Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021

TSLF 170kV 1x2000/95

Manufactured by **Demirer Kablo Tesisleri Sanayi ve Ticaret A.Ş.**

Programme:	The International EPD® System
Programme Operator:	EPD International AB
Licensee	EPD Türkiye
EPD Registration Number:	EPD-IES-0016061
Version Date:	2024-09-14
Validity Date:	2029-09-13
Geographical Scope:	Türkiye

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

Programme Information

CEN standard EN 15804 serves as the core Product Category Rules (PCR)

Product Category Rules (PCR):

PCR 2019:14 Construction products, version 1.3.4, Construction EN 15804:2012+A2:2019/AC:2021 Sustainability of Construction Works and PCR 2019:14-c-PCR-019 c-PCR-019 Electrical cables and wires (for construction sector) (c-PCR to PCR 2019:14) (Adopted from EPD Norway).

UN CPC Code: 4635
Other electric conductors, for a voltage exceeding 1000 V.

PCR review was conducted by: The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third party individual verifier: Stephen Forson, ViridisPride Ltd.

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes [x] No

Demirer Kablo Tesisleri Sanayi ve Ticaret A.Ş. has the sole ownership, liability, and responsibility for this EPD.

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How to read this EPD?

An Environmental Product Declaration (EPD) is an ISO Type III Environmental Declaration based on ISO 14025 standard. An EPD transparently reports the environmental performance of products or services from a lifecycle perspective. The preparation of an EPD includes different stages, from acquiring raw materials to the end of life of the final product/service. EPDs are based on international standards and consider the entire value chain. Additionally, EPD is a third-party verified document. This EPD includes several sections described below.

1. General and Program Information

The first part of an EPD has information about the name of the manufacturer and product/service and other general information such as the validity and expiration dates of the document, the name of the program operator, geographical scope, etc. The second page states the standards followed and gives information about the program operator, third-party verifier, etc. The followed Product Category Rule (PCR) is indicated on the second page.

2. Company and Product/Service Information

Information about the company and the investigated product is given in this section. It summarizes the characteristics of the product provided by the manufacturer. It also includes information about the product such as product composition and packaging.

3. LCA Information

LCA information is one of the most important parts of the EPD as it describes the functional/declared unit, time representativeness of the study, database(s) and LCA software, along with system boundaries. The table presented in this part has columns for each stage in the life cycle. The considered stages are marked ‘X’ whereas the ones that are not declared are labeled as ‘ND’. Not all EPDs consider the full life cycle assessment for a product’s entire life stages. The ‘System Boundary’ page is also the place where one can find detailed information about the stages and the assumptions made.

4. LCA Results

The results of the Life Cycle Assessment analysis are presented in table format. The first column in each table indicates the name of the impact category and their measurement units are presented in the second column. These tables show an amount at each life cycle stage to see the impact of different indicators on different stages. Each impact can be understood as what is released through the production of the declared unit of the material—in this case, 1 metre of TSLF 170kV 1x2000/95 cable. The benefits of reuse/recycling of the declared product is reflected in this section.

The first impact in the table is global warming potential (GWP), which shows how much CO_2 is released at each stage. Other impacts include eutrophication potential, acidification potential, ozone layer depletion, land use related impacts, etc. The second table provides results for resource use and the third table is about the waste produced during the production. The fourth and final table shows the results for the GWP-GHG indicator, which is almost equivalent to the GWP-Total indicator mentioned previously. The only difference is that this indicator excludes the biogenic carbon content by following a certain methodology.

About Demirer Kablo

Demirer Kablo is among the world's leading manufacturers in the the medium, high and extra high voltage energy cables industry. Manufacturing energy cables up to 500 kV and cable accessories and providing laying, jointing, terminating, testing, supervision and commissioning services, Demirer Kablo is a global turnkey project contractor. Satisfying the growing demand of energy, in today's world, is one of the main prerequisities for industrial growth and thus rise in living standards. Demirer Kablo, with the cable systems it manufactured, creates value in the energy transmission area and contributes to satisfaction of this demand.

Demirer Kablo is committed to being the pioneering company of the world in its sector. Continuing its operations in this direction, Demirer Kablo puts human and environment to the first place along with customer satisfaction and carries out its research and development activities in order to manufacture energy cables providing more efcient, more reliable and more clean energy transmission.

