ITB Equipamentos Elétricos Ltda.

ENVIRONMENTAL PRODUCT DECLARATION

Three-Phase Distribution Transformer – 400 kVA (code 110.023)*

Birigui/SP/BR

In accordance with ISO 14025 and EN 50693:2019

Program Operator	EPDItaly
Publisher	EPDItaly

Declaration Number	EPDITB04
Registration Number	EPDITALY1264

Issue date	26 / 03 / 2026
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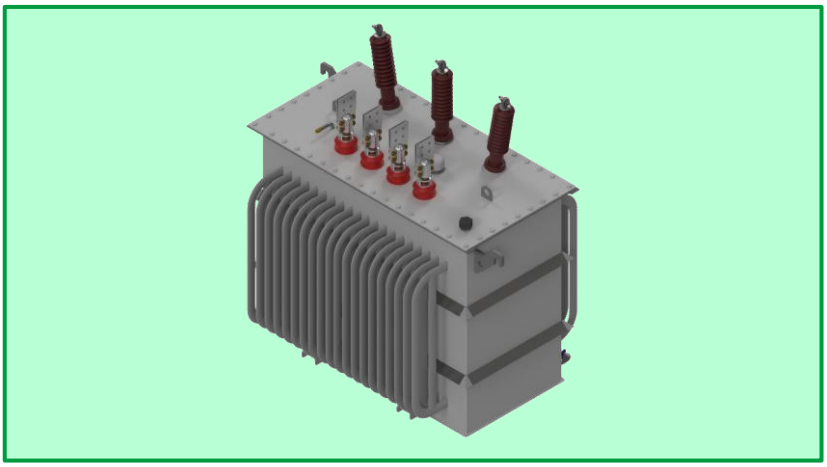

*This EPD refers to a product in the design phase and not yet manufactured

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GENERAL INFORMATION

EPD OWNER

Name of the company	ITB Equipamentos Elétricos Ltda.
Registered office	R. Devanir Terence, 161 - Distrito Industrial, Birigui – SP, Brazil, 16206-012
Contacts for information on the EPD	Giovane Calazans de Almeida phone: +55 (18) 3643 8000 e-mail: sustentabilidade@itb.ind.br website: www.itb.ind.br | www.itb.ind.br/en/ | www.itb.ind.br/es/

PROGRAM OPERATOR

EPDItaly	Via Gaetano De Castillia n° 10 - 20124 Milano, Italy

INFORMATION ON THE EPD

Product name (s)	Three-Phase Distribution Transformer – 400 kVA (code 110.023)
Production Site (s)	R. Devanir Terence, 161 - Distrito Industrial, Birigui – SP, Brazil, 16206-012
Summary description and technical information of product(s)	The distribution transformer is an essential component of electricity distribution networks, converting medium-voltage power into low-voltage electricity suitable for residential, commercial, and industrial end-users. It is a pole mounted power transformer in mineral cooled oil, with nominal power of 400 kVA and final project mass (without packaging) of 1,937.50 kg.
Scope of product(s)	A single piece of transformer operating for 35 years. Specific product EPD, concerning a specific product by a specific manufacturer, cradle-to-grave.
Type of EPD	Product EPD: a specific product by a specific manufacturer
Product (s) reference standards (if any)	-
CPC Code (number) https://unstats.un.org/unsd/classifications/Econ	46121 - Electrical transformers.

The product covered by the EPD is at the design stage; the future execution of the product in accordance with the design data is the sole responsibility of the EPD Owner.

The reference product has already been published under the EPD Italy programme (Distribution Transformer – 300 kVA, models 111321 and 111292, EPDITALY0285, issue date: 2022-04-01).

