

Product Environmental Profile

Middle Atlantic Products® RFR-2428TR Laminate Racks



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 our sustainability initiatives, scan the QR code to be brought to our High Performance Buildings 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	Providing housing and access to: servers, audio visual or other electronic equipment (while in use) for a period of 20 years, within a single structure with dimensions of 28.25”D x 48.95”H x 27.3”W and having a wood grain appearance.
Reference Product	
	Part Number: RFR-2428TR
	Laminate Racks

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PRODUCTS CONCERNED

The environmental data is representative of the following products:

Description - Laminate Rack products within the series:

- BRK RFR
- MBRK RK
- MFR Slim 2
- OBRK Slim 2M
- OSR SRK



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/EC and does not contain, as far as we know, any substance on the candidate list from June 2015 for authorization of the REACH regulation (EC) no. 1907/2006 with a concentration above 0.1% w/w.

The products covered by this PEP are all GREENGUARD compliant.

Total weight of Reference Product (with unit packaging)	178 lb (80.7 kg)
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Plastics as % of weight		Metals as % of weight		Other as % of weight	
Polyvinyl chloride (PVC)	4.4%	Steel	16.0%	Particle Board	42.0%
Rubber	0.7%			Glass	8.2%
Acrylonitrile-Butadiene-Styrene (ABS)	0.1%			Powder based paint	0.1%
Nylon 6 (PA 6)	<0.1%			Wood	<0.1%
				Packaging as % of weight	
				Cardboard	13.4%
				Wood	10.1%
				Polystyrene foam	3.9%
				Paper	0.7%
				LDPE	0.3%
Total plastics	5.3%	Total metals	16.0%	Total other and packaging	78.7%

Estimated recycled material content: 5% of weight.



MANUFACTURING

The products covered by this PEP come from a manufacturing site that has received ISO 14001 certification and Greencircle certification for diversion of 97% of waste away from landfills.

Specific distances of transport before and after manufacturing were used where available. Where not available they were based on the use of local suppliers and sale within in North America, "Local transport" default distance of 621 miles (1,000 km) by heavy truck to the manufacturing site and to local distribution centers was included in the manufacturing stage.



DISTRIBUTION

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 or a negligible amount 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

• 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 Reference Product without packaging is estimated as 95%. 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 without packaging)

- plastic materials (excluding packaging): 0%
- metal materials (excluding packaging): 95%
- other materials (excluding packaging): 0%

Recycling rate of packaging (all types of materials): 30%



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	All transport for the manufacturing of the Reference Product, including materials and components, has been taken into account. Production of raw materials and packing, as well as the product manufacturing is accounted for. The waste generated during manufacturing phase has been included for non packaging materials. The electricity, fuel and water use in the steel processing portion of the facility has been allocated to the steel portion of the product based on the mass of steel in the product vs. total steel processed. The same process has been employed for the wood-based portion of the product based on the wood shop energy inputs.
Distribution	Transport between the last distribution center and an average delivery to the sales area. The default scenario modelled maximizes the environmental impact.
Installation	The end of life of the packaging (50.8 lb or 23kg) and its transport to end of life treatment is taken into account at this phase.
Use	<ul style="list-style-type: none"> • Under normal conditions of use, this type of product requires no servicing or maintenance. • No consumables are necessary to use this type of product. • Product category: Non-protective enclosure. • Use scenario: Continuous operation for 20 years. • Energy model: This product does not use electricity
End of life	The end of life of the product is modelled as the transport of the product the default distance of 621 miles (1000 km) by truck, and landfilling of all non-recycled (non-metal) product constituent materials.
Software used	EIME V5 and its database "CODDE-2016-11" and the indicators defined in the PCR ed 3 in alignment with the EN15804 standard

