



CARLO GAVAZZI
CONTROLS SPA



ENVIRONMENTAL PRODUCT DECLARATION

PRODUCT NAME:

CTA5X100A5A-EX	CTV4X400A333MV-EX
CTA6X200A5A-EX	CTV8X800A333MV-EX
CTV6X400A333MV-EX	CTV1X60A333MV-EX
CTV3X200A333MV-EX	CTV2X100A333MV-EX
CTV4X200A333MV-EX	

PLANTS LOCATION:

No.8, Donghuan 4th St., Jintigang, Huangjiang Town, Dongguan City, Guangdong, China

In accordance with ISO 14025 and EN 50693

Program Operator	EPDItaly
Publisher	EPDItaly

Declaration Number	EPDSPLITCORETRAN_2023_rev.1.0
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GENERAL INFORMATION

EPD OWNER

Company name	CARLO GAVAZZI CONTROLS SPA
Registered office	Via Safforze, 8-32100 Belluno-Italy
Contacts for information on the EPD	Andrea.Bernardi@gavazziacbu.it

PROGRAM OPERATOR

EPDItaly	Via Gaetano De Castillia n° 10 - 20124 Milano, Italy
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INFORMATION ON THE EPD

Product name (s)	Split core transformer	
	Number	Customer Part No.
	1	CTA5X100A5A-EX
	2	CTA6X200A5A-EX
	3	CTV6X400A333MV-EX
	4	CTV3X200A333MV-EX
	5	CTV4X200A333MV-EX
	6	CTV4X400A333MV-EX
	7	CTV8X800A333MV-EX
	8	CTV1X60A333MV-EX
	9	CTV2X100A333MV-EX
Site (s)	No.8, Donghuan 4th St., Jintigang, Huangjiang Town, Dongguan City, Guangdong, China	
Short description and technical information of the product (s)	The split core transformer are designed for current measurement. Reference service life: not available	
Field of application of the product (s)	Current measurement	
Product (s) reference standards (if any)	UL	IEEE C57.13.2 CAN/CSA-C61869-1&2
	CE	EN 61869-2:2012 (LVD) EN 61869-6:2016 (LVD) EN 61326-1:2013 (EMC)
	UKCA	BS EN 61869-2:2012 (EER) BS EN 61869-6:2016 (EER) BS EN 61326-1:2013 (EMC)
CPC Code (number) https://unstats.un.org/unsd/classifications/Econ	46121	

VERIFICATION INFORMATION	
PCR (title, version, date of publication or update)	PCR EPDItaly007 Electronic and electrical products and systems, REV.3.1, 2024/11/12 The EN50693 Product category rules for life cycle assessments of electronic and electrical products
EPDItaly Regulation (version, date of publication or update)	Regulations of the EPDItaly Programme version 6.0, 2023/10/30
Project Report LCA	This EPD study is based on the LCA study described in the LCA report
Independent Verification Statement	The PCR review was performed by Eng. Elena Neri, - 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: TÜV Italia srl, Viale Fulvio Testi, 280/6, 20126 Milan – Italy
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.
OTHER INFORMATION	
LCA software	SimaPro 9.6.0.1 (2025)
LCI database	Ecoinvent v3.10 (2025)

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DESCRIPTION OF THE ORGANIZATION

Carlo Gavazzi is an international group active in designing, manufacturing, and marketing electronic equipment. Automation Components is the core business operated by Carlo Gavazzi Group. Automation Components designs and manufactures electronic control components for the global building and industrial automation markets in its ISO 9001 and ISO 14001 certified factories in Italy, Lithuania, Malta and China.

The products (sensors, solid state relays, energy meters, energy management systems, monitoring relays, soft starters, timers, safety devices and fieldbus systems) provide automation solutions for the industrial and building automation markets. Typical customers are original equipment manufacturers of Access controls, Agriculture, Conveyors, Distributed energy resources, Energy and building efficiency, Energy storage systems, EV charging stations, Food & beverage, HVAC, Mobile equipment, Plastics & rubber, and Semiconductors.

System integrators and distributors are other effective channels to the market. The products are marketed across Europe, America, and Asia-Pacific through a network of 22 own sales companies and around 60 independent national distributors.

Name and location of production site(s) within the organization

Table1 Location of split core transformer assembly

Component / Process	address
Split core transformer production	Address: No.8, Donghuan 4th St., Jintigang, Huangjiang Town, Dongguan City, Guangdong, China

PRODUCT INTRODUCTION

This EPD is a product specific EPD. The EPD report analyzes the split core transformer products consisting of nine types. Examples of the transformer product is shown in Figure 1.



Figure 1 Split core transformer

Table 2 The information for the split core transformer under the EPD report

Number	Customer Part No.	Current ratio	Turns ratio (NP:Ns)
1	CTA5X100A5A-EX	100A/5A	1:20
2	CTA6X200A5A-EX	200A/5A	1:40
3	CTV6X400A333MV-EX	400A/333mV	1:4000
4	CTV3X200A333MV-EX	200A/333mV	1:3000

Number	Customer Part No.	Current ratio	Turns ratio (NP:Ns)
5	CTV4X200A333MV-EX	200A/333mV	1:2000
6	CTV4X400A333MV-EX	400A/333mV	1:3000
7	CTV8X800A333MV-EX	800A/333mV	1:8000
8	CTV1X60A333MV-EX	60A/333mV	1:3000
9	CTV2X100A333MV-EX	100A/333mV	1:3000

The split core transformer products are designed for current measurement. The specification of the transformer series is shown in Table 2. These products have different current ratio and turns ratio. The raw material composition of the transformers and packaging materials are provided in the following Table 3.

