Legrand North America
Data Communications Division
125 Eugene O'Neill Drive
New London, CT 06320
1.877.BY.LEGRAND (295.3472)
www.legrand.us

Product Environmental Profile

Ortronics® High Density Fiber Modules

LEGRAND COMPANY OVERVIEW

• Designed to Be Better – Our Commitment to Sustainability
At Legrand®, our sustainability commitment translates into greater benefits and tangible value for our customers, business partners, employees, and the broader community.

• Better Performance
We provide building solutions to meet many building performance goals from sustainability and energy efficiency to productivity and occupant well being. The right choice in network and electrical infrastructure can play a key role in many facets of building performance. Our products help ensure electrical safety. They offer choice and flexibility in space design. They are designed to reduce installation time and material waste on site. Because we know buildings consume a great deal of energy, we offer a range of products and solutions that reduce energy consumption from lighting to plug load to data centers.

• Better Solutions
We offer a wide range of innovative solutions for the building, while constantly evolving our design and development processes to improve the environmental profile of our products. Through active monitoring and research, we serve as an expert resource for market trends and building and product performance standards to keep our customers at the top of their game.

• Better Operations
We focus on operational excellence because we believe optimizing the way we manage energy, water and waste is not only good for the environment, it's good for business. As part of the Department of Energy's Better Building, Better Plants Challenge (BBBP) Legrand has reduced its energy intensity by over 30% across 14 sites in the United States in just three years. Integrating sustainability into the way we run our operations makes us more competitive – and a better business partner.

For information on Legrand PEP's and other sustainability initiatives, scan the QR code to be brought to our Product Sustainability page.

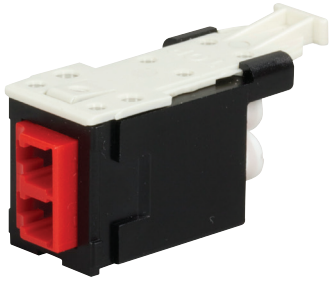
LEGRAND'S ENVIRONMENTAL COMMITMENTS

• Incorporate environmental management into our industrial sites
Of all Legrand sites worldwide, over 85% are ISO 14001 certified (sites belonging to Legrand for more than five years).

• Offer our customers environmentally friendly solutions
Develop innovative solutions to help our customers design more energy efficient, better managed and more environmentally friendly installations.

• Involve the environment in product design
Reduce the environmental impact of products over their whole life cycle.
Provide our customers with all relevant information (composition, consumption, end of life, etc.).

REFERENCE PRODUCT

Function	Provides the connection point for two pairs of fiber optic connectors used in a patch panel for mixed media applications during a 20 year lifetime. This system complies with TIA-568-B.3 cabling component standard.
Reference Product	
	Part Number: OR-HDFM-FLC2CG-00
	High Density Fiber Module, red duplex LC adapter

The company reserves the right to change specifications and designs without notice. All illustrations, descriptions, dimensions and weights in the document are for guidance and cannot be held binding on the company.

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PEP ecopassport®

PRODUCTS CONCERNED

The environmental data is representative of the following products:

High Density Fiber Modules (LC, SC, and MPO)
OR-HDFM-FLC2Cx-00
OR-HDFM-FSC1Cx-00
OR-HDFM-FMTZNx-00
x = adapter color

CONSTITUENT MATERIALS

This Reference Product contains no substances prohibited by the regulations applicable at the time of its introduction to the market. It respects the restrictions on use of hazardous substances as defined in the RoHS directive 2011/65/CE.

Total weight of Reference Product (with unit packaging)	**0.4 oz (12 g)**

Plastics as % of weight		**Metals as % of weight**		**Other as % of weight**	
PC	**36.8%**	Stainless Steel	**8.2%**		
PC-ABS	**5.0%**				
PP	**3.0%**				
				Packaging as % of weight	
				Paper, Cardboard	**36.8%**
				PE (low density)	**10.2%**
Total plastics	**44.8%**	**Total metals**	**8.2%**	**Total other and packaging**	**47.0%**

Estimated recycled material content: 27% of weight.

Note: The proportions of PC and PP vary for the other products covered by the PEP due to different materials used for two of the components. The following statements explain percentage of weight for materials used in the other products with respect to the materials in the Reference Product. The SC Fiber Modules have PC (16%) and include PBT (13%) and PP is replaced by Rubber (11%). The MPO Fiber Modules have PC (29 %) and include PEI (11%) and there is no PP. All other materials and percentages are the same as shown in the table above.

