

# Product Environmental Profile

## Middle Atlantic Products® Gangable Floor Standing Enclosures



### LEGRAND COMPANY OVERVIEW

- Sustainability built in to support our associates, customers, and the environment  
 At Legrand North America, we're committed to leading by example within our own operations, to developing high quality solutions for our customers' High Performance Buildings, and to transforming how people live and work – more safely, more comfortably, more efficiently.
- Better Performance  
 A core principle of designing for sustainability drives us to innovate products and systems that enable buildings to reach exceptional levels of performance, bringing about industry-leading ideas, inventions and initiatives.
- Better Operations  
 A commitment to a leadership role in operational excellence through environmental management, optimizing the way we manage energy, water and waste.
- Better Lives  
 A dedication to enhancing employee and community welfare through programs that help people enjoy healthier, more productive and more rewarding lives.

For information on Legrand PEP's and other sustainability initiatives, visit [legrand.us/sustainability](http://legrand.us/sustainability)




### 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 environmental 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

Functional unit	Enclosure of 1.1 m3 of useable space for storage of electrical equipment and associated power, cooling, cable management items, etc. for a period of 20 years.
Reference Product	
	Part Number: MRK-4442
	Gangable Floor Standing Enclosures
	Dimensions : 42x22x83.13 in
Reference flow	Raw material including primary packaging and including material that will end up as waste/ recycled during manufacturing No Installation component are necessary All associated processes , transport and disposal are including

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### PRODUCTS CONCERNED

The environmental data is representative of the following products:

Description - Gangable floor standing enclosure (rack) products within of the following series:

- MRK            Slim 5
- BGR            SNE
- VRK            ERK
- VMRK          QAR
- WMRK          WRK
- DRK



### 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)	197.3 lbs (89.5 kg)
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Plastics as % of weight		Metals as % of weight		Other as % of weight	
		Steel	77.7%	Paint	0.7%
				Packaging as % of weight	
				Wood	18.8%
				Corrugated cardboard	2.7%
				Polyethylene	<0.1%
Total plastics	0%	Total metals	77.7%	Total other and packaging	22.3%

Estimated recycled material content: 30.1% of weight.



### MANUFACTURING

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

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



### DISTRIBUTION

Products are distributed from logistics centers located to optimize transport efficiency. As the product is sold in 4 continents (Asia, North America, South America, Europe) the PCR hypothesis for "Continental transport", 2175 miles (3500 km) by heavy truck, and "Intercontinental transport", 621 miles (1000 km) by heavy truck and 11806 miles (19 000 km) by ship were used. This represents transportation of the Reference Product from our facility to the customers around the world.



### INSTALLATION

No electricity is required for installing the Reference Product. In this stage, only the packaging end of life is represented.



### USE

Servicing and maintenance:

Under normal conditions of use, this type of product requires no use of electricity.

Consumable:

No consumables are necessary to use this type of product.

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### 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 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. The recyclability rate of the packaging is estimated as 32.7% (generic value). This value may change depending on the performance level of the end of life treatment process in each country

Separated into: (% of product without packaging)

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

Recyclability of packaging (separately): 32.7% (% mass of Primary packaging)



### 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, South America, Asia and Europe.

The following modelling elements were taken into account:

Manufacturing	<p>Is taken into account :</p> <ul style="list-style-type: none"> <li>• Production of raw materials</li> <li>• Upstream transport of the raw materials (product + packaging)</li> <li>• Manufacturing process: water, natural gas and electricity consumption, water treatment, painting.</li> <li>• Losses (from the packaging and from the product) : manufacturing of losses and transport to treatment center and treatment (mostly landfilling)</li> <li>• Transport to the distribution center.</li> </ul> <p>All these data are representative of an American manufacturing. The electricity consumption is representative of the USA.</p>
Distribution	<p>Transport between the last distribution center and an average delivery to the sales area. The distribution scenario is: Europe (25%), Asia (25%), South America (25%) and North America (25%). PEP ecopassport® PCR rules have been taken for each transport.</p>
Installation	<p>The end-of-life of the packaging is taken into account at this phase. It represents the transport of packaging waste plus the treatment of the packaging components (landfilling).          The energy model used is European.</p>
Use	<ul style="list-style-type: none"> <li>• Under normal conditions of use, this type of product requires no servicing or maintenance.</li> <li>• No consumables are necessary to use this type of product.</li> <li>• Product category: Enclosure.</li> <li>• Use scenario: Continuous operation for 20 years.</li> <li>• Energy model: This product does not use electricity</li> </ul>
End of life	<p>According to the PEP Ecopassport® program rules, the end of life of the product is modelled by a transport of 621 miles (1000 km) by truck and waste treatment of materials (landfilling of non-recycled materials (non-metals), recycling of metals). The energy model used is European.</p>
Software used	<p>EIME V5.9.1 and its database "CODDE-2020-12" and the indicators defined in the PEP ecopassport® PCR ed 3.</p>