Table 3 The transformer material composition including packaging

Materials	Unit	CTV3X200A333 MV-EX	CTV4X400A333 MV-EX	CTV2X100A333 MV-EX	CTA5X100A 5A-EX	CTA6X200A 5A-EX	CTV6X400A333 MV-EX	CTV1X60A333 MV-EX	CTV8X800A333 MV-EX
Mylar tape	g	1.20	1.40	1.20	1.40	1.61	1.61	1.00	2.80
Wire	g	36.00	75.00	13.00	24.50	41.7	74.50	10.00	201.5
Iron core	g	61.00	121.00	0	114.70	154.99	154.99	0	354.90
Manganese-Zinc Core	g	0	0	37.49	0	0	0	18.76	0
Lead wire	g	22.40	28.00	33.40	18.39	34.30	28.00	32.5	0.98
Housing	g	24.00	32.10	8.27	23.85	31.52	31.52	4.80	140.60
Resistor	g	0.15	0.19	0.12	0	0	0.34	0.14	0.34
Solder	g	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Epoxy resin	g	0.02	0.01	0	0.01	0.01	0.01	0	0.03
Bobbin	g	0	0	3.23	5.32	7.06	7.06	1.82	18.90
Total weight	g	144.85	257.78	96.79	188.25	271.27	298.11	69.09	720.12
Paperbox	g	45.50	45.50	36.40	45.50	45.50	45.50	36.40	71.30
Plasticbox	g	33.67	33.67	17.60	33.67	22.76	22.76	21.80	42.40
Paperboard	g	16.47	16.47	16.47	16.47	16.47	16.47	16.47	16.47
BOPP	g	12.54	12.54	12.52	12.54	12.49	12.49	12.57	12.49
Wood	g	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Taping	g	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Snap	g	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Foam	g	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

The transformer under study do not contain dangerous substances of a high degree of concern (Substances of Very High Concern-SVHC) contemplated in the ECHA Candidate List (<https://echa.europa.eu/it/candidate-list-table>).

LCA BACKGROUND INFORMATION

DECLARED UNIT

The declared unit in this EPD is one piece of the split core transformer product. The reference unit is the mass in g. According to the producer, reference service life of the split core transformer product is 5 years.

SYSTEM BOUNDARIES

The system boundary considered in this LCA study is from the cradle to the grave. According to EPDItaly007 and EN50693, the life cycle stage must refer to segmentation in the following modules: manufacturing, distribution, installation, use&maintainance, and de-installation&End-of-Life.

All primary data collected from CARLO GAVAZZI CONTROLS SPA are from 2023.1.1~2023.12.31. Secondary data are also representative for this year, as provided by ecoinvent v3.10.

All the transformer products are assembled at the Dongguan manufacturing site. According to CARLO GAVAZZI, the transformer products are sold worldwide. After manufacturing, the products the products are sent from the warehouse to the Hongkong by truck, the transport distance is 92 km. The transport distance from Hongkong to Italy by air is 9300 km, from Italy to the main market area USA by air is 8700 km.

After the serving life, the transformer product enters the EoL stage at the respective geographical site. Thus, the geography boundary for the transformer products is manifold. The product manufacturing occurs in China, while geographical boundaries for the product distribution, installation, use&maintainance and de-installation&EoL are worldwide.

Table 4 Division and declarations of life cycle stages

	Manufacturing		Distribution	Installation	Use&Maintenance	De- installation&EoL
	Upstream	Core	Downstream			
	- Extraction of primary materials - production of raw materials and semifinished components - transport of raw materials and semifinished components	- manufacturing process - assembly operations - waste handling and disposal - direct emissions	transport to destination site	- unpacking and installation; - package disposal;	energy consumption and other flows (emissions, water, etc.) of the product during its use and maintenance	- Withdrawal; - Disassembly - Waste disposal or recovery
Included (X) or not declared (ND)	X	X	X	X	X	X

Note: X=Declared Module, MND=Module not Declared in this EPD

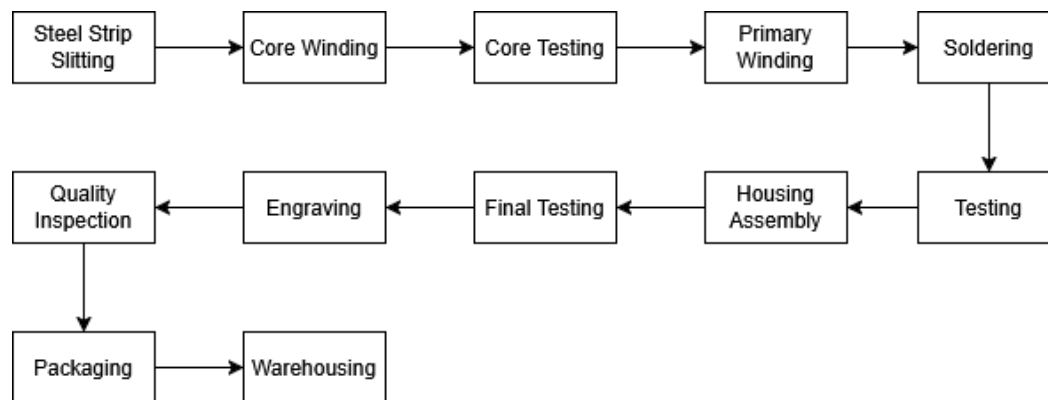


Figure 2 Product manufacturing process

The transformer product process is depicted in Figure 2. It mainly includes 12 steps: Steel Strip Slitting, Core Winding, Core Testing, Primary Winding, Soldering, Testing, Housing Assembly, Final Testing, Engraving, Quality Inspection, Packaging, Warehousing.

EXCLUDED PROCESSES

- The following steps/stages are not included in the system boundary due to reason that the elements below are considered irrelevant or not within the boundary to the LCA study of transformer products;
- Production and disposal of the infrastructure and capital equipment (buildings, machines, transport media, roads, etc.) during electrical products manufacturing, installation, and maintenance;
- Some of the auxiliary materials, such as gases during the manufacturing process as the consumption is low based on the information provided by the producer;
- Storage phases and sales of electrical products are excluded due to negligible impact;
- Product losses due to abnormal damage such as natural disasters or fire accidents. These losses would mostly be accidental;
- Handling operations at the distribution center and retail outlet are excluded due to small contribution and negligible impact.

KEY ASSUMPTIONS

The key assumptions of this LCA study are as follows :

- The manufacturing, distribution, and Use stages data are mainly from the producer. Thus, certain key assumptions are within the EoL stages.
- The solid waste transport from the installation stage (mainly the packaging waste) is assumed to be same as the final product EoL, 50km.
- The EoL management scenario for the waste product and packaging are based on PEFCR and Ecoinvent 3.10 dataset.

