

## Statement of Verification

BREG EN EPD No.: 000538

Issue 02

This is to verify that the  
**Environmental Product Declaration**  
provided by:  
**Mayflex UK Limited**



is in accordance with the requirements of:  
**EN 15804:2012+A2:2019**  
and  
**BRE Global Scheme Document SD207**

This declaration is for:  
**1 metre of CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH**

### Company Address

Mayflex UK Limited  
Unit 15,  
Junction Six Industrial Park,  
Electric Avenue  
Birmingham  
B6 7JJ



Laura Critien  
Operator

25 October 2023  
Date of this Issue

25 October 2023  
Date of First Issue

24 October 2028  
Expiry Date



This Statement of Verification is issued subject to terms and conditions (for details visit [www.greenbooklive.com/terms](http://www.greenbooklive.com/terms).  
To check the validity of this statement of verification please, visit [www.greenbooklive.com/check](http://www.greenbooklive.com/check) or contact us.  
BRE Global Ltd., Garston, Watford WD25 9XX.  
T: +44 (0)333 321 8811 F: +44 (0)1923 664603 E: [Enquiries@breglobal.com](mailto:Enquiries@breglobal.com)





## Environmental Product Declaration

EPD Number: 000538

### General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2021 Product Category Rules (PN 514 Rev 3.0) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019.
Commissioner of LCA study	LCA consultant/Tool
Mayflex UK Limited Unit 15, Junction Six Industrial Park, Electric Avenue Birmingham B6 7JJ	LCA Tool: BRE LINA A2 LCA Consultant: Bala Subramanian
Declared/Functional Unit	Applicability/Coverage
1 metre of CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH	Other (please specify). Product Specific
EPD Type	Background database
Cradle to Gate with Module C and D	ecoinvent

### Demonstration of Verification

CEN standard EN 15804 serves as the core PCR <sup>a</sup>

Independent verification of the declaration and data according to EN ISO 14025:2010

Internal  External

(Where appropriate <sup>b</sup>)Third party verifier:  
Pat Hermon

a: Product category rules

b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

### Comparability

Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance

## Information modules covered

Product			Construction		Use stage							End-of-life				Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building						
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, Recovery and/or Recycling potential
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Note: Ticks indicate the Information Modules declared.

## Manufacturing site(s)

Mayflex UK Limited  
 Unit 15,  
 Junction Six Industrial Park,  
 Electric Avenue  
 Birmingham  
 B6 7JJ

## Construction Product:

### Product Description

Excel CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH Blade Booted leads are manufactured and tested to ISO 11801, EN 50173 & TIA/EIA 568 requirements for patchlead assemblies and provide optimum performance for structured cabling installations.

The patchleads utilise stranded copper conductors for flexibility. F/UTP patchleads have a single screen layer which lies around all 4 pairs of conductors, whilst F/FTP patchleads have a combination of foil screening - screens can be found around all pairs of cable as well as over the four pairs. The screening layers prevent excessive interference to the inner cable cores, improving NEXT and Alien Crosstalk.

Standard patchleads are offered in a variety of types, colours and lengths (including small diameter 'mini' patchleads), which follow the T568B wiring standard, terminated with a blade style slimline moulded strain relief boot and clip protector, the outer sheath is made from Low Smoke, Zero Halogen material.

Product name:	Item Code	Weight (kg/m)
Excel Cat6A Patch Lead F/FTP Shielded LSOH	100-148 to 100-156 & 101-130 to 101-149	0.0505
Excel Cat6 Patch Lead F/UTP Shielded LSOH	100-435 to 100-459	0.043

## Technical Information

Property	CAT6A	CAT6
Length	0.3m - 20m	0.5m - 10m

Property	CAT6A	CAT6
Colour	Grey, Red, Green, Yellow, Blue, Black, Violet, Pink, White, Orange	Grey, Red, Green
Cable Type	F/FTP	F/UTP
Category	6A	6
Connector 1	RJ45	RJ45
Connector 2	RJ45	RJ45
Outer sheath colour	Grey, Red, Green, Yellow, Blue, Black, Violet, Pink, White, Orange	Grey, Red, Green
Strain Relief Boot	Moulded-On	Moulded-On
Lockable	no	no
Strain Relief Boot Colour	Grey, Red, Green, Yellow, Blue, Black, Violet, Pink, White, Orange	Grey, Red, Green
Flame Retardant Version	Yes	Yes
Halogen Free	Yes	Yes
Cable Construction	4 Pair	4 Pair
AWG Size	26	26
PIN Assignment	1:1	1:1
Installation Temperature	-20°C to +75°C	-20°C to +75°C
Operating Temperature	+5°C to +75°C	+5°C to +75°C
Storage Temperature	-20°C to +75°C	-20°C to +75°C

