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Your usual Sales office
www.legrand.com

Product Environmental Profile

Cast resin transformers
GreenT

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 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	To transform by electromagnetic induction a system of alternating voltage and current into another system of alternating voltage and current for the purpose of transmitting electrical power ensuring the following levels of performance: - P_0 = 1900 W - P_k = 10800 W in compliance with IEC 60076-11, EN 50708 standards for a reference life time of 20 years.
Reference Product	
	TK4SIAGBA
	Green Transformers 1000 kVA - insulation class 24 kV

PRODUCTS CONCERNED

The environmental data is representative of the following products: the whole offer of Green Transformers, 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 and its delegated directive 2015/863/EU.

Total weight of Reference Product	**2480 kg** (all packaging included)

Plastics as % of weight		**Metals as % of weight**		**Other as % of weight**	
Epoxy resin	9,0 %	Steel	67,6 %		
PET	2,1 %	Aluminum	19,5 %		
PBT	0,8 %	Copper alloys	< 0,1 %		
Thermoset	0,6 %				
Polyester resin	0,2 %				
Polyamide	0,2 %				
Polypropylene	< 0,1 %				
Packaging					
Polyethylene	< 0,1 %				
Total plastics	**12,9 %**	**Total metals**	**87,1 %**	**Total other**	**0,0 %**

Estimated recycled material content: 26 % by mass.

The % of the materials masses can vary on the basis of the total mass of the transformer: to have further information about the % of the materials of products different from the Reference Product, please contact our Customer Technical Service.

MANUFACTURE

This Reference Product comes from a site that has 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 19000 km by boat plus 1000 km by road from our warehouse to the local point of distribution into the worlwide market.

Packaging is compliant with applicable regulations. At their end of life, its recyclability rate is 93 % (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 90 %. 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) : 3 %
- metal materials (excluding packaging) : 87 %

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 packaging.
Use	• Product category: PSR-0005-ed2-2016 03 29 - § 3.13. Other equipments - passive products • 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: different energy mixes, weighted according to the sale volumes, taken into account to represent the main reference markets: - Electricity Mix, Russia - 2009; - Electricity Mix, Chile - 2004; - Electricity Mix, Colombia - 2016; - Electricity Mix, Vietnam - 2016; - Electricity Mix, Mexico - 2004; - Electricity Mix, Romania - 2008.
End of life	The default end of life scenario maximizing the impacts.
Software and database used	EIME V5 and its database «CODDE-2018-11»

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SELECTION OF ENVIRONMENTAL IMPACTS

	Total for Life cycle		Raw material and manufacture		Distribution		Installation		Use		End of life	
Global warming	**3.12E+05**	**kgCO_2 eq.**	1.46E+04	**5%**	7.17E+02	**< 1%**	2.82E-01	**< 1%**	2.96E+05	**95%**	1.44E+02	**< 1%**
Ozone depletion	**1.44E-02**	**kgCFC-11 eq.**	1.66E-03	**12%**	1.23E-06	**< 1%**	7.20E-09	**< 1%**	1.27E-02	**88%**	1.10E-06	**< 1%**
Acidification of soils and water	**8.87E+02**	**kgSO_2 eq.**	6.27E+01	**7%**	2.03E+01	**2%**	1.07E-03	**< 1%**	8.03E+02	**91%**	6.05E-01	**< 1%**
Water eutrophication	**6.88E+01**	**kg$(PO_4)^{3-}$ eq.**	4.79E+00	**7%**	2.00E+00	**3%**	1.22E-03	**< 1%**	6.10E+01	**89%**	9.93E-01	**1%**
Photochemical ozone formation	**7.97E+01**	**kgC_2H_4 eq.**	4.59E+00	**6%**	1.01E+00	**1%**	8.38E-05	**< 1%**	7.41E+01	**93%**	4.55E-02	**< 1%**
Depletion of abiotic resources - elements	**1.18E-02**	**kgSb eq.**	4.49E-03	**38%**	2.60E-05	**< 1%**	1.82E-08	**< 1%**	7.26E-03	**62%**	6.25E-06	**< 1%**
Total use of primary energy	**3.63E+06**	**MJ**	5.50E+05	**15%**	9.16E+03	**< 1%**	3.07E+00	**< 1%**	3.07E+06	**85%**	1.79E+03	**< 1%**
Net use of fresh water	**2.78E+04**	**m^3**	4.69E+02	**2%**	5.54E-02	**< 1%**	2.48E-04	**< 1%**	2.73E+04	**98%**	4.27E-02	**< 1%**
Depletion of abiotic resources - fossil fuels	**2.47E+06**	**MJ**	1.33E+05	**5%**	9.11E+03	**< 1%**	2.74E+00	**< 1%**	2.33E+06	**94%**	1.74E+03	**< 1%**
Water pollution	**1.07E+07**	**m^3**	1.51E+06	**14%**	1.07E+05	**< 1%**	3.18E+01	**< 1%**	9.08E+06	**85%**	2.03E+04	**< 1%**
Air pollution	**1.85E+07**	**m^3**	1.60E+06	**9%**	9.82E+04	**< 1%**	3.34E+01	**< 1%**	1.68E+07	**91%**	8.73E+03	**< 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.

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For products covered by the PEP other than the Reference Product, to obtain the environmental impacts of each phase of the Life cycle for the insulation class 24 kV, multiply the environmental impacts of the Reference Product by the following coefficients:

Insulation class 24 kV S_R [kVA]	Manufacturing	Distribution	Installation	Use	End of life
100	0.32	0.32	1.00	0.28	0.32
160	0.35	0.35	1.00	0.28	0.35
250	0.40	0.40	1.00	0.36	0.40
315	0.46	0.46	1.00	0.46	0.46
400	0.55	0.55	1.00	0.49	0.55
500	0.61	0.61	1.00	0.59	0.61
630	0.72	0.72	1.00	0.72	0.72
800	0.85	0.85	1.00	0.84	0.85
1000	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
1250	1.21	1.21	1.00	1.07	1.21
1600	1.45	1.45	1.00	1.34	1.45
2000	1.65	1.65	1.00	1.57	1.65
2500	2.15	2.15	1.00	1.98	2.15
3150	2.70	2.70	1.00	2.56	2.70

The environmental impacts of the transformers of the other insulation classes of the range are available upon request to our Customer Technical Service.

Registration N°: LGRP-01550-V01.02-EN	Drafting rules: PEP-PCR-ed3-EN-2015 04 02 Supplemented by PSR-0005-ed2-2016 03 29
Verifier accreditation N°: VH23	Information and reference documents : **www.pep-ecopassport.org**
Date of issue: 06-2022	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010 Internal ☒ External ☐	PEP ecopassport®
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)	
PEP are compliant with XP C08-100-1 : 2016 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	