CUT-OFF CRITERIA

According to PCR, data for elementary flows to and from the product system contributing to less than 5% of the declared environmental impacts can be neglected, which was strictly followed by this study. The following material inputs are cut-off due to their small values:

Table 5 Cut-off flows

Auxiliary materials	Mass (g)	Ratio(%)
Pin	0.05	<0.01%
Cutting fluid	0.000107~0.00127	<0.01%
Water	<0.01	<0.01%

DATA QUALITY

In this EPD, both primary and secondary data are used. Site specific foreground data have been provided by CARLO GAVAZZI CONTROLS SPA. Main data sources are the bill of materials available on the enterprise resource planning. For all processes for which primary are not available, generic data originating from the ecoinvent v3.10 database, allocation cut-off by classification, are used. The ecoinvent database is available in the SimaPro 9.6.0.1 software used for the calculations.

ALLOCATION RULES

Allocation refers to partitioning input or output flows of a process or product system between the product systems under study and one or more other product systems. In this study, there are two types of allocation procedures considered:

Allocation of energy use

According to the PCR, the energy consumption (electricity,natural gas,water,etc.) for manufacturing is allocated based on the product's mass.

Allocation of waste

Final waste treatment processes, where waste production is linked to the product life cycle, has been included in the study. For recovery and recycling processes, which take place outside the boundaries of the product system, only impacts related to the transportation of the waste to the treatment platform has been taken into account.

ENVIRONMENTAL IMPACT INDICATORS

The information obtained from the inventory analysis is aggregated according to the effects related to the various environmental issues. According to PCR EPDItaly007 the environmental impact indicators must be determined using the characterization factors and impact assessment methods specified in EN 15804 + A2 Method V1.04. Meanwhile PCR EPDItaly007 also stipulates to include resource use and waste/output flows descriptive indicators.

Table 6 Environmental, resource and waste indicators

Impact categories		Units
Global Warming potential (GWP)	Fossil (GWP, f)	kg CO ₂ eq.
	Biogenic (GWP,b)	kg CO ₂ eq.
	Land use and land transformation (GWP, luluc)	kg CO ₂ eq.
	Total(GWP, t)	kg CO ₂ eq.
Ozone Depletion (ODP)		kg of CFC-11 equivalents
Acidification potential (AP)		mol H ⁺ eq
Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)		kg P eq.
Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)		Kg N eq
Eutrophication potential, Accumulated Exceedance (EP-terrestrial)		mol N eq.
Photochemical ozone formation potential (POCP)		kg NMVOC-eq.
Consumption of abiotic resources - minerals and materials (ADPE)		kg Sb eq.
Consumption of abiotic resources - fossil resources (ADPF)		MJ, net calorific value
Water consumption (WDP)		m ³ water eq. deprived
Resource use		

Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material (PENRE)	MJ, net calorific value
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ, net calorific value
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ, net calorific value
Use of renewable primary energy resources used as raw material (PERM)	MJ, net calorific value
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ, net calorific value
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ, net calorific value
Net use of fresh water (FW)	m ³
Use of secondary raw materials (MS)	MJ, net calorific value
Use of renewable secondary fuels (RSF)	MJ, net calorific value
Use of non-renewable secondary fuels (NRSF)	MJ, net calorific value
Waste/output flows	
Hazardous waste disposed (HWD)	kg
Non-hazardous waste disposed (NHWD)	kg
Radio active waste disposed (RWD)	kg
Material for energy recovery (MER)	kg
Materials for recycling (MFR)	kg
Components for reuse (CRU)	kg
Exported thermal energy (ETE)	MJ
Exported electricity energy (EEE)	MJ

ELECTRICITY MIX

In this EPD, different electricity mix data is taken where the process takes place based on grid mixes of the country from the Ecoinvent database. For example, the electricity production mix in Dongguan is sourced from "Electricity, medium voltage {CN-CSG} | market for electricity, medium voltage | Cut-off, U". (See Table 7).

Table 7 Electricity profiles

Country involved	Production mix	GWP-total (kg CO ₂ eq/KWh)
China	Electricity, medium voltage {CN-CSG} market for electricity, medium voltage Cut-off, U	0.622

INVENTORY ANALYSIS

The ecoinvent v3.10 by cut-off classification system processes are used to model the background system of the processes.

The raw material inputs are modelled with data from ecoinvent representing a global market (GLO) or rest-of-world (ROW) coverage. These datasets are assumed to be representative.

UPSTREAM

Raw materials extraction: can be referred to Table 3. One important note should be taken to interpret the value correctly: the applied names, such as malar tape, wire, iron core, etc., are materials. Thus, corresponding transforming/manufacturing/treating processes must be accompanied if the producer, in this case, the manufacturing site of the transformer product, did not directly purchase the materials in the original forms.

Raw materials transport: concerning raw material and auxiliary material transportation, all the materials are sourced from domestic suppliers and are transported by truck. The dataset in Ecoinvent 3.10, " Transport, freight, lorry 16-32 metric ton, EURO5 {RoW} | market for transport, freight, lorry 16-32 metric ton, EURO5 | Cut-off, U " was used for modeling. The LCI measures the transportation in kgkm, which is the mass of the materials being transported multiplied by the route's distance.

CORE

Transformer manufacturing: The production inventory is from Jan. 2023 to Dec. 2023. The electricity consumption data was calculated and provided by CARLO GAVAZZI CONTROLS SPA. The disposal waste is treated by landfill. The waste transport distance is assumed to be 50 km.

DOWNSTREAM

Product distribution: According to CARLO GAVAZZI CONTROLS SPA, the transformer products are sold worldwide. First of all, the products are sent from the warehouse to the Hongkong by truck, the transport distance is 92 km. The transport distance from Hongkong to Italy by air is 9300 km, from Italy to the main market area USA by air is 8700 km.

Installation: As for the installation, no energy is needed. The transformer can be directly connected to the analyzer and cable. The packaging materials can be broadly categorized as paper, wood and plastics. After installation, the packaging materials are sent to incineration/landfill/recycling. The detailed ratio is presented in the following Table 8. The transport distance is assumed to be 50 km.

Table 8 EoL for waste from the installation

Material	Incineration	landfill	recycling	Reference
Paper	3%	22%	75%	PEFCR CFF_Default_Parameters_March 2018 Ecoinvent 3.10 dataset
Plastic	7.5%	63.5%	29%	
Wood	8.75%	61.25%	30%	

Use and maintenance: According to the transformer product user manual, there is no energy consumption during the use and maintenance stage.

