ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 50693 for

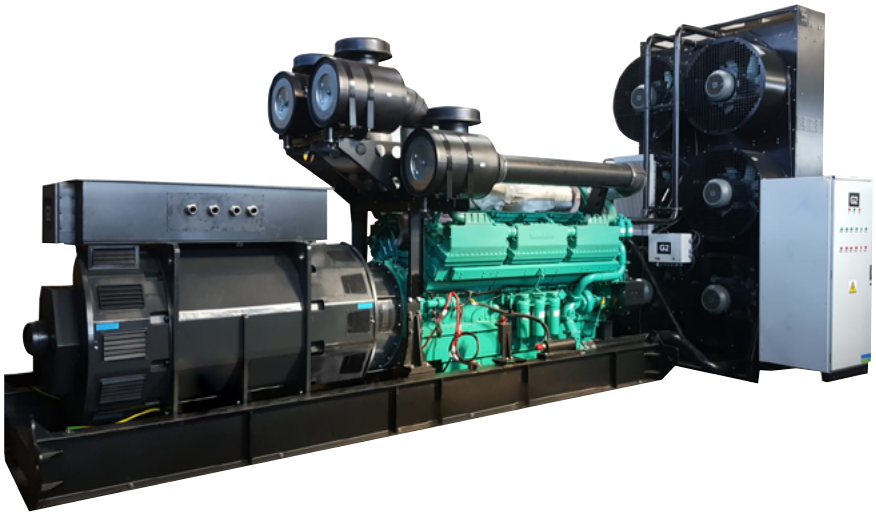
AC 3000 Power Generation System

by Aksa Power Generation

This EPD covers multiple products, based on the worst-case results of the product group

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity,

see www.environdec.com.



aksa

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Geographical Scope: Global

The EPD covers multiple products: AC 38, AC 66, AC 110, AC 150, AC 170, AC 220, AC 350, AC 550, AC 550K, AC 700, AC 825, AC 880, AC 1100, AC 1100K, AC 1250, AC 1410, AC 1675, AC 2250, AC 2500, AC 2750, AC 3000

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Programme Information

The International EPD® System: EPD International AB Box 210 60 SE-100 31 Stockholm, Sweden, *info@environdec.com*

PCR 2024:06 Electronic and electric equipment, and electronic components (non-construction) (EN 50693) (1.0.1)
PCR review was conducted by: Sophie Kieselbach. The review panel may be contacted via support@environdec.com.
UN CPC Code: 46113 Electric generating sets and rotary converters

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
EPD process certification EPD verification **X**

Third party individual verifier: Agnieszka Pikus, Greenwise

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:
Yes No **X**

LCA Accountability: Orhan Atacan & Gülbahar Korkusuz, Metsims Sustainability Consulting

The EPD owner has the sole ownership, liability, and responsibility for the EPD. 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.

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, life time of electricity generator set. The first impact in the table is global warming potential (GWP), which shows how much CO2 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 Aksa

Owner of the EPD: **Aksa Power Generation**

Head Office: **Rüzgarlıbahçe Mahallesi Özalp Çıkmazı No:10 34805 Kavacık / Beykoz İSTANBUL**

Production Plant: **Çerkezköy OSB, Yıldırım Beyazıt Mah., 8. Cad., No:37A 59500 Çerkezköy/TEKİRDAĞ**

The assembly of electro-generator groups powered by gasoline, diesel, hydrotreated vegetable oil (HVO), and natural gas with varying power capacities is carried out, along with the design of panels, chassis, and enclosures. Additionally, the production program includes high-voltage output electro-generator groups, dynamic type uninterruptible power supplies, marine-type generators, and frequency converters.

To ensure the maintenance and repair of Aksa Generator products, service and warranty services are provided through the Aksa Service Branch. The purchase and sale of second-hand generators, rental services, and energy supply operations are conducted via the Aksa Rental Branch.

In the last quarter of 2021, the production facility in Turkey was relocated to Çerkezköy. With the new facility, which spans a total area of 60,000 m² and operates in compliance with Industry 4.0 standards, the production capacity has been nearly tripled. In addition to Turkey, production facilities are located in China (Changzhou, 120,000 m² total area), the United States (Houston, 20,000 m² indoor production area), and Spain (Zaragoza, 5,000 m² indoor production area), where generators powered by gasoline, diesel, natural gas, and HVO fuel, along with marine auxiliary generators, lighting towers, and generator equipment, are manufactured, covering a power range from 1 kVA to 3,125 kVA.