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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 (GWP)	<b>3.76E+02</b>	kg CO <sub>2</sub> eq.	3.11E+02	82.75%	2.88E+01	7.64%	2.91E+01	7.73%	0.00E+00	0*	7.05E+00	1.87%
Ozone depletion (ODP)	<b>2.33E-06</b>	kg CFC-11 eq.	2.20E-06	94.43%	5.20E-08	2.23%	6.24E-08	2.68%	0.00E+00	0*	1.54E-08	0.66%
Acidification of soils and water (A)	<b>1.25E+00</b>	kg SO <sub>2</sub> eq.	5.93E-01	47.50%	6.07E-01	48.65%	1.64E-02	1.31%	0.00E+00	0*	3.16E-02	2.53%
Water eutrophication (EP)	<b>1.61E-01</b>	kg PO <sub>4</sub> <sup>3-</sup> eq.	7.34E-02	45.66%	6.50E-02	40.44%	1.35E-02	8.38%	0.00E+00	0*	8.87E-03	5.52%
Photochemical ozone formation (POCP)	<b>1.44E-01</b>	kg C <sub>2</sub> H <sub>4</sub> eq.	1.04E-01	72.31%	3.09E-02	21.43%	6.80E-03	4.71%	0.00E+00	0*	2.25E-03	1.56%
Depletion of abiotic resources - elements (ADPe)	<b>3.75E-05</b>	kg Sb eq.	3.60E-05	95.91%	1.07E-06	2.87%	1.75E-07	0.47%	0.00E+00	0*	2.83E-07	0.75%
Total use of primary energy (PE)	<b>1.42E+04</b>	MJ	1.37E+04	96.35%	3.80E+02	2.68%	3.80E+01	0.27%	0.00E+00	0*	9.93E+01	0.70%
Net use of fresh water (FW)	<b>1.38E+00</b>	m <sup>3</sup>	1.37E+00	99.29%	2.33E-03	0.17%	6.85E-03	0.50%	0.00E+00	0*	6.75E-04	0.05%
Depletion of abiotic resources – fossil fuels (ADPf)	<b>3.38E+03</b>	MJ	2.87E+03	84.87%	3.77E+02	11.17%	3.53E+01	1.05%	0.00E+00	0*	9.86E+01	2.92%
Water pollution (WP)	<b>1.42E+04</b>	m <sup>3</sup>	8.04E+03	56.72%	4.42E+03	31.15%	5.66E+02	3.99%	0.00E+00	0*	1.15E+03	8.14%
Air pollution (AP)	<b>4.13E+04</b>	m <sup>3</sup>	3.73E+04	90.25%	3.10E+03	7.51%	6.33E+02	1.53%	0.00E+00	0*	2.93E+02	0.71%

\*represents less than 0.01% of the total life cycle of the reference flow.