DEINSTALLATION AND END OF LIFE

The de-installation is assumed to be the same as the installation process, no energy is needed. During the End-of-Life stage, the transformer product is treated under the scenario in Table 9. The "cut-off approach", inputs/outputs associated burden of the EoL process is fully allocated to the current life cycle (or the producer), as mentioned beforehand, was applied. The transport distance of waste is assumed to be 50 km for C2. For C3 waste processing Ecoinvent dataset "Waste electric and electronic equipment {GLO}" market for waste electric and electronic equipment | Cut-off, U" is used for modelling.

Table 9 Scenario for transformer products

Material	Incineration	Landfill	Recycling	Reference
Copper	15%	0	85%	PEFCR CFF_Default_Parameters_March 2018 Ecoinvent 3.10 dataset
Steel	0	15%	85%	
Others	0	100%	0	

IMPACT INDICATORS

The impact indicators are divided into the contribution of the processes to the different modules (upstream, core and downstream) and stages (manufacturing, distribution, use and end-of-life). The results are shown in Table 10-12. It should be stated that the result of ADP-minerals&metals and ADP-fossil shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Table 10 Environmental impacts

	Impact category	Unit	Total	Manufacturing		Distribution	Installation	Use&Maintenance	De- installation&EoL
				Upstream	Core				
CTV3X200A33 3MV-EX	GWP - fossil	kg CO2 eq	5.73E+00	7.87E-01	7.84E-01	4.12E+00	2.30E-02	0.00E+00	1.16E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	3.33E-03	2.23E-03	8.32E-04	2.54E-04	8.96E-07	0.00E+00	1.36E-05
	GWP - total	kg CO2 eq	5.73E+00	7.89E-01	6.62E-01	4.12E+00	1.45E-01	0.00E+00	1.17E-02
	ODP	kg CFC11 eq	6.03E-07	2.48E-08	5.14E-07	6.35E-08	3.51E-11	0.00E+00	9.77E-11
	AP	mol H+ eq	3.27E-02	1.15E-02	3.95E-03	1.72E-02	4.71E-05	0.00E+00	5.67E-05
	EP-freshwater	kg P eq	1.02E-03	7.70E-04	1.86E-04	5.90E-05	7.31E-07	0.00E+00	6.40E-06
	EP-marine	kg N eq	9.16E-03	1.20E-03	8.72E-04	6.93E-03	9.85E-05	0.00E+00	6.31E-05
	EP-terrestrial	mol N eq	9.59E-02	1.15E-02	8.37E-03	7.57E-02	2.48E-04	0.00E+00	1.38E-04
	POCP	kg NMVOC eq	5.55E-02	3.80E-03	2.72E-02	2.44E-02	9.46E-05	0.00E+00	4.86E-05
	ADP- minerals&metals	kg Sb eq	1.48E-04	1.45E-04	2.28E-06	8.56E-07	7.03E-09	0.00E+00	7.60E-08
	ADP-fossil	MJ	1.17E+01	4.73E+00	5.83E+00	1.06E+00	3.39E-03	0.00E+00	6.94E-02
	WDP	m3 depriv.	2.80E+00	2.58E+00	1.56E-01	7.55E-02	4.94E-04	0.00E+00	-4.41E-03
CTV4X400A33 3MV-EX	GWP - fossil	kg CO2 eq	8.32E+00	1.33E+00	1.13E+00	5.82E+00	2.30E-02	0.00E+00	1.99E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	5.69E-03	4.31E-03	9.95E-04	3.59E-04	8.96E-07	0.00E+00	2.41E-05
	GWP - total	kg CO2 eq	8.33E+00	1.33E+00	1.01E+00	5.82E+00	1.45E-01	0.00E+00	1.99E-02
	ODP	kg CFC11 eq	6.41E-07	3.54E-08	5.16E-07	8.97E-08	3.51E-11	0.00E+00	1.69E-10
	AP	mol H+ eq	4.79E-02	1.77E-02	5.85E-03	2.43E-02	4.71E-05	0.00E+00	9.84E-05
	EP-freshwater	kg P eq	1.49E-03	1.15E-03	2.48E-04	8.33E-05	7.31E-07	0.00E+00	1.01E-05
	EP-marine	kg N eq	1.31E-02	1.90E-03	1.25E-03	9.79E-03	9.85E-05	0.00E+00	8.76E-05
	EP-terrestrial	mol N eq	1.38E-01	1.81E-02	1.23E-02	1.07E-01	2.48E-04	0.00E+00	2.38E-04