MANUFACTURING

The Reference Product comes from sites that have received ISO 14001 certification.

DISTRIBUTION

Products are distributed from logistics centers located to optimize transport efficiency. Information on the distance of distribution is not available so the PCR hypothesis for "Intercontinental transport", 2175 miles (3500 km) by heavy truck, was used. This represents transportation of the Reference Product from our warehouse to the local point of distribution in the North American market.

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INSTALLATION

No electricity is required for installing the Reference Product.

USE

Servicing and maintenance:
Under normal conditions of use, this type of product requires no servicing or maintenance.

Consumable:
No consumables are necessary to use this type of product.

END OF LIFE

Development teams integrate product end-of-life factors in the design phase.

• **Hazardous waste* contained in the product:** no hazardous waste
(*) Hazardous waste as defined by European Commission decision 2000/532/EC.

• **Recycling rate:**
Calculated using the method described in the IEC/TR 62635 technical report, the recyclability rate of the product is estimated as 87%. This value is based on data collected from a technological channel using industrial procedures. It does not pre-validate the effective use of this channel for end-of-life electrical and electronic products.

Separated into:	(% mass of Reference Product)
- plastic materials (excluding packaging):	42%
- metal materials (excluding packaging):	8%
- packaging (all types of materials):	37%

ENVIRONMENTAL IMPACTS

The evaluation of environmental impacts examines the stages of the Reference Product life cycle: manufacturing, distribution, installation, use, and end of life. It is representative of products marketed and used in North America.

The following modelling elements were taken into account:

Manufacturing	Packaging taken into account up to third level packaging. As required by the PEP ecopassport program, all transport for the manufacturing of the Reference Product, including materials and components, has been taken into account. The waste generated during manufacturing phase has been taken into account.
Distribution	Transport between the last distribution center and an average delivery to the sales area.
Installation	The end-of-life of the packaging (0.2 oz or 5.6 g) is taken into account at this phase.
Use	• Under normal conditions of use, this type of product requires no servicing or maintenance. • No consumables are necessary to use this type of product. • Use scenario: no electricity consumption during the 20 year working life. This modelling duration does not constitute a minimum durability requirement. • Energy model: Electricity(US) - 2009
End of life	The default end of life scenario modelled maximizes the environmental impact.
Software used	EIME V5 and its database "CODDE-2015-04" and the indicators defined in the PCR ed 3 in alignment with the EN15804 standard

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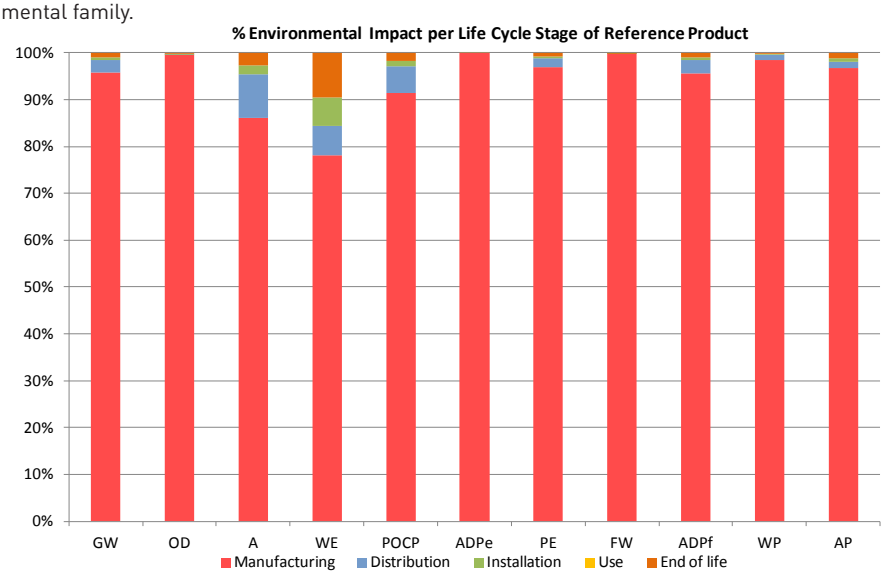
ENVIRONMENTAL IMPACTS (continued)