In every region we operate in the world, we take pride in contributing to local societies. Being aware of our responsibility towards human and environment, we always give priority to occupational health and safety and environmental consciousness, we preserve our high ethical values, we abide by applicable laws, rules and regulations and we respect local and national cultures.

Demirer Kablo, working with most competent professionals, considers its highly skilled workforce as one of its most important values, and with continous training, ensures their adaptation to improving technology and changing conditions. Our diversity, responsibility, open communication, trust and kindness oriented culture guides all of our 306 employees and hundreds of business partners who are all experts in their field.

Demirer Kablo's annual production capacity can reach 60.000 tonnes of cables depending on the type of product. Cable systems of Demirer Kablo are certified through type and prequalification Tests by KEMA, CESI, Georgia Power and similar international institutions.

In addition to the 400kV cable systems supplied for the local market, Demirer Kablo has completed Medium, High and Extra High Voltage projects in over 60 countries, from India to United States and from Saudi Arabia to Iceland with complete customer satisfaction.

About the Product

The product investigated in this EPD is TSLF 170kV 1x2000/95 cable manufactured by Demirer Kablo at Bilecik, Türkiye facility. The product are mainly used for HV power transmission systems. The reference product is constructed with a conductor, semi-conductive screen over the conductor and insulation screen, cross-linked polyethylene insulation layer, a metallic screen of copper wires, PE laminated Aluminium tape, and outer sheath. The cable is radially water sealed by an aluminium laminate bonded to the outer sheath and longitudinally water sealed with semi-conductive swellable tapes under and over the metallic screen. The cable is also water blocked by swelling tapes in conductor area. The product is suitable for fixed installation and expected life time of the product is around 40 years. Product and packaging composition of the investigated cable are provided below.

Product and Packaging Composition

Product components	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material, kg C/declared unit
Polyethylene	7.3	0	0	0
Aluminium wire rod	5.3	0	0	0
Copper	0.95	0	0	0
Polyester	0.28	0	0	0
Others (Polymer,etc.)	0.24	0	0	0
Sum	**14**	**0**	**0**	**0**

Packaging material	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/declared unit
Steel reel	2.2E-03	1.6E-04	0
Wooden-base sides	6.0E-03	4.3E-04	0.0034
PET Strap	1.0E-03	7.1E-05	0
Sum	**9.2E-03**	**6.6E-04**	**0.0034**

About the Product

Below table lists the main technical specifications of the investigated cable.

Construction and Dimensions 87/150kV (U_m=170kV) (Al/XLPE/Cu Wire/Al Tape/HDPE) 1x2000RMS/95mm²	
Applicable Standards	IEC 60840 & HD 632 S3: 2016 Part 4D
1. Conductor	
Material	Aluminum
Type	Circular stranded compacted according to IEC 60228 Class 2
Diameter	approx. 54.5 mm (Protected against water penetration)
2. Insulation	
Material	Cross linked polyethylene (XLPE)
Thickness	nom. 19.0 mm
3. Metal screen	
Material	Copper wires + copper tape contact helix
Cross section	nom. 95 mm² (geometrical-total)
4. Radial water barrier	
Material	PE laminated aluminium tape
Thickness	approx. 0,2 mm (Al tape)
Application	Longitudinally
5. Outer sheath	
Material	HDPE -Type ST7 according to HD 632 Part 1 Table 7
Thickness	nom. 4.5 mm
Colour	Natural
6. Extruded SC Layer	
Thickness	approx. 0.8 mm
Colour	Black

System Boundary

A1 - Raw Material Supply

This stage includes raw materials extraction and pre-treatment processes before production. Main materials used in the product are aluminium wire rod, copper and various types of plastics (PE, PP, polyester etc.) Environmental impacts of these materials are considered in this stage.