	POCP	kg NMVOC eq	8.82E-02	6.19E-03	4.74E-02	3.44E-02	9.46E-05	0.00E+00	8.12E-05
	ADP-minerals&metals	kg Sb eq	2.34E-04	2.30E-04	2.58E-06	1.21E-06	7.03E-09	0.00E+00	1.35E-07
	ADP-fossil	MJ	1.91E+01	8.38E+00	9.10E+00	1.50E+00	3.39E-03	0.00E+00	1.23E-01
	WDP	m3 depriv.	5.39E+00	5.08E+00	2.09E-01	1.07E-01	4.94E-04	0.00E+00	-5.01E-03
CTV4X200A33 3MV-EX	GWP - fossil	kg CO2 eq	7.35E+00	1.07E+00	1.01E+00	5.23E+00	2.30E-02	0.00E+00	1.72E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	4.09E-03	2.81E-03	9.38E-04	3.23E-04	8.96E-07	0.00E+00	2.04E-05
	GWP - total	kg CO2 eq	7.35E+00	1.07E+00	8.88E-01	5.23E+00	1.45E-01	0.00E+00	1.72E-02
	ODP	kg CFC11 eq	6.26E-07	2.99E-08	5.15E-07	8.06E-08	3.51E-11	0.00E+00	1.44E-10
	AP	mol H+ eq	4.13E-02	1.42E-02	5.19E-03	2.18E-02	4.71E-05	0.00E+00	8.42E-05
	EP-freshwater	kg P eq	1.29E-03	9.75E-04	2.27E-04	7.49E-05	7.31E-07	0.00E+00	9.08E-06
	EP-marine	kg N eq	1.17E-02	1.57E-03	1.12E-03	8.80E-03	9.85E-05	0.00E+00	8.45E-05
	EP-terrestrial	mol N eq	1.22E-01	1.50E-02	1.10E-02	9.61E-02	2.48E-04	0.00E+00	2.03E-04
	POCP	kg NMVOC eq	7.64E-02	4.92E-03	4.04E-02	3.09E-02	9.46E-05	0.00E+00	7.06E-05
	ADP-minerals&metals	kg Sb eq	1.70E-04	1.67E-04	2.47E-06	1.09E-06	7.03E-09	0.00E+00	1.14E-07
	ADP-fossil	MJ	1.57E+01	6.30E+00	7.96E+00	1.34E+00	3.39E-03	0.00E+00	1.04E-01
	WDP	m3 depriv.	3.01E+00	2.73E+00	1.91E-01	9.59E-02	4.94E-04	0.00E+00	-5.45E-03
CTV2X100A33 3MV-EX	GWP - fossil	kg CO2 eq	4.09E+00	5.10E-01	5.37E-01	3.02E+00	1.56E-02	0.00E+00	8.02E-03
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.08E-01	0.00E+00	1.08E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	2.17E-03	1.33E-03	6.41E-04	1.86E-04	7.07E-07	0.00E+00	9.13E-06
	GWP - total	kg CO2 eq	4.09E+00	5.11E-01	4.30E-01	3.02E+00	1.24E-01	0.00E+00	8.03E-03
	ODP	kg CFC11 eq	3.43E-07	2.62E-08	2.70E-07	4.65E-08	2.76E-11	0.00E+00	6.66E-11
	AP	mol H+ eq	2.73E-02	1.19E-02	2.70E-03	1.26E-02	3.53E-05	0.00E+00	3.87E-05
	EP-freshwater	kg P eq	1.07E-03	8.89E-04	1.31E-04	4.32E-05	6.22E-07	0.00E+00	4.66E-06
	EP-marine	kg N eq	6.74E-03	9.26E-04	6.15E-04	5.07E-03	7.26E-05	0.00E+00	4.94E-05
	EP-terrestrial	mol N eq	7.21E-02	1.06E-02	5.80E-03	5.54E-02	1.84E-04	0.00E+00	9.45E-05
	POCP	kg NMVOC eq	3.95E-02	3.29E-03	1.83E-02	1.78E-02	7.25E-05	0.00E+00	3.41E-05
	ADP-minerals&metals	kg Sb eq	1.54E-04	1.52E-04	1.52E-06	6.26E-07	5.55E-09	0.00E+00	5.09E-08
	ADP-fossil	MJ	7.96E+00	3.16E+00	3.98E+00	7.75E-01	2.66E-03	0.00E+00	4.67E-02
	WDP	m3 depriv.	1.25E+00	1.09E+00	1.10E-01	5.53E-02	3.62E-04	0.00E+00	-3.78E-03

CTA5X100A5 A-EX	GWP - fossil	kg CO2 eq	6.60E+00	8.67E-01	9.17E-01	4.78E+00	2.30E-02	0.00E+00	1.47E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	3.41E-03	2.20E-03	8.95E-04	2.95E-04	8.96E-07	0.00E+00	1.75E-05
	GWP - total	kg CO2 eq	6.60E+00	8.69E-01	7.95E-01	4.78E+00	1.45E-01	0.00E+00	1.47E-02
	ODP	kg CFC11 eq	6.13E-07	2.45E-08	5.15E-07	7.36E-08	3.51E-11	0.00E+00	1.24E-10
	AP	mol H+ eq	3.47E-02	1.00E-02	4.68E-03	1.99E-02	4.71E-05	0.00E+00	7.22E-05
	EP-freshwater	kg P eq	9.77E-04	6.90E-04	2.10E-04	6.83E-05	7.31E-07	0.00E+00	7.73E-06
	EP-marine	kg N eq	1.04E-02	1.20E-03	1.02E-03	8.03E-03	9.85E-05	0.00E+00	7.11E-05
	EP-terrestrial	mol N eq	1.09E-01	1.13E-02	9.89E-03	8.77E-02	2.48E-04	0.00E+00	1.74E-04
	POCP	kg NMVOC eq	6.71E-02	3.78E-03	3.50E-02	2.82E-02	9.46E-05	0.00E+00	6.03E-05
	ADP-minerals&metals	kg Sb eq	1.15E-04	1.12E-04	2.39E-06	9.92E-07	7.03E-09	0.00E+00	9.84E-08
	ADP-fossil	MJ	1.35E+01	5.06E+00	7.09E+00	1.23E+00	3.39E-03	0.00E+00	8.96E-02
	WDP	m3 depriv.	2.19E+00	1.93E+00	1.76E-01	8.75E-02	4.94E-04	0.00E+00	-4.51E-03
CTA6X200A5 A-EX	GWP - fossil	kg CO2 eq	8.29E+00	1.27E+00	1.11E+00	5.86E+00	1.81E-02	0.00E+00	2.12E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	4.79E-03	3.43E-03	9.76E-04	3.62E-04	8.01E-07	0.00E+00	2.52E-05
	GWP - total	kg CO2 eq	8.29E+00	1.28E+00	9.91E-01	5.86E+00	1.41E-01	0.00E+00	2.12E-02
	ODP	kg CFC11 eq	4.78E-07	3.67E-08	3.51E-07	9.03E-08	3.13E-11	0.00E+00	1.79E-10
	AP	mol H+ eq	4.73E-02	1.70E-02	5.81E-03	2.44E-02	4.05E-05	0.00E+00	1.04E-04
	EP-freshwater	kg P eq	1.52E-03	1.18E-03	2.40E-04	8.39E-05	7.08E-07	0.00E+00	1.11E-05
	EP-marine	kg N eq	1.31E-02	1.82E-03	1.25E-03	9.86E-03	8.37E-05	0.00E+00	1.02E-04
	EP-terrestrial	mol N eq	1.38E-01	1.79E-02	1.23E-02	1.08E-01	2.11E-04	0.00E+00	2.51E-04
	POCP	kg NMVOC eq	9.03E-02	5.94E-03	4.96E-02	3.47E-02	8.31E-05	0.00E+00	8.71E-05
	ADP-minerals&metals	kg Sb eq	2.02E-04	1.99E-04	2.21E-06	1.22E-06	6.29E-09	0.00E+00	1.42E-07
	ADP-fossil	MJ	1.84E+01	7.58E+00	9.20E+00	1.51E+00	3.01E-03	0.00E+00	1.29E-01
	WDP	m3 depriv.	3.47E+00	3.17E+00	2.02E-01	1.07E-01	4.15E-04	0.00E+00	-6.49E-03
CTV6X400A33 3MV-EX	GWP - fossil	kg CO2 eq	8.97E+00	1.47E+00	1.19E+00	6.27E+00	1.81E-02	0.00E+00	2.30E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.22E-01	0.00E+00	1.22E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	6.05E-03	4.62E-03	1.02E-03	3.87E-04	8.01E-07	0.00E+00	2.78E-05
	GWP - total	kg CO2 eq	8.98E+00	1.47E+00	1.07E+00	6.27E+00	1.41E-01	0.00E+00	2.30E-02