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

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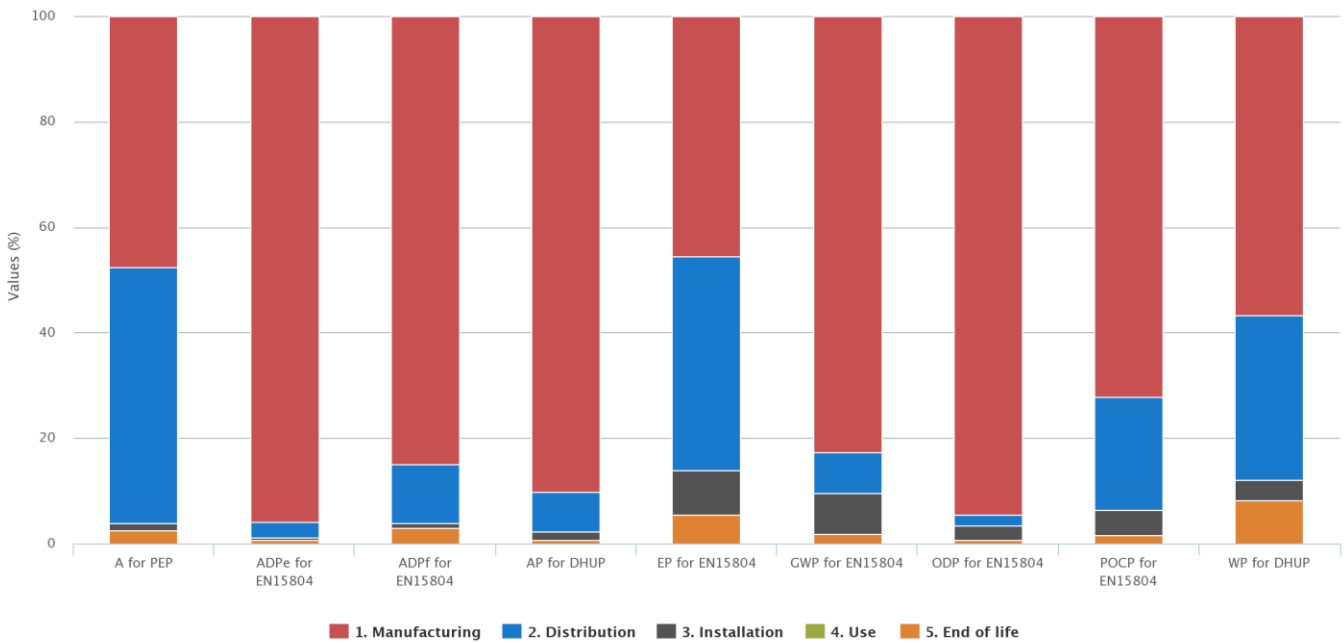


### ENVIRONMENTAL IMPACTS (continued)

#### % Environmental Impact per Life Cycle Stage of Reference Product

##### All indicators

Indicators for PEP ecopassport® - PCR 3 - 2015



© EIME Chart

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### ENVIRONMENTAL IMPACTS (continued)

The present life cycle analysis is valid for all the product mentioned in page one. Indeed, all Gangable Floor Standing Enclosures (rack) in MRK, Slim 5, BGR, SNE, VRK, ERK, VMRK, QAR, WMRK, WRK and DRK series belong to a homogeneous environmental family. As every products in this environmental family is mostly made of steel, and has no use phase, an extrapolation factor between the mass of the MRK-4442 reference product (including packaging) and the mass of the homogeneous environmental family product (including packaging) can be applied. The environmental impacts of every products listed below must be calculated multiplying the environmental impacts of MRK-4442 product with the appropriated factor.

The following tables show all the extrapolation factors:

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
BGR-1627	0.505	BGR-3827	0.689	BGR-4127	0.789
BGR-1927	0.563	BGR-3832	0.747	BGR-4527	0.800
BGR-2527	0.589	BGR-4132	0.837	BGR-4532	0.863
BGR-2532	0.653	BGR-4138	0.895	BGR-4538	0.958

Extrapolation factors for BGR series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
DRK19-44-31	1.053	DRK19-44-42	1.442		
DRK19-44-36	1.389	DRK19-52-42	1.621		

Extrapolation factors for DRK series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
ERK-1028	0.453	ERK-2128	0.589	ERK-3528	0.737
ERK-1228	0.468	ERK-2720	0.558	ERK-4020	0.684
ERK-1820	0.479	ERK-2725	0.621	ERK-4025	0.868
ERK-1825	0.505	ERK-2728	0.695	ERK-4028	0.832
ERK-1828	0.558	ERK-3520	0.621	ERK-4420	0.726
ERK-2120	0.500	ERK-3525	0.711	ERK-4425	0.842
ERK-2125	0.611	ERK-4428	0.884		