VERIFICATION INFORMATION

PCR (title, version, date of publication or update)	Core PCR EPDItaly007: Electronic and Electrical Products and Systems, revision 3.2 (2024-11-12) Sub PCR EPDItaly018: Electronic and Electrical Products and Systems – Power Transformers, version 3.6 (2024-07-01)
EPDItaly Regulation (version, date of publication or update)	Regulations of the EPDItaly Programme rev 7.1, 2025-09-05 EN 50693 is the framework reference for the Product Category Rules (PCR)
Project Report LCA	[ITB-LCA] 3F-400 kVA transformador_v2.1 (February 2026)
Independent Verification/Validation Statement	The PCR review was performed by XXXX - info@epditaly.it. Independent verification of the declaration and data, carried out according to ISO 14025: 2010. ☐ Internal ☑ External Third party verification carried out by: ICMQ S.p.A., via Gaetano De Castillia n ° 10 - 20124 Milan, Italy. Accredited by Accredia.
Comparability Statement	Environmental statements published within the same product category, but from different programs, may not be comparable. In particular, EPDs of construction products may not be comparable if they do not comply with EN 15804: 2012 + A2: 2019.

Liability Statement	The EPD Owner releases EPDItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence. EPDItaly disclaims any responsibility for the information, data and results provided by the EPD Owner for life cycle assessment.
Statement Validation[1]	The production data used is considered representative on the basis of the representativeness analysis carried out with respect to the data of a reference product of the EPD Owner.

OTHER INFORMATION

[1] Declaration to be included only in the case of Validation of an EPD, refer to Annex 6.

About the organization

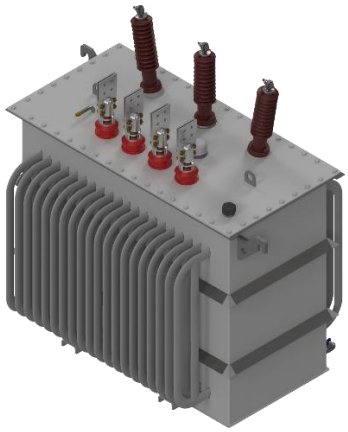
ITB Equipamentos Elétricos Ltda. is a reference company and one of the largest manufacturers of electrical distribution transformers in Latin America, with a diversified line of distribution transformers for different applications in urban, rural and industrial networks. ITB's product portfolio also includes lines of single-phase automatic voltage regulators and dynamic reactive power compensators. Founded in 1974, ITB's policy is to practice competitive prices, excellence in quality and efficient technical assistance. These factors, linked to professional management, permanent qualification of its employees, developed technology and constant investments in new equipment turned ITB to a company known and recognized for the excellence in our products and for the excellent professional relationship with our partners.

Sustainability is one of the core values of ITB, present in the company governance from the environmental compliance, passing through the environmental management and continuous improvement, developing the supply chain through the sustainable purchase policy, until the company's commitment to implement the SDGs from 2030 agenda. ITB Equipamentos Eletricos Ltda has a formal interventional guideline to meet the UN recommendations, listing 14 priority objectives in a materiality matrix, tracing actions to promote sustainable development.

Owned certifications

Voluntary actions

Product information

Product name:	Three-Phase Distribution Transformer – 400 kVA	
Product description:	The distribution transformer is an essential component of electricity distribution networks, converting medium-voltage power into low-voltage electricity suitable for residential, commercial, and industrial end-users. It is a pole mounted power transformer in mineral cooled oil, with nominal power of 400 kVA and final project mass (without packaging) of **1,937.50 kg**. The packaging consists of wood bars and steel nails, washers and screws.	
Average dimensions:	1,800 mm height x 1,600 mm length x 1,400 mm width	
Expedition weight:	2,102.30 kg	
Product weight: (Project)	1,900 kg	
Product weight: (LCI data)	1,937.50 kg	
Packaging weight:	164.80 kg	
Type:	Three-Phase Distribution Transformer	
Number of phases:	3P	
Voltage class:	Medium	
Nominal primary voltage	15 kV	
Rated power:	400 kVA	
Cooled-oil type:	Mineral	
Products covered:	400 kVA Three-Phase Distribution Transformer	
Geographical scope:	Brazil and Chile	

LCA information

Declared unit:

A single piece of transformer operating for 35 years.