	ODP	kg CFC11 eq	4.86E-07	3.87E-08	3.51E-07	9.65E-08	3.13E-11	0.00E+00	1.95E-10
	AP	mol H+ eq	5.08E-02	1.83E-02	6.26E-03	2.61E-02	4.05E-05	0.00E+00	1.13E-04
	EP-freshwater	kg P eq	1.56E-03	1.20E-03	2.55E-04	8.97E-05	7.08E-07	0.00E+00	1.16E-05
	EP-marine	kg N eq	1.41E-02	2.03E-03	1.34E-03	1.05E-02	8.37E-05	0.00E+00	1.00E-04
	EP-terrestrial	mol N eq	1.48E-01	1.95E-02	1.32E-02	1.15E-01	2.11E-04	0.00E+00	2.74E-04
	POCP	kg NMVOC eq	9.83E-02	6.69E-03	5.44E-02	3.71E-02	8.31E-05	0.00E+00	9.34E-05
	ADP-minerals&metals	kg Sb eq	2.35E-04	2.31E-04	2.28E-06	1.30E-06	6.29E-09	0.00E+00	1.56E-07
	ADP-fossil	MJ	2.10E+01	9.24E+00	9.98E+00	1.61E+00	3.01E-03	0.00E+00	1.42E-01
	WDP	m3 depriv.	5.42E+00	5.09E+00	2.15E-01	1.15E-01	4.15E-04	0.00E+00	-5.68E-03
CTV1X60A333 MV-EX	GWP - fossil	kg CO2 eq	3.54E+00	3.81E-01	4.75E-01	2.66E+00	1.75E-02	0.00E+00	5.88E-03
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.08E-01	0.00E+00	1.08E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	1.81E-03	1.02E-03	6.16E-04	1.64E-04	7.44E-07	0.00E+00	6.57E-06
	GWP - total	kg CO2 eq	3.56E+00	3.83E-01	4.15E-01	2.66E+00	7.42E-02	0.00E+00	2.25E-02
	ODP	kg CFC11 eq	3.98E-07	2.35E-08	3.34E-07	4.10E-08	2.91E-11	0.00E+00	4.86E-11
	AP	mol H+ eq	2.44E-02	1.09E-02	2.33E-03	1.11E-02	3.79E-05	0.00E+00	2.81E-05
	EP-freshwater	kg P eq	9.89E-04	8.25E-04	1.22E-04	3.81E-05	6.31E-07	0.00E+00	3.55E-06
	EP-marine	kg N eq	5.89E-03	7.54E-04	5.42E-04	4.48E-03	7.84E-05	0.00E+00	3.94E-05
	EP-terrestrial	mol N eq	6.33E-02	9.08E-03	5.02E-03	4.89E-02	1.98E-04	0.00E+00	6.91E-05
	POCP	kg NMVOC eq	3.20E-02	2.78E-03	1.34E-02	1.57E-02	7.70E-05	0.00E+00	2.53E-05
	ADP-minerals&metals	kg Sb eq	1.43E-04	1.41E-04	1.61E-06	5.53E-07	5.83E-09	0.00E+00	3.65E-08
	ADP-fossil	MJ	6.38E+00	2.37E+00	3.29E+00	6.85E-01	2.80E-03	0.00E+00	3.35E-02
	WDP	m3 depriv.	9.93E-01	8.45E-01	1.02E-01	4.88E-02	3.92E-04	0.00E+00	-3.17E-03
CTV8X800A33 3MV-EX	GWP - fossil	kg CO2 eq	1.99E+01	3.89E+00	2.63E+00	1.33E+01	2.72E-02	0.00E+00	5.69E-02
	GWP - biogenic	kg CO2 eq	0.00E+00	0.00E+00	-1.63E-01	0.00E+00	1.63E-01	0.00E+00	0.00E+00
	GWP - luluc	kg CO2 eq	1.38E-02	1.10E-02	1.88E-03	8.21E-04	1.11E-06	0.00E+00	6.74E-05
	GWP - total	kg CO2 eq	1.99E+01	3.91E+00	2.47E+00	1.33E+01	1.90E-01	0.00E+00	5.70E-02
	ODP	kg CFC11 eq	9.20E-07	6.09E-08	6.53E-07	2.05E-07	4.35E-11	0.00E+00	4.79E-10
	AP	mol H+ eq	9.91E-02	2.92E-02	1.40E-02	5.55E-02	5.82E-05	0.00E+00	2.79E-04
	EP-freshwater	kg P eq	2.26E-03	1.51E-03	5.32E-04	1.91E-04	9.65E-07	0.00E+00	3.04E-05
	EP-marine	kg N eq	3.07E-02	4.99E-03	2.91E-03	2.24E-02	1.22E-04	0.00E+00	2.87E-04

	EP-terrestrial	mol N eq	3.14E-01	3.95E-02	2.94E-02	2.44E-01	3.04E-04	0.00E+00	6.75E-04
	POCP	kg NMVOC eq	2.24E-01	1.43E-02	1.30E-01	7.87E-02	1.18E-04	0.00E+00	2.35E-04
	ADP-minerals&metals	kg Sb eq	3.53E-04	3.46E-04	4.23E-06	2.76E-06	8.72E-09	0.00E+00	3.77E-07
	ADP-fossil	MJ	4.98E+01	2.32E+01	2.28E+01	3.42E+00	4.19E-03	0.00E+00	3.44E-01
	WDP	m3 depriv.	1.45E+01	1.39E+01	4.49E-01	2.44E-01	6.04E-04	0.00E+00	-1.89E-02