Standard	CAT6A	CAT6
ISO/IEC 11801-1:2017 Information technology - Generic cabling for customer premises: Part 1 General Requirements	Yes	Yes
EN 50173-1:2018 Information technology. Generic cabling systems - General requirements	Yes	Yes
ANSI/TIA 568-2. D Balanced Twisted-Pair Telecommunications Cabling and Components Standards	Yes	Yes
IEC 61156-5:2009+AMD1:2012 CSV Multicore and symmetrical pair/quad cables for digital communications - Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz - Horizontal floor wiring - Sectional specification	Yes	Yes
IEC 60332-1-2:2004 Tests on electric and optical fibre cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable. Procedure for 1 kW pre-mixed flame	Yes	Yes
IEC 61034-2:2005+A1:2013 Measurement of smoke density of cables burning under defined conditions – Part 2: Test procedure and requirements	Yes	Yes
RoHS Compliant to the Restriction of Hazardous Substances	Yes	Yes

WFD Compliant to Waste Framework Directive	Yes	Yes
SCIP Compliant - Does Not Contain Substances of Concern in Products	Yes	Yes



### Main Product Contents

Material/Chemical Input	%
Copper	25-30
Co-polymer	30-35
HDPE	15-20
Others	10-15

Note: Main product contents of all products assessed within this EPD

### Manufacturing Process

The manufacturing process for these Patchleads involves a number of stages of extrusion (to produce the stranded and shielded cable) and then assembly and testing of the final patchlead. The first process is to extrude pure copper through a series of precision dies, heated and pulled to achieve the required gauge of the wire. This is a highly accurate process requiring that the wire diameter is continually monitored as it exits the extrusion machine. Multiple wires are then twisted together to produce the stranded conductors used within the patchleads.

The next stage is to apply the wire insulation which requires another extrusion process, where the stranded wire is drawn through the extrusion machine whilst the molten plastic insulation is injected around the wire. The plastic insulation is colour coded, and this process is repeated 8 times to provide the 8 colours required for the final cable (blue, blue/white, orange, orange/white, green, green/white, brown, brown/white).

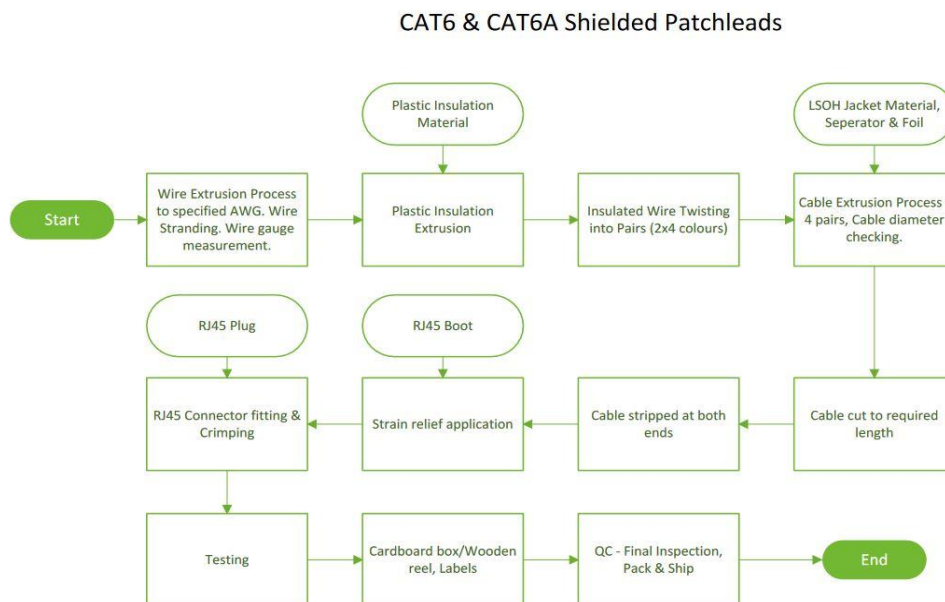
Each pair of standard wires then go to the next process which twists them together. 2 reels of insulated wire are spun and pulled simultaneously to provide a precise and consistent twist. Each pair is given a slightly different twist length. No 2 pairs are the same. This is critical for the performance of the finished patchlead.

Once all 8 stranded wires are twisted into their respective pairs, for F/FTP patchleads, the pairs are then extruded again to apply the foil barrier around each pair. Once this is done, all 4 pairs are again extruded into the final cable. This involves drawing the 4 pairs through the final extrusion process. The pairs are drawn through a die. On longer UTP patchleads, this process includes the introduction of a separator which sits between the pairs, the LSOH cable jacket material (molten plastic) and any other elements (such as the outer foil and/or

drain wire) that are used in the final cable design. As the cable exits the machine, it is passed through a water bath for cooling and its diameter is continuously monitored.