Time representativeness:

01 January 2024 to 31 December 2024.

Data representativeness:

Raw materials and end-of-life characterization are representative of the products. This also applies to the transformers' use phase since the losses are based on the product operational parameters. Inbound logistics and manufacturing phases data are based on similar products from which most of the bill-of-materials are equal with minor differences on some components, and that went through the same production processes at the same Production Unit with identical energy carriers. Therefore "*the database used is regarded as representative on the basis of a comparative study, which examined the data for a reference product of the EPD Owner*".

Database(s) and LCA software used:

SimaPro® software v.9.6.0.1 developed by PRé Consultants was used to create the product system model. The ecoinvent® database v.3.10 provided the life cycle background data for product system modelling.The database used is regarded as representative on the basis of a comparative study, which examined the data for a reference product of the EPD Owner

System boundaries:

Cradle-to-grave with upstream, core and downstream modules.

LIFE CYCLE MODULES ACCORDING THE EN 50693:

PHASES	Manufacturing Stage	Distribution Stage	Installation Stage	Use & Maintenance Stage	Deinstallation & End-of-Life Stage
Phases declared	X	X	X	X	X

Manufacturing:

Manufacturing data is aggregated for all the factory, and therefore, it is not possible to estimate inputs and outputs directly for a specific transformer since ITB produces other equipment at the same plant. Thus, to relate utility consumptions and waste generation per transformer, it was necessary to apportion aggregated data. At the plant level, auxiliary inputs consumed, and waste generated in the manufacturing plants were allocated using a 'top-down' approach. This means that the total consumption and waste generation for the entire baseline year of the LCA project were quantified and then proportionally distributed based on the total of kVA of products manufactured during this period. It is important to note that while most manufacturing processes are common across all the product systems analysed, some are not. In cases where specific processes were involved, the inputs and outputs from those processes were fully allocated to the respective product system.

The electricity consumed during the manufacturing stage is certified as being 100% hydro. To represent this in the LCA model, the dataset "Electricity, medium voltage {BR-South-eastern grid}| electricity voltage transformation from high to medium voltage | Cut-off, U" was used and adapted to represent 100% hydro sources, which has the following GWP emission factors: 7.67E-02 kg CO2eq./kWh (for GWP-total), 5.80E-03 kg CO2eq./kWh (for GWP-fossil), 4.10E-02 kg CO2eq./kWh (for GWP-biogenic), and 2.88E-02 kg CO2eq./kWh (for GWP-LULUC).

Distribution:

The transformer is transported to Santiago (Chile) by road transportation in diesel-powered lorries and by container ship. The inland routes are 581 km from Birigui plant until the port of Santos (São Paulo) and 127 km from Santiago at the Enel company (Chile). The maritime route considers a distance of 6,586 km from port to port.

Installation:

The installation phase implies in the transportation of 100 km of the transformer and its packaging from energy company storage until the operation site. Then, the transformer is lifted and (generally) installed through manual/pneumatic tools. This phase also includes the disposal of the packaging of the transformer, first returning until the energy company waste management central (100 km) and then transported until the waste management company (100 km).

Use stage:

The total energy consumed during 35 RSL by the transformer is **982,653 kWh** (losses and operational consumptions). This value was calculated according to IEC 60076-1 technical standard, expressed in kWh via the following equation (PCR0018 v.3.6):

$$E_d[kWh] = [P_{load} \times K_{load}^2 + P_{noload}] \times t_{years} \times RSL + P_{aux} \times f_{aux} \times t_{years} \times RSL$$

Table 1. Values applied to estimate the energy dissipated during RSL.

Variable	Amount
P_{load} (kW)	4.5
k_{load}	0.49
P_{noload} (kW)	0.87
t_{years} (hours)	8,760
RSL (years)	35
Electricity (kWh)	982,653

End-of-Life:

EoL stage assumes that the discontinued equipment is sent for material recovering. The disassembling process is manual or done with the aid of pneumatic tools at the secondary metal recovering market. Most valuable fractions (steel, aluminium and copper) are recycled within the default recycling recovering rate established in BSI EN 50693:2019. Insulating oil is treated without energy recovering and the remaining parts, based on mass balance, are sent to sanitary landfill. Based on direct consultation and project assumptions the transport distances from energy company storage into the to disassembly facility is 100 km, from disassembly facility to recycling plant and to the oil tretament company is 100 km, meanwhile the range into a landfill is 100 km.