Table 11 Resource use results

	Resource use indicators	Unit	Total	Manufacturing		Distribution	Installation	Use&Maintenance	De-installation&EoL
				Upstream	Core	Downstream			
CTV3X200A333MV-EX	PERE	MJ	8.90E+00	7.26E+00	1.43E+00	1.92E-01	4.62E-04	0.00E+00	1.30E-02
	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	9.69E+00	7.26E+00	2.23E+00	1.92E-01	4.62E-04	0.00E+00	1.30E-02
	PENRE	MJ	7.58E+01	1.11E+01	9.91E+00	5.46E+01	3.27E-02	0.00E+00	1.40E-01
	PENRM	MJ	2.22E+00	1.00E+00	1.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	7.81E+01	1.21E+01	1.11E+01	5.46E+01	3.27E-02	0.00E+00	1.40E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	6.77E-02	6.12E-02	4.10E-03	2.53E-03	1.65E-05	0.00E+00	-8.30E-05
CTV4X400A333MV-EX	PERE	MJ	1.72E+01	1.48E+01	2.10E+00	2.72E-01	4.62E-04	0.00E+00	2.30E-02
	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.80E+01	1.48E+01	2.90E+00	2.72E-01	4.62E-04	0.00E+00	2.30E-02
	PENRE	MJ	1.11E+02	1.94E+01	1.39E+01	7.72E+01	3.27E-02	0.00E+00	2.45E-01
	PENRM	MJ	2.53E+00	1.32E+00	1.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.13E+02	2.07E+01	1.51E+01	7.72E+01	3.27E-02	0.00E+00	2.45E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	1.29E-01	1.20E-01	5.40E-03	3.57E-03	1.65E-05	0.00E+00	-8.17E-05
CTV4X200A333MV-EX	PERE	MJ	9.58E+00	7.44E+00	1.87E+00	2.44E-01	4.62E-04	0.00E+00	1.96E-02

	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.04E+01	7.44E+00	2.67E+00	2.44E-01	4.62E-04	0.00E+00	1.96E-02
	PENRE	MJ	9.63E+01	1.42E+01	1.25E+01	6.94E+01	3.27E-02	0.00E+00	2.09E-01
	PENRM	MJ	2.53E+00	1.32E+00	1.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	9.89E+01	1.55E+01	1.37E+01	6.94E+01	3.27E-02	0.00E+00	2.09E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	7.33E-02	6.52E-02	4.94E-03	3.21E-03	1.65E-05	0.00E+00	-9.71E-05
CTV2X100A333MV-EX	PERE	MJ	4.30E+00	3.08E+00	1.07E+00	1.41E-01	3.61E-04	0.00E+00	8.75E-03
	PERM	MJ	6.80E-01	0.00E+00	6.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	4.98E+00	3.08E+00	1.75E+00	1.41E-01	3.61E-04	0.00E+00	8.75E-03
	PENRE	MJ	5.36E+01	6.70E+00	6.80E+00	4.00E+01	2.58E-02	0.00E+00	9.52E-02
	PENRM	MJ	1.53E+00	6.67E-01	8.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	5.51E+01	7.36E+00	7.66E+00	4.00E+01	2.58E-02	0.00E+00	9.52E-02
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	3.07E-02	2.60E-02	2.89E-03	1.85E-03	1.20E-05	0.00E+00	-7.48E-05
CTA5X100A5A-EX	PERE	MJ	7.14E+00	5.21E+00	1.69E+00	2.23E-01	4.62E-04	0.00E+00	1.68E-02
	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	7.94E+00	5.21E+00	2.49E+00	2.23E-01	4.62E-04	0.00E+00	1.68E-02
	PENRE	MJ	8.63E+01	1.14E+01	1.14E+01	6.33E+01	3.27E-02	0.00E+00	1.80E-01
	PENRM	MJ	2.23E+00	1.01E+00	1.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	8.86E+01	1.24E+01	1.27E+01	6.33E+01	3.27E-02	0.00E+00	1.80E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	5.38E-02	4.64E-02	4.60E-03	2.93E-03	1.65E-05	0.00E+00	-7.95E-05
CTA6X200A5A-EX	PERE	MJ	1.12E+01	8.77E+00	2.13E+00	2.74E-01	4.09E-04	0.00E+00	2.43E-02
	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.20E+01	8.77E+00	2.93E+00	2.74E-01	4.09E-04	0.00E+00	2.43E-02

	PENRE	MJ	1.09E+02	1.70E+01	1.35E+01	7.77E+01	2.92E-02	0.00E+00	2.59E-01
	PENRM	MJ	2.42E+00	1.44E+00	9.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.11E+02	1.84E+01	1.45E+01	7.77E+01	2.92E-02	0.00E+00	2.59E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	8.44E-02	7.58E-02	5.18E-03	3.60E-03	1.38E-05	0.00E+00	-1.14E-04
CTV6X400A333MV-EX	PERE	MJ	1.74E+01	1.48E+01	2.29E+00	2.92E-01	4.09E-04	0.00E+00	2.66E-02
	PERM	MJ	7.97E-01	0.00E+00	7.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.82E+01	1.48E+01	3.09E+00	2.92E-01	4.09E-04	0.00E+00	2.66E-02
	PENRE	MJ	1.19E+02	2.11E+01	1.45E+01	8.31E+01	2.92E-02	0.00E+00	2.83E-01
	PENRM	MJ	2.35E+00	1.37E+00	9.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.21E+02	2.24E+01	1.54E+01	8.31E+01	2.92E-02	0.00E+00	2.83E-01
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	1.30E-01	1.21E-01	5.49E-03	3.85E-03	1.38E-05	0.00E+00	-9.19E-05
CTV1X60A333MV-EX	PERE	MJ	3.47E+00	2.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERM	MJ	6.80E-01	0.00E+00	6.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	4.15E+00	2.41E+00	1.61E+00	1.24E-01	3.81E-04	0.00E+00	6.28E-03
	PENRE	MJ	4.66E+01	5.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRM	MJ	1.49E+00	5.32E-01	9.57E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	4.81E+01	5.59E+00	7.11E+00	3.53E+01	2.71E-02	0.00E+00	6.89E-02
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m3	2.45E-02	2.02E-02	2.72E-03	1.63E-03	1.30E-05	0.00E+00	-6.43E-05
CTV8X800A333MV-EX	PERE	MJ	4.47E+01	3.91E+01	4.88E+00	6.21E-01	5.71E-04	0.00E+00	6.46E-02
	PERM	MJ	1.13E+00	0.00E+00	1.13E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	4.58E+01	3.91E+01	6.01E+00	6.21E-01	5.71E-04	0.00E+00	6.46E-02
	PENRE	MJ	2.65E+02	5.65E+01	3.13E+01	1.77E+02	4.05E-02	0.00E+00	6.92E-01
	PENRM	MJ	6.00E+00	4.59E+00	1.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PENRT	MJ	2.71E+02	6.11E+01	3.27E+01	1.77E+02	4.05E-02	0.00E+00	6.92E-01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	3.48E-01	3.29E-01	1.13E-02	8.17E-03	2.02E-05	0.00E+00	-3.43E-04