A2 - Raw Material Transport

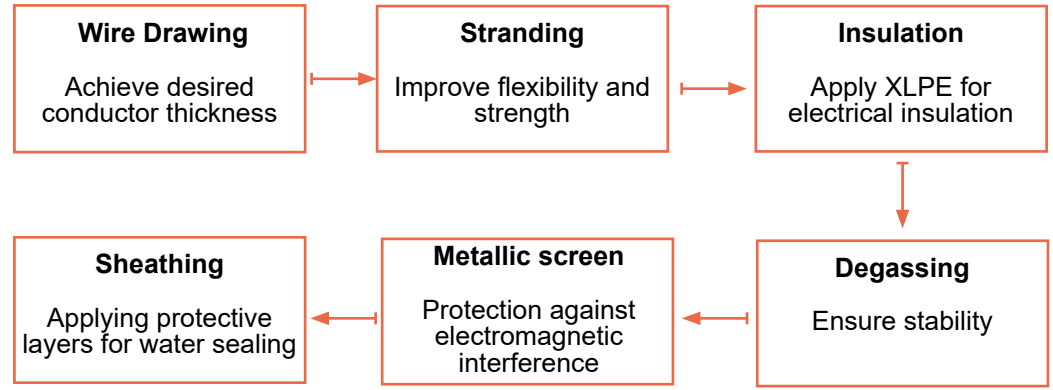
This stage is relevant for the delivery of raw materials to the production plant. Highway transport is the dominant mean of transport at this stage along with sea transportation. Transport routes and distances are supplier-specific and provided by the manufacturer.

Transport Mode	Type
Road	Vehicle: Lorry Size Class: >32 metric ton Emission Standard: EURO5 Fuel Type: Diesel
Sea	Vehicle: Container Ship DWT (Load Capacity): 43000 tonnes Fuel Type: Heavy Fuel Oil

A3 - Manufacturing

The manufacturing of the TSLF 170kV 1x2000/95 cable involves several key steps. It starts with wire drawing to achieve the desired conductor thickness, followed by stranding to enhance flexibility and strength. The conductor is then insulated with cross-linked polyethylene for electrical insulation, and degassing is performed to ensure stability. A metallic copper screen is added to protect against electromagnetic interference. Finally, the cable is sheathed with an aluminum laminate and other protective layers for water sealing, resulting in a durable product designed for fixed installations. System flow diagram of the main manufacturing process is shown below.

Information	Description
Electricity data	Türkiye electricity grid mix from Ecoinvent v3.10, Medium Voltage
Source of electricity production	Coal 37%, Hydro 33%, Natural gas 17 %, Wind 8%, Geothermal 3%, Biogas 1%, Other 1%, Biomass <1%
GWP-GHG of electricity data	0.575 kg CO_2 eq./kWh



System Boundary

A4 - Transport to Site

This stage is relevant for the delivery of final product to the intended markets and customers. Highway and sea transportation are involved in this stage. The transport routes and distances are supplier-specific and provided by the manufacturer.

Road	Sea
Vehicle: Lorry Size Class: >32 metric ton Emission Standard: EURO5 Fuel Type: Diesel	Vehicle: Bulk carrier DWT (Load Capacity): 51000 tonnes Fuel Type: Heavy Fuel Oil

A5 - Installation

During the installation of the cable, heavy machinery is used which burn diesel. The impact of diesel and electricity consumption provided by the manufacturer is used at this stage. In additional, 30 km average transportation distance to the installation site is asusmed.

B1-B7 - Use Stages

This EPD follows requirements for construction products considered as electric equipment. The cable dissipates energy due to Joule effect throughout its lifetime. Considering the linear resistivity of the cable and cable's lifetime (40 years), joule effect is calculated under 1 A of current. This is reflected at B6 stage. Other use-phase stages also checked and no impact is found for these stages. This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment.

C1 - De-construction

There are different practices in the market for collecting cables that have reached the end of their life. Some heavy underground cables can be left underground. For this EPD, to provide benefits for further life cycle, it is assumed that the cable will be removed from its installation location after reaching its service life. The impacts associated with the deconstruction is assumed the same with the impacts at installation stage.

C2 - Waste Transport

This stage includes the transportation of discarded cable to the waste processing/disposal area. 100 km distance by trucks is assumed.

C3 - Waste Processing

According to the JRC report, Annex C V.2.1, end-of-life coefficients for plastics and metals are determined. Metals are mostly assumed recycled after accounting the losses. According to the type of plastic materials, their end-of-life fate is determined and modelled. The impact of collecting/sorting efforts are also included at this stage.

C4 - Disposal

Impact of any material that do not go to recycling scheme are included at this stage.

D - Future reuse, recycling and energy recovery potentials

Metals that are recycled are assumed to substitute the use of virgin metals. In addition, the benefits of heat recovery from the incineration of plastics are included.

LCA Information

Declared Unit
1 meter of TSLF 170kV 1x2000/95 cable.