Moreover, with trade centers in Dubai and Rotterdam-Dordrecht, customized solutions continue to be developed for various industries, including data centers, mining, healthcare, construction, and telecommunications. With 23 international offices across Asia, Europe, Africa, and the Americas, Aksa Generator ranks among the top five generator manufacturers globally. As of the end of 2023, international operations are carried out through sales offices located in the United States, the United Arab Emirates, Algeria, China, Indonesia, Ghana, South Africa, the Netherlands, Iraq, the United Kingdom, Spain, Kazakhstan, Kenya, Uzbekistan, Singapore, Sudan, and Vietnam. By enhancing the sustainability of operations, the goal is to become one of the world's top three generator manufacturers by 2025.

Product information

Aksa power generation systems are designed to deliver optimum performance, efficiency, and reliability across a wide range of applications, including stationary standby, prime power, and continuous duty operations. Each generator set is meticulously engineered and manufactured to meet the highest industry standards, ensuring durability and seamless operation under varying load conditions.

AC 3000 model operates at a voltage of **400/231V** with a **3-phase, 50 Hz** frequency and a **power factor of 0.8.** The **standby rating (ESP)** is **2400 kW (3000 kVA)**, providing additional capacity to handle short-term overloads during emergency situations. Meanwhile, the **prime rating (PRP)**, which is suitable for continuous operation under variable loads, is **2200 kW (2750 kVA)**. Additionally, the generator is capable of delivering a standby current of **4330 A**, ensuring a stable power supply to meet high energy demands.

Each generator set undergoes rigorous factory assembly and comprehensive production testing to guarantee optimal performance and compliance with international quality and safety regulations. Whether deployed for industrial, commercial, or mission-critical applications, Aksa generators provide a reliable and efficient power solution, ensuring uninterrupted operations even in the most demanding environments.

General Characteristics

Model Name: AC 3000
Frequency: (Hz) 50
Fuel Type: Diesel
Engine Make and Model: CUMMINS QSK78-G9
Alternator Make and Model: Mecc Alte ECO 46 -VL/4 A
Control Panel Model: DSE 7320
Canopy: AK 101

Standard Open Set Specifications

CUMMINS 4 cycle, water cooled, 1500 rpm diesel engine
Compact power units
Engine mounted cooling radiator and fan
Electronic governor control
Electric Starter & charge alternator (24 V D.C.)
Normal duty, dry type air filter
Single bearing alternator, IP23 enclosure, class H insulation
Standard voltage 400/230 V A.C., 50 Hz
Welded steel base frame with A/ V mounting
Lube - oil drain hand pump fitted
24 V D.C. battery set with cables and rack
Industrial type silencer and steel bellows delivered loose
Engine jacket water heater
Manual for use and installation
Optional silent enclosure

Included Products:

AC 38	AC 150	AC 350	AC 700	AC 1100	AC 1410	AC 2500
AC 66	AC 170	AC 550	AC 825	AC 1100K	AC 1675	AC 2750
AC 110	AC 220	AC 550K	AC 880	AC 1250	AC 2250	AC 3000

The EPD is a group EPD and based on the worst-case approach according to environmental impacts. The criterion for defining the worst-case product is mainly based on the declared environmental performance indicator. The heaviest product in the product group was taken as reference.

LCA Information

Functional Unit:

Operation of a generator set (genset) over a 40-year lifespan, ensuring an annual average of 200 hours of at least 1 kVA backup power in the event of grid disconnection, while also supporting continuous operation at a prime rating of 2200 kW (2750 kVA) and a standby rating of 2400 kW (3000 kVA), including maintenance in accordance with ISO 8528.

Time Representativeness:

2023 (12 months)

Database(s) and LCA Software:

Ecoinvent 3.10 and SimaPro 9.6

System Boundaries:

Cradle to grave

Reference Service Life:

The RSL for the reference product is 40 years.

Geographical Scope

The geographical scope of this EPD is global. For manufactruing activities, Turkey has been taken as the basis, while for the use phase, Europe has been considered.

Allocation

Source of raw material, water consumption, 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 2023 total waste generation.

Cut-Off Criteria

1% cut-off is applied in LCA. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

LCA Information

LCA Modelling, Calculation And Data Quality

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR. There are no co-product allocations within the LCA study underlying this EPD. The regional energy datasets were used for all energy calculations. For LCA modelling and calculation, ecoinvent database (v3.10) and SimaPro (v9.6) LCA software were used. Characterization factors of EF 3.1 are utilized. The impact of infrastructure and capital goods are excluded from the analysis. The use of specific data is less than 1%.

