CO <sub>2</sub> -Eq.	-8.81E-05	0.00E+00	7.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-08	1.56E-08	-1.25E-06
GWP-luluc	Climate change - land use and land use change	kg CO <sub>2</sub> -Eq.	3.61E-07	0.00E+00	1.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-09	1.13E-09	-1.27E-07
ODP	Ozone depletion	kg CFC-11 Eq.	2.68E-12	3.32E-15	1.49E-13	0.00E+00	0.00E+00	0.00E+00	8.15E-17	1.48E-13	4.91E-14	-1.65E-12
AP	Acidification	mol H <sup>+</sup> Eq.	1.46E-05	9.04E-07	7.14E-07	0.00E+00	0.00E+00	0.00E+00	1.71E-08	9.16E-08	1.43E-08	-7.07E-07
EP-freshwater	Eutrophication aquatic freshwater	kg P Eq.	1.95E-07	0.00E+00	9.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-09	2.14E-10	-1.56E-07
EP-marine	Eutrophication aquatic marine	kg N Eq.	5.52E-06	4.36E-07	2.78E-07	0.00E+00	0.00E+00	0.00E+00	8.01E-09	5.21E-08	3.55E-07	-1.44E-07
EP-terrestrial	Eutrophication terrestrial	mol N Eq.	2.91E-05	4.76E-06	1.63E-06	0.00E+00	0.00E+00	0.00E+00	8.74E-08	4.44E-07	5.72E-08	-1.25E-06
POCP	Photochemical ozone formation	NM VOC Eq.	8.80E-06	1.16E-06	4.75E-07	0.00E+00	0.00E+00	0.00E+00	2.17E-08	1.12E-07	2.28E-08	-4.98E-07
ADP-minerals & metals	Depletion of abiotic resources - minerals and metals	kg Sb Eq.	2.24E-09	0.00E+00	1.03E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-11	4.21E-12	-3.38E-10
ADP-fossil	Depletion of abiotic resources - fossil fuels	MJ	5.11E-02	1.66E-03	2.39E-03	0.00E+00	0.00E+00	0.00E+00	4.06E-05	7.84E-05	4.25E-05	-4.68E-03
WDP	Water use	m <sup>3</sup> deprived	3.41E-03	0.00E+00	1.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-05	-2.69E-05	-5.50E-05

# Environmental Product Declaration

Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

## EN15804+A2 – Indicators, units and models for additional impact categories

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
PM	Particulate matter emissions	Disease incidence	1.46E-10	3.60E-12	6.84E-12	0.00E+00	0.00E+00	0.00E+00	6.47E-14	4.72E-13	3.08E-13	-3.67E-12
IRP	Ionizing radiation, human health	kBq U235 Eq.	4.53E-06	0.00E+00	2.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-07	4.62E-08	-9.91E-05
ETP-fw	Ecotoxicity (freshwater)	CTUe	1.05E-02	3.00E-03	7.53E-04	0.00E+00	0.00E+00	0.00E+00	7.35E-05	1.61E-03	1.18E-03	-1.18E-03
HTP-c	Human toxicity, cancer effects	CTUh	4.75E-12	6.63E-16	1.62E-13	0.00E+00	0.00E+00	0.00E+00	1.63E-17	1.84E-13	2.40E-14	-8.16E-13
HTP-nc	Human toxicity, non-cancer effects	CTUh	7.60E-12	2.34E-14	7.98E-13	0.00E+00	0.00E+00	0.00E+00	5.58E-16	2.40E-12	7.57E-13	-2.45E-12
SQP	Land use related impacts/Soil quality	Pt	9.85E-03	0.00E+00	4.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-05	9.79E-05	-6.74E-04

The table below presents disclaimers with regard to the declaration of relevant core and additional environmental impact indicators according to the following classification.

## Disclaimers to the declaration of core and additional environmental impact indicators

ILCD Classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 - 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.

Disclaimer 2 - The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Results below contain the resource use throughout the life cycle of the product.

## Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	MJ	1.30E-02	0.00E+00	6.18E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-06	5.07E-07	-4.14E-04
PERM	Renewable primary energy resources as material utilization	MJ	2.28E-03	0.00E+00	1.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-06	1.72E-07	-1.06E-04
PERT	Total use of renewable primary energy resources	MJ	1.53E-02	0.00E+00	7.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.13E-06	6.79E-07	-5.20E-04
PENRE	Nonrenewable primary energy as energy carrier	MJ	1.17E-02	1.74E-03	6.30E-04	0.00E+00	0.00E+00	0.00E+00	4.27E-05	1.79E-05	4.24E-06	-2.85E-03
PENRM	Nonrenewable primary energy as material utilization	MJ	1.09E-02	0.00E+00	5.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	Total use of nonrenewable primary energy	MJ	2.26E-02	1.74E-03	1.18E-03	0.00E+00	0.00E+00	0.00E+00	4.27E-05	1.79E-05	4.24E-06	-2.85E-03
SM	Use of secondary material	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
RSF	Use of renewable 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
NRSF	Use of nonrenewable 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
FW	Use of net fresh water	m <sup>3</sup>	8.08E-05	0.00E+00	3.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.19E-07	-6.91E-07	-4.41E-07

\*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

# Environmental Product Declaration

Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories												
Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
HWD	Hazardous waste disposed	kg	8.04E-09	0.00E+00	4.76E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.48E-10	2.93E-10	-9.71E-09
NHWD	Non-hazardous waste disposed	kg	3.46E-05	0.00E+00	5.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.43E-06	1.69E-04	-6.65E-06
HLRW	High-level radioactive waste	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
ILLRW	Intermediate- and low-level radioactive waste	kg	1.12E-09	0.00E+00	5.46E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-11	1.13E-11	-2.25E-08
CRU	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
MR	Materials for recycling	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
MER	Materials for energy recovery	kg	2.01E-05	0.00E+00	6.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-04	0.00E+00	0.00E+00
EEE	Exported energy, electrical	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-03	0.00E+00	0.00E+00
EET	Exported energy, thermal	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

\*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use												
Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C1	C2	C3	C4	D
BCRP	Biogenic Carbon Removal from Product	kg CO <sub>2</sub>	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
BCEP	Biogenic Carbon Emissions from Product	kg CO <sub>2</sub>	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
BCRK	Biogenic Carbon Removal from Packaging	kg CO <sub>2</sub>	9.04E-05	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
BCEK	Biogenic Carbon Emissions from Packaging	kg CO <sub>2</sub>	0.00E+00	0.00E+00	9.04E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO <sub>2</sub>	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
CCE	Calcination Carbon Emissions	kg CO <sub>2</sub>	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
CCR	Carbonation Carbon Removal	kg CO <sub>2</sub>	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
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO <sub>2</sub>	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

\*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

# Environmental Product Declaration

Panduit Corporation Cable Ties

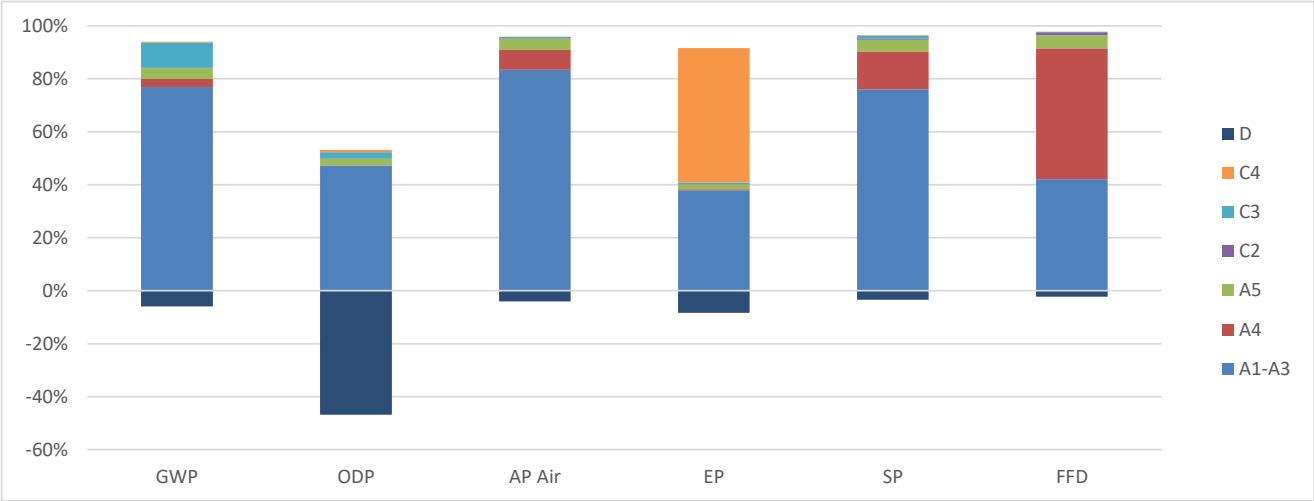
Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