Conversion factor
Product weight per stated declared unit is 14.074 kg. Thus, a mass (kg) conversion factor of 0.071 should be used.

System Boundary
Cradle to gate with options, modules C1–C4, module D and with optional modules (A4, A5, B).

Cut-Off Rules
The criteria for exclusion were set so that individual input flows less than 1% of the total, with a cumulative limit of less than 5%, could be omitted. This was contingent upon confirming that these excluded flows did not significantly alter the reported data, with "significant" defined as affecting the total by less than 5%.

REACH Regulation
No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in this product either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

Background Data
For all LCA modelling and calculation, Ecoinvent database (v3.10) and SimaPro (v9.6) LCA software were used. Characterization factors of EN 15804 reference package based on EF 3.1 are utilized. Impact of infrastructure and capital goods are excluded from the analysis.

Period Under Review
The data used for LCA study concerns the year 2023.

Source of Electricity
The modeled electricity data for the manufacturing of the investigated cable is taken from ecoinvent 3.10 database which has carbon density of 0.575 kg CO_2 eq. / kWh for medium voltage electricity production. The selected electricity data consists of around 35% electricity production from hard coal and lignite, 29.2% hydro, 19.4% natural gas, 9.4% wind, 3.5% geothermal, 1.2% co-generation from natural gas, 1.1% biogas and around 1.2% from various other sources.

Allocations
Energy consumption and raw material transportation were weighted according to 2023 production figures. In addition, hazardous and non-hazardous waste amounts were also allocated from the total waste generation in 2023. For end of life allocation, Annex C version 2.1 (May 2020) of JRC report* is utilized to determine the final fate (recycling, landfilling, incineration etc.) of materials and their percentages.

Assumptions
Upstream and downstream road transportation are assumed to be carried out with Euro5 motor vehicles with a size class of > 32 metric tonnes where distances acquired through Google Maps. In addition, 100 km distance for the waste transport at C2 stage is assumed.

LCA Information

	Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads
	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules Declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GLO	GLO	TR	NO	NO	NO	NO	NO	NO	NO	NO	NO	GLO	GLO	GLO	GLO	GLO
Specific Data Used	%11				-												
Variation Products	0%				-												
Variation Sites	0%				-												

(X = Module included, ND = Not declared, NO = Norway, GLO = Global)

LCA results for 1 metre of TSLF 170kV 1x2000/95 cable.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of this EPD should not be used without the consideration of C modules.

