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Your usual Sales office
www.legrand.com

Product Environmental Profile

Green Transformers High Efficiency

LEGRAND'S ENVIRONMENTAL COMMITMENTS

• Incorporate environmental management into our industrial sites
Of all Legrand sites worldwide, over 80% are ISO 14001-certified
(sites belonging to the Group for more than five years).

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

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

REFERENCE PRODUCT

Function	This product allows to deliver a different voltage from the input and is typically used for electrical distribution (service sector, infrastructures, industrial applications), conversion and rectification, in accordance with EN 50541-1 standard.
Reference Products	
	EK4AAAGBA Green Transformer High Efficiency 1000 kVA - A_0A_K Series

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.

CONCERNED PRODUCTS

The environmental data for the Reference Product represent the following Catalogue Numbers: the whole offer of Green Transformers High Efficiency, as presented in catalogs (list of codes available upon request through our Technical Customer Service).

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PEP ecopassport®

CONSTITUENT MATERIALS

This product contains no substances prohibited by the regulations applicable at the time of its introduction to the market. At the date of publication of this document, this product contains no substances to which the RoHS directives apply (2002/95/EC and review 2011/65/EC) and no substances appearing on the list of candidates for authorisation of the European REACH regulation.

Total weight of Reference Products:	**2864 kg** (unit packaging included)

Plastics as % of weight		**Metals as % of weight**		**Other as % of weight**	
Epoxy resin	1,6 %	Steel	70,2 %	Quartz powder	3,1 %
Polyethylene terephthalate (PET)	1,4 %	Aluminium	18,8 %	Aluminium oxide	1,6 %
Polybutylene Terephthalate (PBT)	1,0 %	Copper	0,1 %	Hardener	1,5 %
Polyamide (PA6)	0,1 %	Other metals	0,1 %	Glass fiber	0,3 %
Other plastics	0,1 %			**Packaging as % of weight**	
				Polyethylene (LDPE)	0,1 %
Total plastics	**4,2 %**	**Total metals**	**89,2 %**	**Total other and packaging**	**6,6 %**

Estimated recycled material content: 40 % by weight

MANUFACTURE

These products come from sites that have received ISO14001 certification.

DISTRIBUTION

The Group's products are distributed from logistics centres located to optimize transport efficiency.

The Reference Product is therefore transported over an average distance of 1670 km by road and over an average distance of 2680 km by sea, representing a worldwide marketing.

Packaging is compliant with Directive 2004/12/EC concerning packaging and packaging waste. At the end of product life, the theoretical recycling potential is 100 % and their energy recovery potential is 100 % (as % of packaging weight).

INSTALLATION

Installation components not delivered with the product are not taken into account.

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 the product.

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PEP ecopassport®

END OF LIFE

• **Non-hazardous waste contained in the product:** 2861 kg

• **Hazardous waste contained in the product:**
This product contains no hazardous waste.

• **Theoretical recycling potential:**
The theoretical recycling potential of a product is the percentage of material that can be recycled using existing techniques. It takes no account of the existence or lack of recycling services, which are highly dependent on the local situation.

This product contains 93 % by weight of potentially recyclable materials (excluding packaging):

- Plastic materials : 4 %
- Metal materials : 89 %

• **Energy recovery potential:**
Energy recovery consists in using the calories contained in waste by burning it and recovering the energy produced, for example, to heat buildings or to produce electricity. The process uses the convertible energy contained in the waste.
4 % of the product mass can be recycled with energy recovery.

ENVIRONMENTAL IMPACTS

The evaluation of environmental impacts examines the stages of the Reference Product life cycle: manufacturing, distribution, installation, use and end of life of the product marketed and used in Europe. The following modelling elements were taken into account:

Manufacture	As required by the «PEP ecopassport» programme all transports for the manufacturing of the Reference Product, including materials and components, has been taken in account.
Distribution	Transport between the last Group manufacturing centre and an average delivery to the sales area.
Installation	Installation components not delivered with the product are not taken into account.
Use	• Maintenance: under normal conditions of use, this type of product requires no servicing. • No consumables are necessary to use the product. • Product category: passive product. • Use scenario: 20-years working life. Continuous active mode (100% of the time) at 30% of the nominal current. This modelling duration does not constitute a minimum durability requirement. • Energy model: Electricity Europe 2005.
End of life	In view of the data available on the date of creation of the document, and in accordance with the requirements of the PCR of the « PEP ecopassport » programme, was counted transport of the Reference Product by road only once, over a distance of 1000 km, to a processing site at end of life.
Software used	EIME V5 and its database «Legrand-2012-10-31 version 3» developed from database «CODDE-2012-07».