The cable is tested and stored on cable reels awaiting the patchlead manufacturing process. To make the patchleads, the cable cut to the length required (typically 0.3m up to 20m). The cable ends are then stripped at both end ready for the strain relief application (boot). Once the boot has been fitted the cores are unwound and placed into their correct sequence for insertion into the RJ45 plug. For standard patchleads, the following sequence applies; Orange/White, Orange, Green/White, Blue, Blue/White, Green, Brown/White, Brown. The cable ends are inserted into the RJ45 plug. The RJ45 plug is then introduced into an RJ45 crimper which uses a press fit (IDC) to insert the pins through the conductors. The crimper also crimps the screen foil/drain wire to the plug’s metal shell to ensure end-to-end continuity of the screen. The patchleads are then tested to ensure they meet the required performance requirements and packaged as required.

### Process flow diagram



### Construction Installation

Installation of data cables is generally carried out by manual labour, with teams of operatives pulling and dressing cables. No powered equipment or consumable items are used in this process, so no waste is generated during the installation. But there are some wastes at the end of the box, and it was assumed as 3% of the cables waste; they will be collected and sent to recycling.

### End of Life

Cables, that are the indispensable parts of electrical and electronic industry, consist of plastics, aluminium, and copper. At the end-of-life the cables are removed manually from the construction buildings. Waste cables are shredded into small chips first and the metallic parts are separated from the plastics physically by using gravity and electrostatic separation techniques (Celik et al., 2019).

### Life Cycle Assessment Calculation Rules

#### Declared / Functional unit description.

1 metre of CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH Blade

## System boundary

This is a cradle-to-gate LCA, reporting all production life cycle stages of modules A1 to A3 and A4 and A5 (transportation and installation) and end of life stages C1-C4, and D in accordance with EN 15804:2012+A2:2019 and BRE 2021 Product Category Rules (PN 514 Rev 3.0).

## Data sources, quality and allocation

The quantity used in the data collection for this EPD is the total quantity 1 metre of CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH Blade manufactured as a proportion of the total manufactured during the data collection period (01/01/21-31/12/21). Mayflex receives the data cables from their PRC manufacturing partners, therefore the transportation used to transfer the products from PRC to the UK is included in the LCA analysis. Other cables and products are manufactured in addition to CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH; therefore, the allocation of electricity and water consumption and discharge are required, and this has been done according to the provisions of the BRE PCR PN514 and EN 15804.

In this EPD, 1m of Excel Cat6A Patch Lead F/FTP with the weight of 0.0505 kg/m and Cat6 Patch Lead F/UTP with the weight of 0.043 kg/m, has been modelled and the LCA results are enclosed in this EPD. Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e., raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804 A2.

ISO14044 guidance. <b>Quality Level</b>	<b>Geographical representativeness</b>	<b>Technical representativeness</b>	<b>Time representativeness</b>
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	n/a
Very Good	n/a	n/a	There is approximately 1-2 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific European datasets have been selected from the ecoinvent LCI for this LCA. Manufacturer uses the national grid electricity for production, so therefore the national grid electricity dataset has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of Electricity, China is 1.054 in kgCO<sub>2</sub>e/kWh. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

## Cut-off criteria

All raw materials and energy inputs to the manufacturing process have been included. There were no ancillary materials used during the production and no direct emissions to air, water, or soil, which were not measured, and there were no non-production wastes recorded during the production period.