Table 2. End-of-life baseline scenario definition per functional unit (downstream module).

Processes		Value	Unit
Collection process	From energy company storage to recovering market	1,937	kg
Recovery system specified by type	Reuse	0.00	kg
	Recycling	1,080	kg
	Incineration for energy recovery	0.00	kg
Disposal specified by type	Product or material for final deposition	356	kg
	Incineration	501	kg
Assumption for scenario development	Assuming that 100% of the transformer is sent for disassembling (based on direct consultation with energy company service supplier), assuming that 80% of steel is recycled, 70% of aluminium is recycled, 60% of cooper parts are recycled (G.5 section from BSI EN 50693:2019 - Default values) and that the mineral oil is incinerated without energy recovering (conservative principle). Following mass balance principle and Brazilian environmental laws, the remaining parts of the product are sent for final disposal at sanitary landfills		

Allocation:

Allocation can be defined as the impact factors distribution between the reference product and the coproducts when they are simultaneous and dependent. At ITB value chain there is one type of situation where allocation may be required located at two points in end-of-life processes (i.e., the recycling processes) that occurs: at assembling line (core module) due to process waste generation and at EoL (downstream module) due to metal recovering from obsolete transformers.

- **Assembling line and EoL**: regarding to the recycling of steel, silicon-steel, copper and aluminium generated during transformer manufacturing and recovered at EoL, it was considered the cut-off approach. According to the core EPDItaly core-PCR (PCR007), for recovery and recycling processes, which take place outside the boundaries of the product system, only impacts related to the transport of the waste to the treatment platform should be considered. Therefore, all the impacts of the waste transportation by road were fully attributed to the ITB product.

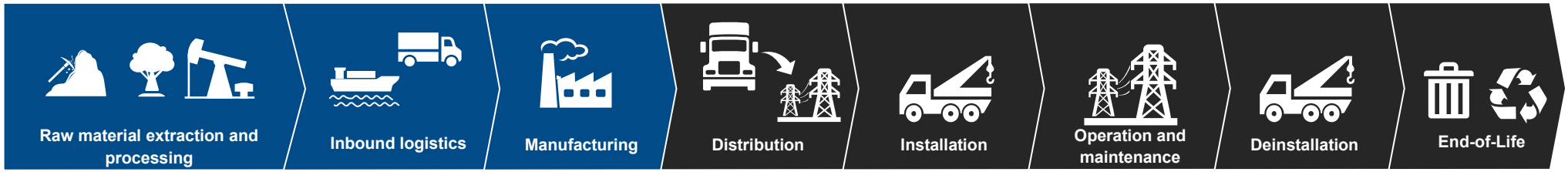
Cut-off criteria:

In accordance with the requirements of PCR EPDItaly 018 (Section 4.2.4.8), the cut-off criteria applied in this study follow Chapter 4.2.3.3 of EN 50693 and Section 6.3.6 of EN 15804. No material or energy flows have been excluded for the purpose of hiding significant environmental impacts. The EPDItaly Regulations and PCR EPDItaly 007 have been adopted as reference for defining the allowable exclusions. Accordingly, the following flows and operations may be cut off: (i) production, use, and disposal of packaging for components and semi-finished intermediates; (ii) materials constituting less than 1 % of the total product mass; (iii) material and energy flows associated with the installation stage; (iv) devices external to the product itself that are only required for installation; and (v) material and energy flows related to the dismantling phase, when dismantling is reasonably assumed to be performed manually (e.g., using screwdrivers or hammers).
The implementation of the cut-off rules, including the exclusion of LCI data based on cut-off criteria, is detailed in Table 3. The excluded flows were determined exclusively based on the mass cut-off criteria.

Table 3. Inputs/outputs considered/disregarded in the LCA model.