## BT Cable Ties LCA Interpretation

The life cycle impacts are strongly driven by raw materials (A1) in global warming potential, acidification, and smog, heavily driven by nylon materials. The waste disposal (C4) stage is the driver of eutrophication, and the product distribution phase (A4) is the driver of fossil fuel depletion. Finally, ozone depletion impacts are driven by raw materials but the potential benefits in Module D present a notable negative impact.



# Environmental Product Declaration

Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

## BT Cable Tie Scaling Factor Table

An impact assessment was completed for the BT1M- reference product and the impacts were reported as representation of the BT cable tie group. The rest of the products in the BT cable tie group are represented through scaling factors and can be independently calculated.

Product	Suffix	A1-A3							A4-D
		GWP	FFD	EP	SP	AP Air	ODP	Resources	
BT1M	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BT1M	-0	0.99	1.00	0.99	0.99	0.99	1.08	1.00	1.00
BT1.5M	-	1.12	1.12	1.12	1.12	1.12	1.11	1.12	1.11
BT1.5M	-0	1.06	1.09	1.06	1.06	1.06	1.19	1.09	1.11
BT2M	-	1.61	1.59	1.61	1.61	1.61	1.57	1.59	1.58
BT2M	-0	1.55	1.56	1.55	1.55	1.55	1.69	1.57	1.58
BT4M	-	2.74	2.71	2.73	2.74	2.74	2.69	2.73	2.73
BT4M	-0	2.59	2.65	2.58	2.59	2.59	2.89	2.66	2.73
BT1.5I	-	1.61	1.65	1.61	1.61	1.61	1.67	1.64	1.67
BT1.5I	-0	1.60	1.64	1.60	1.60	1.60	1.80	1.64	1.67
BT2I	-	2.01	2.06	2.01	2.01	2.01	2.10	2.07	2.11
BT2I	-0	2.01	2.07	2.01	2.01	2.01	2.27	2.07	2.11
BT3I	-	3.48	3.47	3.48	3.48	3.48	3.50	3.51	3.53
BT3I	-0	3.44	3.47	3.42	3.43	3.43	3.77	3.48	3.53
BT4I	-	4.71	4.55	4.69	4.70	4.71	4.43	4.57	4.47
BT4I	-0	4.69	4.54	4.66	4.68	4.68	4.81	4.55	4.46
BT2S	-	3.45	3.42	3.45	3.45	3.45	3.40	3.43	3.41
BT2S	-0	3.22	3.27	3.21	3.22	3.22	3.55	3.27	3.31
BT3S	-	5.54	5.46	5.52	5.53	5.53	5.41	5.49	5.46
BT3S	-0	5.22	5.29	5.20	5.21	5.21	5.74	5.31	5.40
BT4S	-	6.57	6.62	6.55	6.56	6.56	6.65	6.66	6.75
BT4S	-0	6.53	6.61	6.50	6.52	6.53	7.17	6.64	6.75
BT2LH	-	7.68	8.09	7.71	7.69	7.68	8.37	8.09	8.40
BT2LH	-0	7.44	8.38	9.25	7.47	7.54	20.17	8.07	8.39
BT3LH	-	10.78	10.96	10.78	10.78	10.78	11.08	10.98	11.14
BT3LH	-0	9.99	11.15	12.40	10.01	10.12	26.91	10.75	11.13
BT4LH	-	13.32	13.70	13.32	13.31	13.31	13.95	13.76	14.10
BT4LH	-0	11.31	12.95	14.03	11.33	11.45	30.98	12.54	13.27
BT5LH	-	15.46	15.65	15.45	15.45	15.46	15.77	15.72	15.94
BT5LH	-0	14.83	16.46	18.38	14.85	15.02	39.83	15.92	16.48
BT6LH	-	21.14	21.75	21.12	21.11	21.13	22.14	21.90	22.53
BT6LH	-0	17.27	18.89	21.39	17.29	17.50	45.97	18.26	18.70
BT7LH	-	26.40	25.68	26.29	26.36	26.39	25.14	25.79	25.40
BT7LH	-0	22.69	25.23	28.11	22.72	22.99	61.02	24.45	25.39
BT8LH	-	29.04	28.86	28.95	28.99	29.03	28.67	29.03	29.10
BT8LH	-0	26.69	29.24	33.04	26.71	27.04	71.11	28.31	29.09
BT9LH	-	32.17	32.24	32.08	32.12	32.16	32.22	32.46	32.78
BT9LH	-0	29.56	32.66	36.60	29.58	29.95	79.19	31.66	32.77

