

Product Environmental Profile

Green Transformers High Efficiency




BTICINO'S ENVIRONMENTAL COMMITMENTS

- Incorporate environmental management into our industrial sites**
 Of all Legrand sites worldwide, over 85% are ISO 14001-certified (sites belonging to the Group 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 and provide informations in compliance with ISO 14025**
 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	Allow to deliver a different voltage from the input; typically used for electrical distribution (service sector, infrastructures, industrial applications), conversion and rectification, in accordance with EN 50588-1 standard and EU Regulation n. 548/2014.
Reference Product	<div style="text-align: center;">  </div> <p style="text-align: center;">FK4AAAGBA</p> <p style="text-align: center;">Green Transformers High Efficiency 1000 kVA - A_vA_k series</p>

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.



PRODUCTS CONCERNED

The environmental data is representative of the following products: 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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■ 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/EU.

Total weight of Reference Product	3150 kg (all packaging included)				
Plastics as % of weight		Metals as % of weight		Other as % of weight	
Epoxy resin	8,1 %	Steel	67,6 %	Cables / Electric wires	< 0,1 %
PET	1,7 %	Aluminum alloys	21,5 %	Packaging as % of weight	
PBT	0,7 %	Copper alloys	< 0,1 %	Polyethylene	< 0,1 %
Thermoset	0,3 %			Paper / Cardboard	< 0,1 %
Polyamide	0,1 %				
Polypropylene	< 0,1 %				
Total plastics	10,9 %	Total metals	89,1 %	Total other and packaging	< 0,1 %

Estimated recycled material content: 9 % by mass.



■ MANUFACTURE

This Reference Product comes from sites that have received ISO14001 certification.



■ DISTRIBUTION

Products are distributed from logistics centres located with a view to optimize transport efficiency. The Reference Product is therefore transported over an average distance of 3500 km by road from our warehouse to the local point of distribution into the European market. Packaging is compliant with European directive 2004/12/EU concerning packaging and packaging waste. At their end of life, its recyclability rate is 7 % (in % of packaging weight).



■ INSTALLATION

For the installation of the product, only standard tools are needed.



■ USE

Under normal conditions of use, this product requires no servicing, no maintenance or additional products.

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END OF LIFE

The product end-of-life factors are taken into account during the design phase. Dismantling and sorting of components or materials is made as easy as possible with a view to recycling or failing that, another form of reuse.

• **Recyclability rate:**

Calculated using the method described in technical report IEC/TR 62635, the recyclability rate of the product is estimated at 99 %. This value is based on data collected from a technological channel operating on an industrial basis. It does not pre-validate the effective use of this channel for the end of life of this product.

Separated into:

- plastic materials (excluding packaging) : 10 %
- metal materials (excluding packaging) : 89 %



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 from products marketed and used in Europe, in compliance with the local current standards.

For each phase, the following modelling elements were taken in account:

Manufacture	Materials and components of the product, all transport for the manufacturing, the packaging and the waste generated by the manufacturing.
Distribution	Transport between the last Group distribution centre and an average delivery point in the sales area.
Installation	The end of life of the most commonly used packaging.
Use	<ul style="list-style-type: none"> • Product category: passive product. • Use scenario: continuous operation (100% of the time) for 20 years at 30% of rated load. This modelling duration does not constitute a minimum durability requirement. • Energy model: Electricity Mix, Europe 27 - 2002.
End of life	The default end of life scenario maximizing the impacts.
Software and database used	EIME V5 and its database «CODDE-2015-04»

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SELECTION OF ENVIRONMENTAL IMPACTS

	Total for Life cycle		Raw material and manufacture		Distribution		Installation		Use		End of life	
	Value	Unit	Value	%	Value	%	Value	%	Value	%	Value	%
Global warming	2.62E+05	kgCO ₂ eq.	1.74E+04	7%	5.49E+02	< 1%	2.94E-01	< 1%	2.44E+05	93%	1.84E+02	< 1%
Ozone depletion	6.16E-02	kgCFC-11 eq.	2.25E-03	4%	1.11E-06	< 1%	7.28E-09	< 1%	5.93E-02	96%	1.36E-06	< 1%
Acidification of soils and water	1.93E+03	kgSO ₂ eq.	8.23E+01	4%	2.47E+00	< 1%	1.13E-03	< 1%	1.85E+03	96%	7.75E-01	< 1%
Water eutrophication	7.72E+01	kg[PO ₄] ³⁻ eq.	6.20E+00	8%	5.67E-01	< 1%	1.29E-03	< 1%	6.92E+01	90%	1.28E+00	2%
Photochemical ozone formation	9.33E+01	kgC ₂ H ₄ eq.	5.85E+00	6%	1.75E-01	< 1%	8.79E-05	< 1%	8.73E+01	93%	5.82E-02	< 1%
Depletion of abiotic resources - elements	1.58E-02	kgSb eq.	4.68E-03	30%	2.20E-05	< 1%	1.87E-08	< 1%	1.11E-02	70%	7.94E-06	< 1%
Total use of primary energy	4.91E+06	MJ	6.87E+05	14%	7.36E+03	< 1%	3.14E+00	< 1%	4.21E+06	86%	2.19E+03	< 1%
Net use of fresh water	7.41E+02	m ³	1.05E+02	14%	4.91E-02	< 1%	2.52E-04	< 1%	6.37E+02	86%	5.30E-02	< 1%
Depletion of abiotic resources - fossil fuels	2.75E+06	MJ	2.26E+05	8%	7.71E+03	< 1%	4.19E+00	< 1%	2.51E+06	91%	2.43E+03	< 1%
Water pollution	1.14E+07	m ³	1.08E+06	9%	9.02E+04	< 1%	3.37E+01	< 1%	1.02E+07	90%	2.60E+04	< 1%
Air pollution	1.26E+07	m ³	2.05E+06	16%	2.25E+04	< 1%	3.49E+01	< 1%	1.05E+07	83%	1.10E+04	< 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.

For products covered by the PEP other than the Reference Product, the environmental impacts of the Manufacturing, Distribution and End of life phases are proportional to the weight of the transformers, the environmental impacts of the Installation phase are the same and the impacts of the Use phase are proportional to the equivalent power of each transformer, where the equivalent power is defined as:

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

Registration N°: LGRP-00501-V01.01-EN	Drafting rules: PEP-PCR-ed3-EN-2015 04 02 Supplemented by PSR-0005-ed2-2016 03 29
Verifier accreditation N°: VH02	Information and reference documents : www.pep-ecopassport.org
Date of issue: 07-2017	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)	
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»	
Environmental data in alignment with EN 15804 : 2012 + A1 : 2013	