Table 12 Waste/output flows result

	Waste/output flows indicators	Unit	Total	Manufacturing		Distribution	Installation	Use&Maintenance	De-installation&EoL
				Upstream	Core	Downstream			
CTV3X200A333MV-EX	HWD	kg	1.05E-03	6.15E-04	5.94E-05	3.78E-04	2.35E-07	0.00E+00	5.12E-07
	NHWD	kg	3.97E-01	2.88E-01	3.69E-02	2.34E-02	1.61E-03	0.00E+00	4.79E-02
	RWD	kg	6.00E-05	3.92E-05	1.67E-05	3.87E-06	7.11E-09	0.00E+00	2.50E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.58E-01	0.00E+00	0.00E+00	0.00E+00	6.59E-02	0.00E+00	9.21E-02
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV4X400A333MV-EX	HWD	kg	1.86E-03	1.26E-03	6.35E-05	5.34E-04	2.35E-07	0.00E+00	8.83E-07
	NHWD	kg	7.31E-01	5.80E-01	4.63E-02	3.31E-02	1.61E-03	0.00E+00	6.98E-02
	RWD	kg	1.11E-04	7.86E-05	2.64E-05	5.47E-06	7.11E-09	0.00E+00	4.42E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	2.45E-01	0.00E+00	0.00E+00	0.00E+00	6.59E-02	0.00E+00	1.79E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV4X200A333MV-EX	HWD	kg	1.17E-03	6.26E-04	6.21E-05	4.80E-04	2.35E-07	0.00E+00	7.54E-07
	NHWD	kg	4.56E-01	3.12E-01	4.30E-02	2.97E-02	1.61E-03	0.00E+00	6.91E-02
	RWD	kg	6.94E-05	4.11E-05	2.30E-05	4.92E-06	7.11E-09	0.00E+00	3.75E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	2.11E-01	0.00E+00	0.00E+00	0.00E+00	6.59E-02	0.00E+00	1.45E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV2X100A333MV-EX	HWD	kg	6.07E-04	2.86E-04	4.32E-05	2.77E-04	1.85E-07	0.00E+00	3.50E-07
	NHWD	kg	2.03E-01	1.21E-01	2.68E-02	1.71E-02	1.27E-03	0.00E+00	3.66E-02
	RWD	kg	3.30E-05	1.87E-05	1.13E-05	2.83E-06	5.57E-09	0.00E+00	1.68E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.12E-01	0.00E+00	0.00E+00	0.00E+00	5.44E-02	0.00E+00	5.72E-02
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTA5X100A5A-EX	HWD	kg	9.46E-04	4.46E-04	6.10E-05	4.38E-04	2.35E-07	0.00E+00	6.45E-07
	NHWD	kg	3.58E-01	2.29E-01	4.05E-02	2.71E-02	1.61E-03	0.00E+00	5.99E-02
	RWD	kg	5.45E-05	2.92E-05	2.04E-05	4.49E-06	7.11E-09	0.00E+00	3.23E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.92E-01	0.00E+00	0.00E+00	0.00E+00	6.59E-02	0.00E+00	1.26E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTA6X200A5A-EX	HWD	kg	1.34E-03	7.48E-04	5.46E-05	5.38E-04	2.09E-07	0.00E+00	9.32E-07
	NHWD	kg	5.38E-01	3.74E-01	4.45E-02	3.33E-02	1.44E-03	0.00E+00	8.48E-02
	RWD	kg	8.15E-05	4.87E-05	2.68E-05	5.51E-06	6.32E-09	0.00E+00	4.66E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	2.45E-01	0.00E+00	0.00E+00	0.00E+00	6.28E-02	0.00E+00	1.82E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV6X400A333MV-EX	HWD	kg	1.90E-03	1.27E-03	5.56E-05	5.75E-04	2.09E-07	0.00E+00	1.02E-06
	NHWD	kg	7.59E-01	5.93E-01	4.67E-02	3.56E-02	1.44E-03	0.00E+00	8.22E-02
	RWD	kg	1.15E-04	7.97E-05	2.90E-05	5.89E-06	6.32E-09	0.00E+00	5.10E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	2.70E-01	0.00E+00	0.00E+00	0.00E+00	6.28E-02	0.00E+00	2.07E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV1X60A333MV-EX	HWD	kg	5.04E-04	2.14E-04	4.59E-05	2.44E-04	1.95E-07	0.00E+00	2.56E-07
	NHWD	kg	1.65E-01	9.47E-02	2.57E-02	1.51E-02	1.34E-03	0.00E+00	2.79E-02
	RWD	kg	2.66E-05	1.47E-05	9.25E-06	2.50E-06	5.88E-09	0.00E+00	1.20E-07
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	9.41E-02	0.00E+00	0.00E+00	0.00E+00	5.57E-02	0.00E+00	3.84E-02
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CTV8X800A333MV-EX	HWD	kg	4.68E-03	3.37E-03	8.97E-05	1.22E-03	2.91E-07	0.00E+00	2.50E-06
	NHWD	kg	1.94E+00	1.55E+00	9.20E-02	7.57E-02	1.99E-03	0.00E+00	2.27E-01
	RWD	kg	2.87E-04	2.06E-04	6.70E-05	1.25E-05	8.80E-09	0.00E+00	1.24E-06
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	5.61E-01	0.00E+00	0.00E+00	0.00E+00	8.78E-02	0.00E+00	4.74E-01
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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