## LCA Results - Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted – 0.043 kg/m.

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq
Product stage	Raw material supply	A1	1.79E-01	1.78E-01	2.84E-04	1.97E-04	4.44E-08	7.41E-03	5.67E-04
	Transport	A2	1.18E-02	1.18E-02	1.10E-06	7.75E-06	2.43E-09	3.10E-04	4.69E-07
	Manufacturing	A3	1.05E-02	1.25E-02	-2.01E-03	4.37E-05	1.18E-09	5.24E-05	5.73E-06
	Total (Consumption grid)	A1-3	2.01E-01	2.03E-01	-1.73E-03	2.49E-04	4.80E-08	7.77E-03	5.73E-04
Construction process stage	Transport	A4	1.23E-03	1.23E-03	1.05E-06	4.83E-07	2.84E-10	4.99E-06	7.92E-08
	Construction	A5	8.30E-03	8.39E-03	-9.48E-05	7.94E-06	1.71E-09	2.36E-04	1.79E-05
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.15E-04	1.15E-04	1.05E-07	5.42E-08	2.59E-11	4.58E-07	8.65E-09
	Waste processing	C3	7.58E-02	7.57E-02	1.36E-04	1.87E-05	8.69E-09	1.16E-04	2.07E-05
	Disposal	C4	2.91E-03	2.91E-03	3.57E-06	6.65E-07	3.44E-10	4.35E-06	8.21E-07
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.17E-01	-2.16E-01	7.29E-05	-1.79E-04	-9.10E-09	-6.59E-03	-4.93E-04
<b>100% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.15E-04	1.15E-04	1.05E-07	5.42E-08	2.59E-11	4.58E-07	8.65E-09
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.04E-01	1.04E-01	1.28E-04	2.38E-05	1.23E-08	1.56E-04	2.94E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, fossil;  
 GWP-biogenic = Global warming potential, biogenic;  
 GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;  
 AP = Acidification potential, accumulated exceedance; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment



## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metal	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	4.04E-04	5.41E-03	1.56E-03	1.70E-04	2.82E+00	1.48E-01	2.23E-08
	Transport	A2	7.70E-05	8.54E-04	2.23E-04	2.17E-08	1.57E-01	4.55E-04	5.11E-10
	Manufacturing	A3	3.66E-05	1.38E-04	3.27E-05	4.62E-08	1.24E-01	1.49E-02	7.93E-10
	Total (Consumption grid)	A1-3	5.18E-04	6.40E-03	1.82E-03	1.70E-04	3.10E+00	1.63E-01	2.36E-08
Construction process stage	Transport	A4	1.50E-06	1.64E-05	5.03E-06	4.27E-09	1.86E-02	8.36E-05	1.06E-10
	Construction	A5	1.61E-05	1.98E-04	5.60E-05	5.10E-06	1.03E-01	5.25E-03	7.24E-10
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.33E-07	1.46E-06	4.48E-07	5.25E-10	1.72E-03	8.76E-06	8.57E-12
	Waste processing	C3	2.80E-05	2.66E-04	7.46E-05	1.64E-07	3.72E-01	1.18E-02	1.25E-09
	Disposal	C4	9.49E-07	9.34E-06	2.56E-06	5.80E-09	1.37E-02	4.26E-04	4.10E-11
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.80E-04	-4.99E-03	-1.52E-03	-1.47E-04	-3.61E+00	-1.65E-01	-2.18E-08
<b>100% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.33E-07	1.46E-06	4.48E-07	5.25E-10	1.72E-03	8.76E-06	8.57E-12
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.40E-05	3.35E-04	9.16E-05	2.08E-07	4.90E-01	1.52E-02	1.47E-09
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP- mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	1.31E-02	5.83E+01	1.34E-09	9.53E-08	2.36E+00
	Transport	A2	7.35E-04	1.03E-01	6.55E-12	7.89E-11	4.28E-02
	Manufacturing	A3	1.16E-03	6.84E-01	1.21E-11	2.56E-10	3.09E-01
	Total (Consumption grid)	A1-3	1.50E-02	5.91E+01	1.36E-09	9.56E-08	2.71E+00
Construction process stage	Transport	A4	9.55E-05	1.45E-02	4.70E-13	1.52E-11	1.28E-02
	Construction	A5	5.19E-04	1.81E+00	4.21E-11	2.89E-09	8.33E-02
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.13E-06	1.40E-03	5.13E-14	1.42E-12	1.02E-03
	Waste processing	C3	2.42E-03	1.43E+00	5.00E-11	5.63E-10	1.06E-01
	Disposal	C4	8.93E-05	5.64E-02	1.81E-12	2.11E-11	2.92E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.15E-02	-5.02E+01	-1.13E-09	-8.21E-08	-2.08E+00
<b>100% - Landfill</b>							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.13E-06	1.40E-03	5.13E-14	1.42E-12	1.02E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.20E-03	2.02E+00	6.50E-11	7.56E-10	1.05E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

IRP = Potential human exposure efficiency relative to U235;  
ETP-fw = Potential comparative toxic unit for ecosystems;  
HTP-c = Potential comparative toxic unit for humans;

HTP-nc = Potential comparative toxic unit for humans; and  
SQP = Potential soil quality index.