Source of Electricity (Manufacturing)

Aksa supplies 24% of its electricity needs from solar energy, while the remaining energy comes from the grid. The grid electricity data modelled for the production processes is taken from Ecoinvent 3.10 dataset that represents medium voltage electricity production in Türkiye with the reference year, 2021. The chosen dataset has GWP-GHG impact of 0.575 kg CO2 eq. / kWh. The dataset consist the following production percentages for electricity. Coal, 37%, Hydro, 33%, Natural gas, 17 %, Wind, 8%, Geothermal, 3%, Biogas, 1%, Other, 1%, Biomass, <1%

Energy Consumption During Use Phase

The energy consumption for AC3000 during the use phase of the generator is calculated based on its expected lifetime, annual operating hours, and fuel consumption rate at the specified load.

Assumed parameters:

- **Lifetime: 40 years**
- **Annual operating hours: 200 hours**
- **Load condition: 75% Prime Load**
- **Fuel consumption rate at 75% load: 406 liters per hour**
- **Fuel Type: Diesel**

The total energy consumption over the generator's lifetime is determined using the following formula:

Total Energy Consumption = Fuel Consumption Rate × Annual Operating Hours × Lifetime

This results in a total fuel consumption of **3,248,000** liters over the generator's lifetime. The energy content of the consumed fuel can be further calculated based on its lower heating value (LHV), if needed, for a complete environmental impact assessment.

System Boundary

The system boundary of the product life cycle defines the processes considered in the assessment, determining what is included or excluded. This PCR and the resulting EPDs follow a **cradle-to-grave** approach, meaning all relevant life cycle stages must be accounted for. These include raw material extraction and component production, manufacturing, transportation, installation, product use, calibration, maintenance, and repairs. Additionally, the de-installation phase, along with waste management processes such as recycling, material and energy recovery, and final disposal, are incorporated. This comprehensive scope ensures a thorough evaluation of the product's environmental impact from its inception to end-of-life.

Life-cycle stages	Processes	Modules Declared
Manufacturing (Module A1-A3)	Material and components supply	X
	Transport	X
	Manufacturing including all assembly and testing	X
Distribution (Module A4)	Transport from gate to site/point of sale	X
Installation (Module A5)	Installation at point of use	X
Use (Module B1-B7)	Use	X
	Maintenance	X
	Repair (optional)	ND
	Reuse (optional)	ND
	Refurbishment (optional	ND
	Operational energy use	X
	Operational water use	X
De-installation (Module C1-C4)	De-installation from point of use	X
End of life (Module C1-C4)	Transport	X
	Waste processing	X
	Disposal	X

Material and Components Supply

The stage covers the entire raw material suplly, from raw material extraction and pre-treatment to component manufacturing and final assembly. It includes both locally sourced and globally transported materials. The analysis accounts for the production of intermediate materials, auxiliary products, and electronic components.

Transport

Raw material transport from supplier to manufacturer is considered in raw material supply stage. The distances and routes are calculated accordingly. Depending the manufacturer, locally supplied materials are transported via trucks and other supplies come through seaway.

System Boundary

Manufacturing

The manufacturing of a diesel generator consists of several key stages. The process begins with raw material processing, where components such as the engine block, alternator, and frame are fabricated from steel sheets and other materials. These components undergo machining and assembly, involving cutting, welding, and fastening to form the generator's core structure. Next, the wiring and electrical system installation integrates the alternator, control panel, and safety features. The generator then goes through the painting and surface treatment stage, where protective coatings are applied to enhance resistance to environmental conditions. In the final assembly stage, auxiliary systems such as fuel lines, cooling mechanisms, and exhaust components are installed. The completed unit undergoes quality control and testing, including performance checks, load tests, and safety inspections to ensure compliance with industry standards.

Throughout the production process, electricity and natural gas are used for machinery operation, heating, and other manufacturing processes. Ecoinvent Türkiye energy mix was used for the electricity mix used in production.

Distribution

Product transport from manufacturer to customer is considered in product in this stage. Average distance and transportation mode are assumed according to sales locations. Depending the customer location, product is transported via trucks, and other supplies come through seaway.

Installation

The installation of the diesel generator involves its transfer from the transport vehicle to the designated operating location using a crane. This process requires one hour of crane operation, ensuring precise placement and positioning. During installation, 6 liters of diesel fuel consumption is accounted for, primarily for crane operation and any necessary adjustments. Additionally, disposal of packaging is taken into account at this stage. The end-of-life scenario of the package was modelled according to EU statistics. It is assumed that packaging plastics (PS) go to landfill.