Stage	Main data	Accounted
Manufacturing	Aluminium {BR}; Brass {BR}; Bronze {BR}; Cardboard {BR}; Chemical {BR}; Copper {BR}; Cotton {BR}; Glue {BR}; Mineral Oil {BR}; Paper {BR}; Plastic {BR}; Rubber {BR}; Silicon Steel {BR}; Stainless Steel {BR}; Steel {BR}; Wood {BR}.	✓
	Packaging used for the transportation of ancillary materials	⛔
	Inbound logistics: Transport, freight, sea, container ship {GLO} and Transport, freight, lorry, unspecified {BR}	✓
	Inputs: Electricity; gas [argon]; gas [nitrogen]; water; welding wire; welding gases; steel shot; diluent. **Outputs:** Aluminium, copper, silicon steel and steel waste (recycling); silicon steel waste (recycling); steel waste (recycling); powder – iron oxide (recycling); paper and paperboard waste (recycling); packaging waste such as paper/plastics (recycling), paint cans (recycling) and other packaging materials (recycling). Additionally, wastewater (ETE), particulate matter (to air), hazardous waste in the form of slurry (coprocessing), and VOC emissions (to air).	✓
Distribution	Transport, freight, sea, container ship {GLO} and Transport, freight, lorry, unspecified {BR}	✓
Installation	Energy for installation	
	Product transport	✓
	Packaging waste for treatment	✓
Use	Energy consumed by the transformer to operate throughout its reference life;	✓
End-of-Life	Energy for deinstallation	✓
	Transport	✓
	Preparation for metals recycling	✓
	Landfill disposal	✓

Description of the system boundaries:



Manufacturing

Downstream module

Manufacturing stage

The Transformer is majorly made of steel and silicon-steel, aluminium/copper, paper/paperboard and oil (tank filled for cooling purposes). There are also minor parts of polymers, chemicals (painting, varnish…), rubber and wood for packaging. The manufacturing stage considers all upstream processes to extract such materials and process them into the final components that are inserted into manufacturing line, including auxiliary consumptions at the factory such as electricity and others. This stage of the life-cycle accounts also for the road and maritime transport of all materials and components from suppliers to manufacturing plant (inbound logistics). The transformer manufacturing is an assembling line. Metal sheets are cut, bended, calendared, moulded and welded into the final transformer structure (tank, lid and bars). Those parts are cleaned and painted. In parallel, the core is made of silicon-steel and assembled from several different pieces that are cut to be geometrically positioned into the magnetic core that is wrapped with wildings prepared with insulated conductor wires and covered with insulating paper. Core and transformer body meet at the final assembling, with connections, cables and other minor parts and are tested for security, functioning and tightness. After packaging, the transformer is stored and ready for shipment. The manufacturing line requires ancillary inputs, such as electricity and water to operate and generate wastes and other outputs.

Downstream stage

This module encompasses all steps after product expedition from manufacturing plant until its End-of-life (EoL). The Transformer should be distributed to Santiago (Chile) by large diesel-truck through road transportation and by container ship through maritime transportation. The installation requires a lifting device that works for transport (from energy company storage into the operation point) and to elevate and install the transformer. During 35 years of Reference Service Life (RSL) the transformer will convert energy voltage for urban consumption and consumes medium voltage electricity from Chilean national grid to operate and through losses in the transformation. During this period, an inspection should be made every 12 months of transformer operation to check for leakages, corrosion, and others. Every 5 years, some tests should be made as for example, oil sample for quality analysis, insulating check, etc. If there are no anomalies, no maintenance is necessary. According to product specialists, many transformers operate until its failure and maintenance is not a controlled practice. When discontinued, the transformer is generally disassembled for metal recovering due to its high aggregated value. This may be done at secondary scrap market or by specialized recycling companies. Steel, aluminium, copper and other metallic fractions are recovered and reinserted into the market. Other fractions are more likely to be discarded to sanitary landfill following environmental laws. Insulating oil should be incinerated in waste management specialized companies depending on its quality when discarded.