## LCA Results (continued)

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.11E+00	0.00E+00	1.11E+00	2.16E+00	8.39E-01	3.00E+00
	Transport	A2	1.35E-03	0.00E+00	1.35E-03	1.54E-01	0.00E+00	1.54E-01
	Manufacturing	A3	8.02E-03	7.56E-02	8.36E-02	1.66E-01	1.55E-03	1.67E-01
	Total (Consumption grid)	A1-3	1.12E+00	7.56E-02	1.19E+00	2.48E+00	8.40E-01	3.32E+00
Construction process stage	Transport	A4	2.62E-04	0.00E+00	2.62E-04	1.82E-02	0.00E+00	1.82E-02
	Construction	A5	1.23E-02	2.34E-02	3.58E-02	7.43E-02	2.52E-02	9.95E-02
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	-5.27E-01	5.27E-01	0.00E+00
	Disposal	C4	5.73E-04	0.00E+00	5.73E-04	-6.89E-03	2.04E-02	1.35E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.32E-01	0.00E+00	-9.32E-01	-1.31E+00	-1.94E-01	-1.50E+00
<b>100% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	2.05E-02	0.00E+00	2.05E-02	-2.47E-01	7.31E-01	4.84E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;  
 PERM = Use of renewable primary energy resources used as raw materials;  
 PERT = Total use of renewable primary energy resources;

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;  
 PENRM = Use of non-renewable primary energy resources used as raw materials;  
 PENRT = Total use of non-renewable primary energy resource

## LCA Results (continued)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	4.29E-05	0.00E+00	0.00E+00	3.60E-03
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.13E-05
	Manufacturing	A3	5.68E-05	0.00E+00	0.00E+00	3.53E-04
	Total (Consumption grid)	A1-3	9.96E-05	0.00E+00	0.00E+00	3.96E-03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.07E-06
	Construction	A5	2.99E-06	0.00E+00	0.00E+00	1.27E-04
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.17E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	2.85E-04
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.02E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.47E-07	0.00E+00	0.00E+00	-3.98E-03
<b>100% - Landfill</b>						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.17E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.66E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

## LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	4.76E-02	1.70E+00	9.62E-06
	Transport	A2	2.01E-04	2.05E-03	1.09E-06
	Manufacturing	A3	1.73E-03	2.30E-02	4.76E-07
	Total (Consumption grid)	A1-3	4.96E-02	1.73E+00	1.12E-05
Construction process stage	Transport	A4	2.05E-05	3.64E-04	1.26E-07
	Construction	A5	1.49E-03	5.18E-02	3.36E-07
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.70E-03	8.32E-04	8.05E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.56E-02	-1.41E+00	-6.46E-06
<b>100% - Landfill</b>					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	6.11E-02	2.98E-02	2.89E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

## LCA Results (continued)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	1.74E-06	1.68E-08	1.10E-03	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.92E-04	2.74E-09	2.23E-04	0.00E+00	2.15E-03
	Total (Consumption grid)	A1-3	0.00E+00	2.94E-04	1.95E-08	1.32E-03	0.00E+00	2.15E-03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	8.82E-06	5.86E-10	3.97E-05	0.00E+00	6.44E-05
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	4.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-2.51E-07	-3.84E-11	-6.29E-04	0.00E+00	0.00E+00
<b>100% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## LCA Results - Cat6 Patch Lead F/FTP Shielded LSOH Blade Booted – 0.0505 kg/m.