Extrapolation factors for ERK series

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Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
MRK-2426	0.537	MRK-3736	0.721	MRK-4431	0.811
MRK-2431	0.627	MRK-3842	0.921	MRK-4436	0.911
MRK-2436	0.733	MRK-4026	0.726	MRK-4442	1.000
MRK-3031	0.684	MRK-4031	0.800	MRK-4826	1.158
MRK-3231	0.700	MRK-4036	0.863	MRK-4831	1.205
MRK-3726	0.689	MRK-4042	0.947		
MRK-3731	0.758	MRK-4426	0.763		

MRK-4442 is the reference product of this PEP declaration

### Extrapolation factors for MRK series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
QAR-12-20	0.161	QAR-21-20	0.171	QAR-35-20	0.197
QAR-12-24	0.192	QAR-21-24	0.203	QAR-35-24	0.213
QAR-18-20	0.178	QAR-27-20	0.212	QAR-42-20	0.217
QAR-18-24	0.210	QAR-27-24	0.228	QAR-42-24	0.233

### Extrapolation factors for QAR series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
Slim 5-4	0.105	Slim 5-19	0.181	Slim 5-34	0.260
Slim 5-5	0.121	Slim 5-20	0.182	Slim 5-35	0.266
Slim 5-6	0.105	Slim 5-21	0.216	Slim 5-36	0.260
Slim 5-7	0.142	Slim 5-22	0.218	Slim 5-37	0.261
Slim 5-8	0.152	Slim 5-23	0.229	Slim 5-38	0.270
Slim 5-9	0.153	Slim 5-24	0.235	Slim 5-39	0.276
Slim 5-10	0.157	Slim 5-25	0.238	Slim 5-40	0.279
Slim 5-11	0.159	Slim 5-26	0.236	Slim 5-41	0.281
Slim 5-12	0.163	Slim 5-27	0.242	Slim 5-42	0.277
Slim 5-13	0.167	Slim 5-28	0.240	Slim 5-43	0.282
Slim 5-14	0.168	Slim 5-29	0.241	Slim 5-46	0.284
Slim 5-15	0.170	Slim 5-30	0.247	Slim 5-48	0.289
Slim 5-16	0.172	Slim 5-31	0.259	Slim 5-49	0.295
Slim 5-17	0.174	Slim 5-32	0.252	Slim 5-54	0.321
Slim 5-18	0.176	Slim 5-33	0.259		

### Extrapolation factors for Slim 5 series

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Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
SNE24D-2436-P1	1.158	SNE24D-4548-P1	1.863	SNE30D-4236-P1	1.753
SNE24D-2442-P1	1.216	SNE27D-4236-P1	1.742	SNE30D-4242-P1	1.863
SNE24D-4236-P1	1.589	SNE27D-4242-P1	1.853	SNE30D-4248-P1	1.968
SNE24D-4242-P1	1.926	SNE27D-4248-P1	1.953	SNE30D-4536-P1	1.758
SNE24D-4248-P1	1.784	SNE27D-4536-P1	1.816	SNE30D-4542-P1	1.879
SNE24D-4536-P1	1.637	SNE27D-4542-P1	1.921	SNE30D-4548-P1	2.037
SNE24D-4542-P1	1.737	SNE27D-4548-P1	1.911	SNE30D-5448-P1	2.242

### Extrapolation factors for SNE series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
VRK-44-31H	0.884	WMRK-2436	0.684	WMRK-4248	1.053
VRK-44-36H	0.963	WMRK-2442	0.789	WMRK-4536	0.937
VMRK-54	1.937	WMRK-4236	0.926	WMRK-4542	1.037
VMRK-54-36	2.047	WMRK-4242	1.021	WMRK-4548	1.116

### Extrapolation factors for VRK, VMRK and WMRK series

Material	Extrapolation factors	Material	Extrapolation factors	Material	Extrapolation factors
WRK-24-27	0.605	WRK-37-27	0.779	WRK-40-32	0.895
WRK-24-32	0.658	WRK-37-32	0.842	WRK-44-32	0.942
WRK-44-27	0.874	WRK-40-27	0.826		

### Extrapolation factors for WRK series

Registration number: LGRP-00085-V02.01-EN	Drafting rules: "PCR-ed3-EN-2015 04" Supplemented by "PSR-0005-ed2-FR-2016 03 29"
Verifier's accreditation number: VH18	Information and reference documents: <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Date of issue: 07-2021	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).	
Les PEP comply with the standard XP C08-100-1 :2014	
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"	