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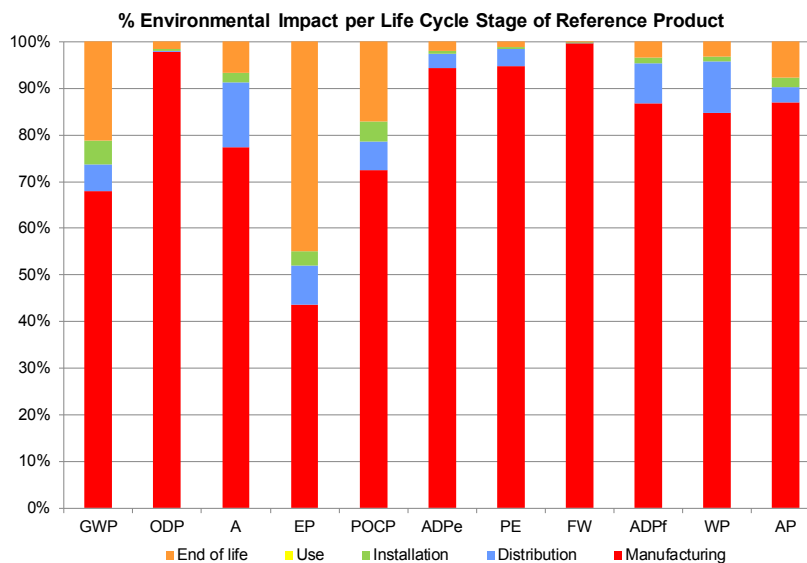
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ENVIRONMENTAL IMPACTS (continued)

	Total for Life cycle		Raw material and manufacturing		Distribution		Installation		Use		End of life	
	Value	Unit	Value	%	Value	%	Value	%	Value	%	Value	%
Global warming (GW)	2.49E+02	kg CO ₂ eq.	1.69E+02	68%	1.41E+01	6%	1.30E+01	5%	0.00E+00	0%	5.27E+01	21%
Ozone depletion (OD)	8.23E-06	kg CFC-11 eq.	8.05E-06	98%	2.85E-08	<1%	3.66E-08	<1%	0.00E+00	0%	1.22E-07	1%
Acidification of soil and water (A)	4.53E-01	kg SO ₂ eq.	3.50E-01	77%	6.32E-02	14%	9.63E-03	2%	0.00E+00	0%	3.01E-02	7%
Water eutrophication (WE)	1.73E-01	kg PO ₄ ³⁻ eq.	7.56E-02	44%	1.45E-02	8%	5.24E-03	3%	0.00E+00	0%	7.78E-02	45%
Photochemical ozone creation (POCP)	7.17E-02	kg C ₂ H ₄ eq.	5.19E-02	72%	4.49E-03	6%	3.05E-03	4%	0.00E+00	0%	1.22E-02	17%
Depletion of abiotic resources - elements (ADPe)	1.80E-05	kg Sb eq.	1.70E-05	94%	5.63E-07	3%	1.12E-07	<1%	0.00E+00	0%	3.41E-07	2%
Total use of primary energy (PE)	5.38E+03	MJ	5.10E+03	95%	1.99E+02	4%	2.32E+01	<1%	0.00E+00	0%	6.52E+01	1%
Net use of fresh water (FW)	6.46E+00	m ³	6.44E+00	100%	1.26E-03	<1%	3.64E-03	<1%	0.00E+00	0%	1.43E-02	<1%
Depletion of abiotic resources – fossil fuels (ADPf)	2.31E+03	MJ	2.01E+03	87%	1.98E+02	9%	2.79E+01	1%	0.00E+00	0%	8.07E+01	3%
Water pollution (WP)	2.10E+04	m ³	1.78E+04	85%	2.31E+03	11%	2.42E+02	1%	0.00E+00	0%	6.58E+02	3%
Air pollution (AP)	1.72E+04	m ³	1.49E+04	87%	5.77E+02	3%	3.51E+02	2%	0.00E+00	0%	1.32E+03	8%

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.



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 generally be determined for each life cycle phase by multiplying the Reference Product impacts by the factors listed below. Values are generally consistent within a life cycle phase for each product within the series.

Factor	Ratio to calculate factor
A	Mass of product without packaging / Mass of reference product without packaging
B	Total mass of product with packaging / Total mass of reference product with packaging
C	Mass of product packaging / Mass of reference product packaging
D	Mass of woodbased portion of the product without packaging / Mass of woodbased portion of the reference product without packaging
1	Use phase is the same (no impact) for all products

Part Number	Manufacturing	Distribution	Installation	Use	End of Life
BRK, MBRK, MFR, OBRK, OSR, RFR, RK, Slim 2, Slim 2M, SRK	A	B	C	1	D

Registration number: LGRP-00478-V01.01-EN	Drafting rules: "PCR-ed3-EN-2015 04" Supplemented by:
Verifier's accreditation number: VH08	Information and reference documents: www.pep-ecopassport.org
Date of issue: 2-2018	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010 Internal <input checked="" type="checkbox"/> External <input type="checkbox"/>	
The PCR Review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN).	
PEP are compliant with XP C08-100-1 :2014 The elements of the present PEP cannot be compared with elements from another program.	
Document 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"	