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CO <sub>2</sub> eq	kg CFC11 eq	mol H <sup>+</sup> eq	kg (PO <sub>4</sub> ) <sup>3-</sup> eq
Product stage	Raw material supply	A1	1.85E-01	1.84E-01	3.25E-04	2.40E-04	1.18E-07	8.49E-03	6.56E-04
	Transport	A2	2.20E-02	2.20E-02	1.03E-05	1.16E-05	4.80E-09	3.36E-04	1.14E-06
	Manufacturing	A3	2.04E-01	2.06E-01	-2.64E-03	5.44E-05	2.18E-09	1.04E-03	3.94E-05
	Total (Consumption grid)	A1-3	4.11E-01	4.12E-01	-2.31E-03	3.06E-04	1.25E-07	9.87E-03	6.97E-04
Construction process stage	Transport	A4	1.45E-03	1.44E-03	1.23E-06	5.67E-07	3.34E-10	5.86E-06	9.30E-08
	Construction	A5	1.76E-02	1.78E-02	-2.02E-04	1.06E-05	4.34E-09	3.04E-04	2.23E-05
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.36E-04	1.35E-04	1.23E-07	6.37E-08	3.04E-11	5.38E-07	1.02E-08
	Waste processing	C3	9.01E-02	8.99E-02	1.62E-04	2.20E-05	1.03E-08	1.38E-04	2.46E-05
	Disposal	C4	3.40E-03	3.39E-03	4.16E-06	7.76E-07	4.02E-10	5.08E-06	9.58E-07
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.40E-01	-2.39E-01	-4.51E-04	-2.03E-04	-1.15E-07	-7.78E-03	-5.86E-04
<b>100% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.36E-04	1.35E-04	1.23E-07	6.37E-08	3.04E-11	5.38E-07	1.02E-08
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.22E-01	1.22E-01	1.50E-04	2.80E-05	1.45E-08	1.83E-04	3.45E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GWP-total = Global warming potential, total;  
 GWP-fossil = Global warming potential, fossil;  
 GWP-biogenic = Global warming potential, biogenic;  
 GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;  
 AP = Acidification potential, accumulated exceedance; and  
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metal	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m <sup>3</sup> world eq deprived	disease incidence
Product stage	Raw material supply	A1	4.61E-04	6.16E-03	1.77E-03	1.96E-04	3.05E+00	1.68E-01	2.33E-08
	Transport	A2	8.57E-05	9.49E-04	2.54E-04	5.81E-08	3.12E-01	1.17E-03	1.42E-09
	Manufacturing	A3	2.31E-04	2.39E-03	6.23E-04	2.36E-07	1.95E+00	6.00E-02	1.47E-08
	Total (Consumption grid)	A1-3	7.78E-04	9.50E-03	2.65E-03	1.96E-04	5.31E+00	2.29E-01	3.94E-08
Construction process stage	Transport	A4	1.76E-06	1.93E-05	5.91E-06	5.02E-09	2.18E-02	9.82E-05	1.25E-10
	Construction	A5	2.52E-05	3.02E-04	8.41E-05	5.89E-06	1.87E-01	7.78E-03	1.25E-09
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.57E-07	1.71E-06	5.26E-07	6.17E-10	2.02E-03	1.03E-05	1.01E-11
	Waste processing	C3	3.30E-05	3.14E-04	8.79E-05	1.94E-07	4.40E-01	1.40E-02	1.47E-09
	Disposal	C4	1.11E-06	1.09E-05	2.98E-06	6.76E-09	1.60E-02	4.96E-04	4.78E-11
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.38E-04	-5.78E-03	-1.74E-03	-1.75E-04	-4.08E+00	-1.91E-01	-2.34E-08
<b>100% - Landfill</b>									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.57E-07	1.71E-06	5.26E-07	6.17E-10	2.02E-03	1.03E-05	1.01E-11
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.99E-05	3.93E-04	1.08E-04	2.44E-07	5.76E-01	1.79E-02	1.73E-09
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;  
 EP-terrestrial = Eutrophication potential, accumulated exceedance;  
 POCP = Formation potential of tropospheric ozone;  
 ADP- mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;  
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and  
 PM = Particulate matter.



## LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U <sup>235</sup> eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	1.58E-02	6.70E+01	1.55E-09	1.10E-07	2.76E+00
	Transport	A2	1.54E-03	2.25E-01	1.03E-11	2.09E-10	1.53E-01
	Manufacturing	A3	4.52E-03	5.08E+00	4.90E-11	2.03E-09	5.69E-01
	Total (Consumption grid)	A1-3	2.19E-02	7.23E+01	1.61E-09	1.12E-07	3.48E+00
Construction process stage	Transport	A4	1.12E-04	1.70E-02	5.52E-13	1.79E-11	1.50E-02
	Construction	A5	8.31E-04	2.26E+00	5.20E-11	3.39E-09	1.15E-01
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.07E-05	1.65E-03	6.02E-14	1.67E-12	1.19E-03
	Waste processing	C3	2.86E-03	1.70E+00	5.92E-11	6.67E-10	1.23E-01
	Disposal	C4	1.04E-04	6.58E-02	2.12E-12	2.46E-11	3.41E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.32E-02	-5.93E+01	-1.35E-09	-9.74E-08	-2.43E+00
<b>100% - Landfill</b>							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.07E-05	1.65E-03	6.02E-14	1.67E-12	1.19E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.76E-03	2.37E+00	7.64E-11	8.88E-10	1.23E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

IRP = Potential human exposure efficiency relative to U235;  
ETP-fw = Potential comparative toxic unit for ecosystems;  
HTP-c = Potential comparative toxic unit for humans;

HTP-nc = Potential comparative toxic unit for humans; and  
SQP = Potential soil quality index.