	Total for Life cycle		Raw material and manufacturing		Distribution		Installation		Use		End of life	
Global warming (GW)	**7.64E-02**	**kg CO_2 eq.**	7.32E-02	**96%**	2.08E-03	**3%**	4.18E-04	**< 1%**	0.00E+00	**0%**	7.01E-04	**< 1%**
Ozone depletion (OD)	**5.79E-09**	**kg CFC-11 eq.**	5.76E-09	**100%**	4.21E-12	**< 1%**	5.57E-12	**< 1%**	0.00E+00	**0%**	1.67E-11	**< 1%**
Acidification of soil and water (A)	**9.96E-05**	**kg SO_2 eq.**	8.57E-05	**86%**	9.34E-06	**9%**	1.89E-06	**2%**	0.00E+00	**0%**	2.70E-06	**3%**
Water eutrophication (WE)	**3.40E-05**	**kg PO_4^{3-} eq.**	2.66E-05	**78%**	2.15E-06	**6%**	2.07E-06	**6%**	0.00E+00	**0%**	3.21E-06	**9%**
Photochemical ozone creation (POCP)	**1.18E-05**	**kg C_2H_4 eq.**	1.07E-05	**91%**	6.64E-07	**6%**	1.37E-07	**1%**	0.00E+00	**0%**	2.10E-07	**2%**
Depletion of abiotic resources - elements (ADPe)	**1.07E-06**	**kg Sb eq.**	1.07E-06	**100%**	8.32E-11	**< 1%**	2.12E-11	**< 1%**	0.00E+00	**0%**	4.38E-11	**< 1%**
Total use of primary energy (PE)	**1.54E+00**	**MJ**	1.49E+00	**97%**	2.94E-02	**2%**	6.14E-03	**< 1%**	0.00E+00	**0%**	1.07E-02	**< 1%**
Net use of fresh water (FW)	**3.66E-04**	**m^3**	3.65E-04	**100%**	1.86E-07	**< 1%**	2.13E-07	**< 1%**	0.00E+00	**0%**	5.78E-07	**< 1%**
Depletion of abiotic resources – fossil fuels (ADPf)	**1.04E+00**	**MJ**	9.95E-01	**96%**	2.92E-02	**3%**	5.86E-03	**< 1%**	0.00E+00	**0%**	9.94E-03	**< 1%**
Water pollution (WP)	**3.31E+01**	**m^3**	3.27E+01	**99%**	3.42E-01	**1%**	5.85E-02	**< 1%**	0.00E+00	**0%**	8.11E-02	**< 1%**
Air pollution (AP)	**6.61E+00**	**m^3**	6.39E+00	**97%**	8.52E-02	**1%**	5.16E-02	**< 1%**	0.00E+00	**0%**	7.93E-02	**1%**

The values of the 27 impacts defined in the PCR-ed3-EN-2015 04 02 are available in the digital database of pep-ecopassport.org website. The environmental impacts of the Reference Product are representative of the products covered by the PEP, which therefore constitute a homogeneous environmental family.



As illustrated, the environmental impact of the Reference Product occurs predominantly during the manufacturing phase.

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ENVIRONMENTAL IMPACTS (continued)

For products other than the Reference Product, the environmental impacts can be estimated by weighting the environmental impacts of the Reference Product by the values shown in the table below. Impacts from Distribution are proportional to the mass of the products and impacts from Installation are the same as the Reference Product. Impacts from Use are not applicable.

Part Number	Manufacturing	Distribution	End of Life
OR-HDFM-FLC2Cx-00	1.0	1.0	1.0
OR-HDFM-FSC1Cx-00	AP / OD / PE: 1.2 ADPf / POCP: 1.6 all else: 1.1	1.2	1.3
OR-HDFM-FMTZNx-00	ADPf / POCP: 1.4 all else: 1.2	1.1	1.1

Registration number: LGRP-00009-V01.01-EN	Drafting rules: "PCR-ed3-EN-2015 04"
Verifier's accreditation number: VH02	Information and reference documents: **www.pep-ecopassport.org**
Date of issue: 10-2015	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010 Internal ☒ External ☐	
The PCR Review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN).	
The elements of the present PEP cannot be compared with elements from another program.	
Documents in compliance with ISO 14025:2010: "Environmental labels and declarations - Type III environmental declarations"	
In compliance with ISO 14040:2006: "Environmental management – LCA – Principles and framework" In compliance with ISO 14044:2006: "Environmental management – LCA – Requirements and guidelines" In alignment with EN 15804:2012+A1:2013: "Sustainability of construction works - EPD's - Core rules for the product category of construction products"	