Core environmental impact indicators (Mandatory)	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP - Total	kg CO_2 eq.	1.5E+02	3.1E+00	8.7E+00	9.5E-05	8.7E+00	1.5E-01	2.4E+01	4.8E+02	-4.3E+01
GWP - Fossil	kg CO_2 eq.	1.5E+02	3.1E+00	8.7E+00	9.2E-05	8.7E+00	1.5E-01	2.4E+01	4.8E+02	-4.2E+01
GWP - Biogenic	kg CO_2 eq.	2.5E-01	5.5E-04	1.3E-02	2.2E-06	9.8E-04	2.7E-05	1.6E-01	1.0E-01	-1.2E-01
GWP - Luluc	kg CO_2 eq.	6.8E-01	1.3E-03	8.0E-04	5.1E-07	8.0E-04	5.2E-05	3.4E-03	1.7E-02	-6.8E-01
ODP	kg CFC-11 eq.	6.5E-06	5.7E-08	1.3E-07	2.6E-12	1.3E-07	3.0E-09	4.5E-08	2.2E-06	-5.3E-07
AP	mol H+ eq.	1.4E+00	2.9E-02	7.8E-02	4.2E-07	7.8E-02	4.9E-04	1.6E-02	4.4E-01	-6.8E-01
EP - Freshwater	kg P eq.	1.2E-01	1.8E-04	2.6E-04	3.1E-08	2.6E-04	1.0E-05	1.1E-03	1.7E-02	-4.2E-02
EP - Marine	kg N eq.	1.8E-01	7.5E-03	3.6E-02	7.3E-08	3.6E-02	1.7E-04	4.3E-03	1.2E+00	-5.3E-02
EP - Terrestrial	mol N eq.	1.8E+00	8.3E-02	4.0E-01	8.1E-07	4.0E-01	1.8E-03	4.3E-02	1.9E+00	-6.3E-01
POCP	kg NMVOC	6.7E-01	2.7E-02	1.2E-01	2.6E-07	1.2E-01	7.9E-04	1.3E-02	8.4E-01	-2.1E-01
***ADPE**	kg Sb eq.	7.4E-03	7.0E-06	3.3E-06	2.6E-09	3.3E-06	4.1E-07	7.0E-06	1.8E-04	-5.3E-03
***ADPF**	MJ	7.9E+02	3.2E+00	4.7E+00	8.3E-04	4.7E+00	1.8E-01	2.0E+01	1.6E+02	-2.1E+02
***WDP**	m^3 depriv.	5.4E+01	1.8E-01	2.6E-01	1.1E-04	2.6E-01	1.0E-02	5.5E+00	-4.6E+01	-1.8E+01
Additional environmental impact indicators (Mandatory)										
****GWP-GHG**	kg CO_2 eq.	1.5E+02	3.1E+00	8.7E+00	9.5E-05	8.7E+00	1.5E-01	2.4E+01	4.8E+02	-4.3E+01
Additional environmental impact indicators (Optional)										
PM	disease inc.	9.1E-06	2.5E-07	2.2E-06	5.4E-12	2.2E-06	1.5E-08	1.4E-07	1.0E-05	-4.6E-06
*****IR**	kBq U-235 eq.	6.2E+00	4.5E-02	5.5E-02	4.3E-05	5.5E-02	2.7E-03	2.9E-01	4.9E+00	-3.6E+00
ETP-FW	CTUe	1.1E+03	9.7E+00	1.6E+01	1.3E-03	1.6E+01	5.2E-01	3.5E+02	1.2E+05	-5.6E+02
***HTP - C**	CTUh	5.0E-07	1.8E-08	3.4E-08	1.2E-12	3.4E-08	9.3E-10	8.7E-09	5.2E-07	-1.8E-07
***HTP - NC**	CTUh	6.7E-06	2.4E-08	1.4E-08	2.5E-12	1.4E-08	1.4E-09	5.9E-08	6.9E-06	-4.5E-06
***SQP**	Pt	4.8E+02	3.4E+01	8.0E+00	2.7E-04	8.0E+00	2.2E+00	9.8E+00	3.4E+03	-1.7E+02

Acronyms	GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-FW: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use related impacts, soil quality.
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A4: Transport, A5: Installation,B6: Operational Energy Use, C1: Demolition, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Future reuse, recycling or energy recovery potentials.

Indicators describing resource use (Mandatory)	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	2.59E+02	5.90E-01	9.91E+01	2.04E-02	2.63E+00	3.37E-02	2.86E+01	8.79E+01	-2.53E+02
PERM	MJ	9.64E+01	0.00E+00	-9.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.56E+02	5.90E-01	2.63E+00	2.04E-02	2.63E+00	3.37E-02	2.86E+01	8.79E+01	-2.53E+02
PENRE	MJ	1.67E+03	4.28E+01	1.56E+02	1.13E-03	1.13E+02	2.19E+00	1.03E+03	1.71E+03	-4.55E+02
PENRM	MJ	3.53E+02	0.00E+00	-4.25E+01	0.00E+00	0.00E+00	0.00E+00	-1.55E+02	-1.55E+02	0.00E+00
PENRT	MJ	2.03E+03	4.28E+01	1.13E+02	1.13E-03	1.13E+02	2.19E+00	8.71E+02	1.55E+03	-4.55E+02
SM	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	m^3	8.0E-01	6.7E-03	7.8E-03	7.5E-07	7.8E-03	4.0E-04	3.0E-01	1.6E+00	-2.4E-01
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding resources used as raw materials, PENRM: Use of non-renewable primary energy resources used as raw materials, PENRT: Total use of non-renewable primary energy, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.									
Environmental information describing waste categories (Mandatory)	**Unit**									
HWD	kg	5.68E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NHWD	kg	4.24E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.67E+00	0.0E+00
RWD	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Environmental information describing output flow (Mandatory)	**Unit**									
CRU	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MFR	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.47E+00	0.0E+00	0.0E+00
MER	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE (Electric)	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE (Thermal)	MJ	1.04E+02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.04E+02	0.0E+00	0.0E+00
Acronmys	HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy thermal.									
***Disclamer 1**	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.									
****Disclamer 2**	GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO_2 is set to zero.									
*****Disclamer 3**	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.									

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