# Environmental Product Declaration

## Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

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### Environmental and Health During Manufacturing

At Panduit, we believe our people are our most valuable resource. Accordingly, ensuring the health and safety of our employees, as well as contractors and any other individuals involved with our business, is of utmost importance to us. Panduit devotes the necessary and appropriate attention to ensure that our operations are safe. In doing so, we relentlessly pursue our ultimate goal of zero occupational illnesses and injuries. Panduit implements this Health and Safety Policy through a global Occupational Health and Safety Management System which meets or exceeds all local health and safety legal requirements where we operate.

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### Environmental and Health During Installation

There is no harmful emissive potential. No damage to health or impairment is expected under normal use, if recommended manufacturer's installation practices are followed, corresponding to the intended use of the product.

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### Extraordinary Effects

#### Fire

Product melts when exposed to fire, producing substances such as CO, CO<sub>2</sub> and NO<sub>2</sub>.

#### Water

There are no negative environmental effects resulting from exposure to water.

#### Mechanical Destruction

There are no negative environmental effects resulting from mechanical destruction.

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### Delayed Emissions

Global warming potential is calculated using the TRACI 2.1 and CML 4.1 impact assessment methodologies. Delayed emissions are not considered.

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### Environmental Activities and Certifications

Panduit is ISO 14001 : 2015 certified company. At Panduit, we wholeheartedly embrace environmental sustainability. We actively minimize our environmental impact by implementing practices that effectively reduce waste, conserve energy, and responsibly source materials. Our commitment to sustainability permeates every aspect of our operations, and we continually seek innovative ways to diminish our ecological footprint. We firmly believe that safeguarding the environment is not only a responsibility, but also a vital opportunity to deeply engage our employees and deliver exceptional customer value.

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### Further Information

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# Environmental Product Declaration

Panduit Corporation Cable Ties

Cable Management Solutions Product Category



According to  
ISO 14025, ISO 14040,  
and EN 15804+A2

## References

- PCR Part A Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 (PCR Part A)
- PSR Part B PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B)
- SimaPro v9.6.0.1 PRé Sustainability. SimaPro Life Cycle Assessment version 9.6.0.1 (software).
- ISO 14025 ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- ISO 14040 ISO 14040:2009-11, Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044 ISO 14044:2006-10, Environmental management — Life cycle assessment — Requirements and guidelines.
- EN 15804+A2 EN 15804+A2:2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product
- ASTM 2020 ASTM International General Program Instructions v8.0, April 29, 2020
- Characterization Method IPCC. 2018. Climate Change 2013. The Physical Science Basis. Cambridge University Press. (<http://www.ipcc.ch/report/ar5/wg1/>).

## Contact Information

### Study Commissioner



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### LCA Practitioner



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This declaration is an environmental product declaration (EPD) in accordance with ISO 14025 and has been developed according to PEP ecopassport program PCRs and PSRs. Comparability: 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. Although the EPD is using PEP ecopassport PCR and PSR, its content cannot be compared with content based on PEP ecopassport program.