Use

The use phase of the diesel generator includes its fuel consumption and maintenance activities throughout its operational lifetime. The generator operates on diesel fuel, with consumption depending on load conditions and usage duration. Regular maintenance, including oil changes, filter replacements, and inspections, is considered within the system boundaries to ensure proper functionality and longevity. The assumptions and fuel consumption formula are provided under the Energy Consumption During Use Phase section.

End of life

The end-of-life phase includes the de-installation and disposal of the diesel generator in accordance with manufacturer guidelines, regulations, and standards. The generator is assumed to be transported 100 km by a 32 tonne lorry from the de-installation site to disposal or recycling facilities. At this stage, the generator is manually disassembled to separate materials such as steel sheets, electronic components, and plastics. Since this process is typically manual, no significant environmental impact is assumed.

It is estimated that 95% of metals and 29% of plastic components are recycled, while the remaining materials are sent to landfill or incineration.

Content Declaration

The content declaration provides a breakdown of all components within the product, detailing their respective weights. Due to insufficient data on material-specific recycling rates, the post-consumer recycled content is assumed to be zero. The assessment relies on existing Ecoinvent datasets, ensuring consistency in life cycle modeling. Fuel is excluded from this content declaration.

Since the product may have different configurations, the provided table represents the reference product and should be considered as a baseline for material composition.

Material	Amount, kg	Amount, &	Post Consumer Recycled Content, %	Biogenic material, %
Steel sheet	8549	52%	%0	%0
Alternator	6017	37%	%0	%0
Electronic Parts	1369	8%	%0	%0
Auxiliary Materials	227	1%	%0	%0
Chemicals	120	1%	%0	%0
Insulation Materials	89	1%	%0	%0
Others	71	<1%	%0	%0
Sum	**16300**	**%100**	%0	%0

The covered products do not contain any Substances of Very High Concern (SVHCs) from the Candidate List published by the European Chemicals Agency (ECHA) in concentrations exceeding 0.1% (w/w).

Packaging Composition

Material	Amount, kg	Amount, %	Post Consumer Recycled Content, %	Biogenic material, %
PS Edge	0.22	<0.001%	%0	%0
Sum	**0.22**	**<0.001%**	**%0**	**%0**

Environmental Performance Indicators

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR. There are no co-product allocations within the LCA study underlying this EPD. The regional energy datasets were used for all energy calculations. For LCA modelling and calculation, ecoinvent database (v3.9.1) and SimaPro (v9.5) 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.

It is discouraging the use of the results of modules Manufacturing (Module A1-A3) without considering the results of end of life module. 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.

Core Environmental Impacts

Impact Category	Unit	Manufacturing	Distrubition	Installation	Use	De-installation	EoL	Total
GWP - Total	kg CO2 eq.	2.39E+01	5.84E-01	7.20E-03	4.06E+03	7.20E-03	9.91E-02	4.08E+03
GWP - Fossil	kg CO2 eq.	2.38E+01	5.84E-01	7.19E-03	4.05E+03	7.19E-03	9.85E-02	4.08E+03
GWP - Biogenic	kg CO2 eq.	2.97E-02	8.96E-05	6.40E-07	4.03E+00	6.40E-07	5.02E-04	4.06E+00
GWP - Luluc	kg CO2 eq.	3.27E-02	2.88E-04	6.25E-07	9.89E-01	6.25E-07	5.22E-05	1.02E+00
ODP	kg CFC-11 eq.	3.23E-07	8.90E-09	1.10E-10	6.08E-05	1.10E-10	1.62E-09	6.12E-05
AP	mol H+ eq.	3.00E-01	1.46E-02	6.49E-05	4.86E+01	6.49E-05	3.01E-04	4.89E+01
EP - Freshwater	kg P eq.	2.32E-03	2.62E-06	2.53E-08	2.54E-02	2.53E-08	1.60E-06	2.78E-02
EP - Marine	kg N eq.	2.93E-02	3.63E-03	3.01E-05	2.17E+01	3.01E-05	6.38E-05	2.17E+01
EP - Terrestrial	mol N eq.	3.58E-01	4.04E-02	3.30E-04	2.37E+02	3.30E-04	7.14E-04	2.38E+02
POCP	kg NMVOC	1.14E-01	1.11E-02	9.83E-05	6.67E+01	9.83E-05	3.34E-04	6.68E+01
*ADPE	kg Sb eq.	3.79E-03	7.77E-07	2.57E-09	1.42E-02	2.57E-09	3.91E-07	1.80E-02
*ADPF	MJ	1.64E+02	3.81E-01	3.81E-03	3.34E+03	3.81E-03	2.64E-01	3.50E+03
*WDP	m3 depriv.	9.21E+00	1.93E-02	2.04E-04	1.30E+02	2.04E-04	1.91E-02	1.39E+02

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. EPmarine: Eutrophication marine. EP-terrestrial: Eutrophication terrestrial. POCP: Photochemical oxidation. ADPE: Abiotic depletion - elements. ADPF: Abiotic depletion - fossil resources. WDP: Water scarcity.