## LCA Results (continued)

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.28E+00	0.00E+00	1.28E+00	2.40E+00	8.69E-01	3.27E+00
	Transport	A2	3.58E-03	0.00E+00	3.58E-03	3.06E-01	0.00E+00	3.06E-01
	Manufacturing	A3	7.55E-01	5.59E-02	8.11E-01	7.83E+00	9.81E-02	7.93E+00
	Total (Consumption grid)	A1-3	2.04E+00	5.59E-02	2.10E+00	1.05E+01	9.67E-01	1.15E+01
Construction process stage	Transport	A4	3.07E-04	0.00E+00	3.07E-04	2.14E-02	0.00E+00	2.14E-02
	Construction	A5	-8.36E-04	6.38E-02	6.29E-02	2.19E-01	1.27E-01	3.45E-01
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	-5.86E-01	5.86E-01	0.00E+00
	Disposal	C4	6.69E-04	0.00E+00	6.69E-04	-8.04E-03	2.38E-02	1.58E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.12E+00	0.00E+00	-1.12E+00	-1.62E+00	-2.74E-01	-1.89E+00
<b>100% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	2.41E-02	0.00E+00	2.41E-02	-2.90E-01	8.59E-01	5.68E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;  
 PERM = Use of renewable primary energy resources used as raw materials;  
 PERT = Total use of renewable primary energy resources;

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;  
 PENRM = Use of non-renewable primary energy resources used as raw materials;  
 PENRT = Total use of non-renewable primary energy resource

## LCA Results (continued)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	5.99E-05	0.00E+00	0.00E+00	4.10E-03
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.89E-05
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	1.57E-03
	Total (Consumption grid)	A1-3	5.99E-05	0.00E+00	0.00E+00	5.70E-03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.43E-06
	Construction	A5	1.80E-06	0.00E+00	0.00E+00	1.93E-04
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.55E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	3.37E-04
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.19E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.58E-08	0.00E+00	0.00E+00	-4.61E-03
<b>100% - Landfill</b>						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.55E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	4.30E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SM = Use of secondary material;  
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;  
FW = Net use of fresh water

## LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	5.87E-02	1.98E+00	1.17E-05
	Transport	A2	3.70E-04	5.15E-03	2.13E-06
	Manufacturing	A3	1.14E-01	7.39E-01	4.83E-06
	Total (Consumption grid)	A1-3	1.73E-01	2.72E+00	1.86E-05
Construction process stage	Transport	A4	2.41E-05	4.27E-04	1.48E-07
	Construction	A5	5.18E-03	8.17E-02	5.61E-07
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.99E-03	9.70E-04	9.39E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.08E-02	-1.70E+00	-8.20E-06
<b>100% - Landfill</b>					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	7.17E-02	3.50E-02	3.39E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00

HWD = Hazardous waste disposed;  
 NHWD = Non-hazardous waste disposed;  
 RWD = Radioactive waste disposed

## LCA Results (continued)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	2.16E-06	2.35E-08	8.38E-04	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-03
	Total (Consumption grid)	A1-3	0.00E+00	2.16E-06	2.35E-08	8.38E-04	0.00E+00	1.97E-03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	6.48E-08	7.06E-10	2.52E-05	0.00E+00	5.92E-05
<b>97.2% - Recycling &amp; 2.8% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	4.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	-8.74E-08	-1.34E-11	-2.18E-04	0.00E+00	0.00E+00
<b>100% - Landfill</b>								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;  
MFR = Materials for recycling

MER = Materials for energy recovery;  
EE = Exported Energy

## Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Once the cables are manufactured, they will be transported to Mayflex’s Birmingham site via water transport and road transport. Once the cables are received, they will be distributed to the customer site.		
	Fuel type / Vehicle type	Road transport	16–32-ton lorry
	Distance: Mayflex to customer site	Km	172
	Capacity utilisation (incl. empty returns)	%	49
A5 – Installation in the building	Installation of data cables is carried out by manual labour - teams of operatives pulling and dressing cables. No powered equipment or consumable items are used in this process, so no waste is generated during the installation. But there are some wastes at the end of the box, and it was assumed as 3% of the cables waste; this will be collected and sent to recycling		
	<b>CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH Blade (kg/m)</b>	<b>0.0505</b>	<b>0.043</b>
	Cable waste - End of the box	0.002	0.001
	Packaging waste	Cardboard waste - Recycling	0.0044
	Plastic waste – Recycling	0.0023	0.0006
End of life	Cables are removed manually from the building sites. Therefore, no energy is associated while removing the cables from the building.		
C2 – Transportation	Recovered cables are taken back by the registered broker	Road transport	16–32-ton lorry
	Distance: Deconstruction unit to pre-processing unit	km	12.5
C3 – Pre processing	CAT6 & CAT6A Patch Lead cables are made of copper, polymer, polyethylene, and other materials. At the end-of-life, cables are removed manually from the building sites, and they will be sent to pre-processing unit. At the pre-processing unit, waste cables are shredded first to decrease their size and the metallic parts are separated from plastics physically by using gravity and electrostatic separation techniques. The copper is recovered from other metallic elements by smelting and refining. The shredding and separation, and smelting processes have not been included in module C3 because it is assumed to be very small and are effectively negligible. (Celik et al., 2019).		
	Recovered cable to recycling	%	97.8
C4 – Disposal	The recovered cable is sent recycling while a small portion is assumed to be unrecoverable which is considered to send to landfill.		
	Unrecovered cables sent to landfill	%	2.8
Module D	It is assumed that 97.2% of the cable used in the construction building is recovered for recycling and remaining 2.8% is sent to landfill. The calculation assumes that there is no yield-loss during the recycling process.		
	<b>CAT6 and CAT6A Patch Leads - F/UTP and F/FTP shielded LSOH Blade (kg/m)</b>	<b>0.0505</b>	<b>0.043</b>
	Recycling – 97.2%	0.0491	0.0418
	Landfill – 2.8%	0.0014	0.0012