Content information

Product components	Material classes*	Weight, kg**	Weight-% (versus the product)
Other ferrous alloys, non-stainless steel	M-119	1171.25	60.5%
Aluminium and its alloys	M-120	164.81	8.5%
Copper and its alloys	M-121	46.30	2.4%
Stainless steel	M-100	1.11	0.1%
Paper/paperboard	M-341	30.32	1.6%
Wood	M-160	1.44	0.1%
Oils and greases	M-410	501.00	25.9%
Ceramics	-	12.90	0.7%
Chemicals (paints, varnish, dilutant, glues)	-	6.02	0.3%
Polymers	-	0.15	0.0%
Rubber	M326	1.76	0.1%
Cotton		0.43	0.0%
TOTAL	**-**	**1,937.50**	**100.00%**
Packaging materials	**Material classes***	**Weight, kg**	**Weight-% (versus the product)**
Wooden bars	M-340	164.80	8.50%
TOTAL	**-**	**164.80**	**8.50%**

**According to IEC 62474 - Material Declaration for Products of and for the Electrotechnical Industry.*

***The masses presented in the content declaration are related to the Bill-of-Materials (BOM) of the product, which, depending on the components involved, may undergo minor variations due to processing details or technical specifications (such as the thickness of a steel sheet or the density of oil, for example). For this reason, they may slightly diverge from the projected product mass.*

Substances of very high concern (SVHC)

These products contain no substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency in a concentration that exceed 0.01% (w/w).

Environmental Information

Potential environmental impact – mandatory indicators according to core-PCR

Results per a single piece of transformer operating for 35 years							
Indicator*	Unit	Manufacturing stage	Distribution stage	Installation stage	Use and Maintenance stage	Deinstallation stage and End-of-Life	Total
			downstream				
GWP-total	kg CO_2 eq	8.68E+03	2.62E+02	4.15E+02	5.38E+05	1.71E+03	5.49E+05
GWP-fossil	kg CO_2 eq	8.86E+03	2.54E+02	5.77E+01	5.38E+05	1.56E+03	5.49E+05
GWP-biogenic**	kg CO_2 eq	-2.13E+02	2.42E+00	3.57E+02	1.33E+02	1.47E+02	4.26E+02
GWP-luluc	kg CO_2 eq	3.46E+01	6.36E+00	3.56E-03	1.56E+01	8.08E-03	5.65E+01
ODP	kg CFC11 eq	5.25E-05	7.42E-06	7.72E-07	4.61E-03	2.18E-06	4.67E-03
AP	mol H+ eq	9.50E+01	4.59E+00	2.32E-01	3.99E+03	7.32E-01	4.09E+03
EP-freshwater	kg P eq	5.02E-01	6.03E-04	2.26E-03	4.48E+01	7.30E-03	4.53E+01
EP-marine	kg N eq	9.74E+00	1.28E+00	2.38E-01	8.71E+02	3.74E-01	8.82E+02
EP-terrestrial	mol N eq	1.13E+02	1.36E+01	1.05E+00	9.70E+03	3.49E+00	9.83E+03
POCP	kg NMVOC eq	3.65E+01	3.73E+00	3.68E-01	2.63E+03	1.17E+00	2.67E+03
ADP-m***	kg Sb eq	5.81E-01	1.88E-05	3.26E-06	3.31E-03	7.91E-06	5.85E-01
ADP-f***	MJ	8.56E+04	2.85E+01	2.13E+01	4.07E+06	5.22E+01	4.16E+06
WDP***	m^3 depriv.	1.60E+03	3.88E+00	5.67E-01	1.91E+04	3.82E+00	2.07E+04
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption.						

The product covered by the EPD have a variation of more than 10% compared to the set of environmental impacts of the similar product.

**The applied characterization factors are associated with the EF 3.1 method.*

***For the GWP-biogenic indicator, it was assumed that carbon uptake is fully emitted at the disposal point, even though degradation may occur over a more extended period within the 100-year timeframe of GWP analysis. Consequently, the biogenic carbon contents of the vegetable oil and paper within the product, as well as the wood composing the packaging (captured throughout their value chains, i.e., - 1 kg CO_2 eq), were manually adjusted to be 100% emitted during the installation phase (for wood packaging) and end-of-life phase (for the paper), resulting in +1 kg CO_2 eq.*

**** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – mandatory indicators according to core-PCR

Results per a single piece of transformer operating for 35 years							
Indicator*	Unit	Manufacturing stage	Distribution stage	Installation stage	Use and Maintenance stage	Deinstallation stage and End-of-Life	Total
			downstream				
PM	disease inc.	8.61E-04	1.61E-05	4.29E-06	2.36E-02	1.87E-05	2.45E-02
IRP*	kBq U-235 eq	1.36E+02	2.27E-01	9.53E-02	3.70E+02	2.67E-01	5.06E+02
ETP-fw**	CTUe	8.10E+04	1.37E+02	1.67E+03	3.70E+05	9.60E+03	4.63E+05
HTP-c**	CTUh	3.17E-04	4.94E-08	2.52E-08	4.45E-05	1.55E-07	3.61E-04
HTP-nc**	CTUh	5.25E-04	2.05E-06	1.05E-06	2.01E-03	2.73E-06	2.54E-03
SQP**	Pt	6.45E+04	1.33E+02	9.30E+01	3.73E+05	9.38E+01	4.38E+05
Acronyms	PM = Potential incidence of disease due to PM emissions; IRP = Potential Human exposure efficiency relative to U235; ETP-fw = Potential Comparative Toxic Unit for ecosystems; HTP-c = Potential Comparative Toxic Unit for humans; HTP-nc = Potential Comparative Toxic Unit for humans; SQP = Potential Soil quality index.						

The product covered by the EPD have a variation of more than 10% compared to the set of environmental impacts of the similar product.

**Disclaimer: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

***Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

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Use of resources

Results per a single piece of transformer operating for 35 years								
			Manufacturing stage	Distribution stage	Installation stage	Use and Maintenance stage	Deinstallation stage and End-of-Life	Total
Indicator*		unit		downstream				
Primary energy resources - Renewable	Use as energy carrier (PERE)	MJ, net calorific value	1.29E+04	1.97E+01	2.54E+00	1.68E+06	1.10E+00	1.70E+06
	Use as raw materials (PERM)	MJ, net calorific value	2.99E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E+03
	Total (PERT)	MJ, net calorific value	1.59E+04	1.97E+01	2.54E+00	1.68E+06	1.10E+00	1.70E+06
Primary energy resources - Non-renewable	Use as energy carrier (PENRE)	MJ, net calorific value	6.19E+04	7.41E+01	2.13E+01	4.07E+06	1.10E+01	4.13E+06
	Use as raw materials (PENRM)	MJ, net calorific value	2.37E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E+04
	Total (PERNT)	MJ, net calorific value	8.56E+04	7.41E+01	2.13E+01	4.07E+06	1.10E+01	4.16E+06
Secondary material (MS)		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels (RSF)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels (NRSF)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (FW)		m^3	6.78E+01	3.30E-01	2.19E-02	8.51E+02	1.92E-02	9.20E+02

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Waste production and output flows

Waste production

Results per a single piece of transformer operating for 35 years							
Indicator	Unit	Manufacturing stage	Distribution stage	Installation stage	Use and Maintenance stage	Deinstallation stage and End-of-Life	Total
			downstream				
Hazardous waste disposed (HWD)	kg	3.31E+00	2.46E-02	2.96E-02	1.18E+02	2.65E-01	1.21E+02
Non-hazardous waste disposed (NHWD)	kg	1.46E+02	7.37E-02	1.65E+02	2.59E+02	3.62E+02	9.32E+02
Radioactive waste disposed (RWD)	kg	8.63E-02	1.11E-04	5.60E-05	1.30E-01	1.76E-04	2.17E-01

Output flows

Results per a single piece of transformer operating for 35 years							
Indicator	Unit	Manufacturing stage	Distribution stage	Installation stage	Use and Maintenance stage	Deinstallation stage and End-of-Life	Total
			downstream				
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	kg	3.27E+02	0.00E+00	0.00E+00	0.00E+00	1.06E+03	1.39E+03
Components for reuse (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	MJ	0.00E+00	0.00E+00	2.53E+01	0.00E+00	1.28E+03	1.30E+03
Exported electricity energy (EEE)	MJ	0.00E+00	0.00E+00	1.27E+01	0.00E+00	1.30E+04	1.30E+04

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