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.

Results per functional or declared unit

Indicator	Unit	Manufacturing	Distrubition	Installation	Use	De-installation	EoL	Total
GWP-GHG[1]	kg CO2 eq.	2.39E+01	5.85E-01	7.21E-03	4.06E+03	7.21E-03	9.92E-02	4.09E+03

[1]The GWP-GHG indicator accounts for all greenhouse gases included in GWP-total, except for biogenic carbon dioxide uptake, biogenic CO_2 emissions, and biogenic carbon stored in the product.

Environmental Performance Indicators

Additional Environmental Impacts

Impact Category	Unit	Manufacturing	Distrubition	Installation	Use	De-installation	EoL	Total
PM	disease inc.	2.05E-06	2.13E-08	1.84E-09	9.35E-05	1.84E-09	7.13E-09	9.56E-05
**IR	kBq U-235 eq.	5.05E-01	1.67E-03	1.64E-05	1.09E+01	1.64E-05	1.47E-03	1.14E+01
*HTP - C	CTUh	1.09E-06	2.72E-09	2.81E-11	1.02E-05	2.81E-11	5.50E-10	1.13E-05
*HTP - NC	CTUh	2.39E-06	2.28E-09	1.16E-11	1.40E-05	1.16E-11	1.09E-09	1.64E-05

Resource Use Indicators

Impact Category	Unit	Manufacturing	Distrubition	Installation	Use	De-installation	EoL	Total
PERE	MJ	3.41E+01	6.73E-02	5.78E-04	5.80E+02	5.78E-04	6.31E-02	6.14E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.41E+01	6.73E-02	5.78E-04	5.80E+02	5.78E-04	6.31E-02	6.14E+02
PENRE	MJ	1.62E+02	3.81E-01	6.65E-03	3.34E+03	3.81E-03	1.95E+00	3.50E+03
PENRM	MJ	1.69E+00	0.00E+00	-2.84E-03	0.00E+00	0.00E+00	-1.69E+00	0.00E+00
PENRT	MJ	1.64E+02	3.81E-01	3.81E-03	3.34E+03	3.81E-03	2.64E-01	3.50E+03
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	2.69E-01	6.24E-04	6.42E-06	5.19E+00	6.42E-06	8.71E-04	5.46E+00

PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM: Use of renewable primary energy resources used as raw materials; PERT: Total use of renewable primary energy resources; PENRE: Use of non-renewable primary energy excluding non-renewable primary energy 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 re-sources; SM: Use of secondary material; RSF: Use of renewable secondary fuels; NRSF: Use of non-renewable secondary fuels; FW: Use of net fresh water

Waste&Output Indicators

Impact Category	Unit	Manufacturing	Distrubition	Installation	Use	De-installation	EoL	Total
HWD	kg	4.17E+01	1.16E-04	8.58E-07	1.37E+01	8.58E-07	4.54E-04	1.37E+01
NHWD	kg	2.49E+03	7.22E-02	5.76E-05	6.00E+01	5.76E-05	3.71E-01	6.25E+01
RWD	kg	3.32E-04	1.09E-06	1.03E-08	6.94E-03	1.03E-08	9.65E-07	7.28E-03
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.49E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.60E+03	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE (Electrical)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE (Thermal)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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.

References

Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

GPI / General Programme Instructions of the International EPD® System. Version 4.0.

GPI / General Programme Instructions of the International EPD® System. Version 5.0.

ISO 14020:2000/ Environmental Labels and Declarations — General principles

ISO 14040/44 / DIN EN ISO 14040: 2006-10 / Environmental management - Life cycle assessment

- Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

ISO 14025 / DIN EN ISO 14025:2009-11 / Environmental labels and declarations - Type III environmental declarations - Principles and procedures

PCR / Electronic And Electric Equipment, And Electronic Components (Nonconstruction) PCR 2024:06, Version 1.0.1, 2024-12-09

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