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ENVIRONMENTAL IMPACTS

		Total for Life cycle		Raw material and manufacture		Distribution		Installation		Use		End of life	
Mandatory indicators	Contribution to greenhouse effect	**2.56E+05**	kg~CO_2 eq.	1.61E+04	**6%**	7.05E+02	**<1%**	0,00E+00	**0%**	2.39E+05	**93%**	2.18E-01	**<1%**
	Damage to the ozone layer	**1.54E-02**	kg~CFC-11 eq.	2.00E-03	**13%**	4.29E-04	**3%**	0,00E+00	**0%**	1.30E-02	**84%**	1.54E-07	**<1%**
	Eutrophisation of water	**8.85E-01**	kg~PO_4^{3-} eq.	3.14E-01	**35%**	1.02E-02	**1%**	0,00E+00	**0%**	5.61E-01	**63%**	3.63E-06	**<1%**
	Photochemical ozone formation	**8.99E+01**	kg~C_2H_4 eq.	5.75E+00	**6%**	5.60E-01	**<1%**	0,00E+00	**0%**	8.36E+01	**93%**	1.89E-04	**<1%**
	Acidification of the air	**3.50E+01**	kg~H^+ eq.	2.74E+00	**8%**	1.88E-01	**<1%**	0,00E+00	**0%**	3.21E+01	**92%**	2.88E-05	**<1%**
	Total energy consumed	**5.02E+06**	MJ	2.80E+05	**6%**	8.92E+03	**<1%**	0,00E+00	**0%**	4.73E+06	**94%**	2.76E+00	**<1%**
	Consumption of water	**7.46E+05**	dm^3	6.09E+04	**8%**	7.36E+02	**<1%**	0,00E+00	**0%**	6.84E+05	**92%**	2.62E-01	**<1%**
Optional indicators	Depletion of natural resources	**1.83E-11**	$years^{-1}$	1.29E-11	**71%**	1.23E-14	**<1%**	0,00E+00	**0%**	5.38E-12	**29%**	3.76E-18	**<1%**
	Toxicity of the air	**4.34E+10**	m^3	3.52E+09	**8%**	2.58E+08	**<1%**	0,00E+00	**0%**	3.96E+10	**91%**	4.26E+04	**<1%**
	Toxicity of the water	**7.26E+04**	m^3	3.86E+03	**5%**	1.23E+02	**<1%**	0,00E+00	**0%**	6.86E+04	**95%**	3.04E-02	**<1%**
	Production of hazardous waste	**4.87E+03**	kg	9.06E+02	**19%**	2.26E-01	**<1%**	0,00E+00	**0%**	3.96E+03	**81%**	8.12E-05	**<1%**

The environmental impacts of the Reference Product are representative of the products covered by the PEP, which therefore constitute a homogeneous environmental family.
Extrapolation rule for the products of the homogeneous family different from those of reference: the environmental impacts of the manufacturing phase are proportional to the weight of the transformers, the variations of the environmental impacts of distribution, installation and end of life are negligible and the impact of the use phase are proportional to the equivalent power of each transformer, where the equivalent power is defined as:

$$P_{eq} = P_0 + 0{,}09 \cdot P_k$$

The values of these impacts are valid for the context specified in this document. They must not be used directly to draw up the environmental balance sheet for the installation.

Registration number: LGRP-2013-100-v1-en	Drafting rule: PEP-PCR-ed2.1-FR-2012 12 11
Authorisation number of checker: VH02	Programme information: **www.pep-ecopassport.org**
Date of issue: May 2013	Validity period: 4 years
Independent verification of the declaration and data, in accordance with ISO 14025:2006 Interne ☒ Externe ☐	PEP ecopassport®
In accordance with ISO 14025 :2006 Type III environmental declaration	
The critical review of the PCR was conducted by a panel of experts chaired by J.Chevalier (CSTB)	
The elements of the present PEP cannot be compared with elements from another programme	