### Interpretation of results:

The bulk of the environmental impacts are attributed to the manufacturing of Cat6A Patch Lead F/FTP and Cat6 Patch Lead F/UTP covered by information modules A1-A3 of EN15804:2012+A2:2019.

## References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

Çelik, C., Arslan, C. and Arslan, F., 2019. Recycling of waste electrical cables. Material Science & Engineering International Journal, 3(4), pp.107-111.

## Annex:

The below listed products are enclosed in this EPD:

Product name:	Item Code
<b>Excel Cat6A Patch Lead F/FTP Shielded LSOH</b>	
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Grey	100-148
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 4 m Grey	100-149
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Grey	100-152
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Grey	100-153
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Grey	100-154
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Blue	100-157
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Blue	100-158
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Blue	100-159
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Blue	100-160
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Red	100-161
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Red	100-162
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Red	100-163
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Red	100-165
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Yellow	100-167
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Yellow	100-168
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Yellow	100-170
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Green	100-171
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Green	100-172
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Green	100-173
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Green	100-174
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Grey (10-Pack)	100-176-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 10 m Grey	100-177
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 7 m Grey	100-178
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Blue (10-Pack)	100-220-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Red (10-Pack)	100-221-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Yellow	100-222



Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Yellow (10-Pack)	100-222-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Green (10-Pack)	100-223-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m White (10-Pack)	100-224-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Black (10-Pack)	100-225-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Pink (10-Pack)	100-226-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Orange	100-227
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Orange (10-Pack)	100-227-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.5 m Violet (10-Pack)	100-228-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m White	100-238
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Black	100-239
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Pink	100-240
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Orange	100-241
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1 m Violet	100-242
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m White	100-244
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Black	100-245
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Pink	100-246
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Orange	100-247
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 2 m Violet	100-248
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m White	100-250
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Black	100-251
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Pink	100-252
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Orange	100-253
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 3 m Violet	100-254
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m White	100-256
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Black	100-257
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Pink	100-258
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Orange	100-259
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Violet	100-260

Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 5 m Violet	100-261
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 10 m Red	100-262
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 10 m Yellow	100-263
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 10 m Green	100-264
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 15 m Grey	100-265
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 15 m Blue	100-266
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 15 m Red	100-267
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 15 m Yellow	100-268
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 15 m Green	100-269
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 20 m Grey	100-543
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 20 m Blue	100-544
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 20 m Red	100-545
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 20 m Yellow	100-546
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Grey (10-Pack)	101-130-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Blue (10-Pack)	101-131-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Red	101-132
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Red (10-Pack)	101-132-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Yellow	101-133
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Yellow (10-Pack)	101-133-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Green (10-Pack)	101-134-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m White (10-Pack)	101-135-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Black (10-Pack)	101-136-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Pink (10-Pack)	101-137-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Orange	101-138
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Orange (10-Pack)	101-138-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Violet	101-139
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 0.3 m Violet (10-Pack)	101-139-10
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Grey	101-140

Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Blue	101-141
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Red	101-142
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Yellow	101-143
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Green	101-144
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m White	101-145
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Black	101-146
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Pink	101-147
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Orange	101-148
Excel Cat6A Patch Lead F/FTP Shielded LSOH Blade Booted 1.5 m Violet	101-149
<b>Excel Cat6 Patch Lead F/UTP Shielded LSOH</b>	
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 0.5 m Grey	100-456-10
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 1 m Grey	100-435
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 2 m Grey	100-457
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 3 m Grey	100-436
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 5 m Grey	100-437
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 7 m Grey	100-458
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 10 m Grey	100-459
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 1 m Red	100-438
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 3 m Red	100-439
Excel Cat6 Patch Lead F/UTP Shielded LSOH Blade Booted 1 m Green	100-441