SMART EPD
ENVIRONMENTAL PRODUCT DECLARATION

Environmental Product Declaration

IN ACCORDANCE WITH ISO 14025:2006, EN 50693 AND EN 15804:2012+A2:2019/AC:2021

Program Operator: Smart EPD®
www.smartepd.com





WATTS®

SmartEPD-2026-134-1135-01

Wireless Digital Thermostat

Date of Issue	Expiration date	Last updated
Nov 06, 2026	Nov 06, 2031	Nov 06, 2026

Refer to the EPD Library at www.smartepd.com for the latest EPD listing information

General Information



Watts

1590 avenue d'Orange CS 10101 Sorgues 84275 VEDENE cedex France

+33 (0)4 90 33 28 28

contact@wattswater.com

watts.com

Product Name:	Wireless Digital Thermostat
Functional Unit:	Measure and control the ambient temperature(s) set by the user in a range of 'Ambient temperature between 0° and 40°C' in 5 zones, with a temperature step of '0.1°C' and characterised by a closed contact current 10 A, according to the appropriate use scenario, and for the reference service life of the product of 10 years.
Declaration Number:	SmartEPD-2026-134-1135-01
Date of Issue:	November 06, 2026
Expiration:	November 06, 2031
Last updated:	November 06, 2026
EPD Scope:	Cradle to grave A1 - A3, A4, A5, B1 - B7, C1 - C4, D
Market(s) of Applicability:	Europe

General Organization Information

Watts Water Technologies, Inc. (Watts) is a global leader of quality water solutions for residential, industrial, municipal, and commercial settings. Watts' family of brands offers one of the most varied product lines in the world, with world-class, water-related solutions focused on Drainage, HVAC and Hot Water, Plumbing & Flow Control and Water Quality & Rainwater Harvesting.

Further information can be found at: https://www.watts.com/

Limitations, Liability and Ownership

EPDs of construction products may not be comparable if they do not comply with EN50693. Environmental declarations from different programs may not be comparable.

EN 50693:2019 provides product category rules for the life cycle assessment of electrical and electronic products and systems and includes provisions for alignment with EN 15804. This report has also been prepared in accordance with the applicable requirements of EN IEC 63366:2025, which supersedes EN 50693:2019.

Even where EPDs are developed under the same PCR, variations and deviations may occur. For example, the use of different LCA software, background LCI databases, data quality assumptions, allocation procedures, or end-of-life scenarios may lead to differences in reported results, particularly for upstream and downstream life cycle stages. The EPD owner has sole ownership, liability, and responsibility for the content of this EPD.

Reference Standards

Standard(s):	ISO 14025:2006, EN 50693 and EN 15804:2012+A2:2019/AC:2021
Core PCR:	PEP ecopassport® PROGRAM PCR Product Category Rules for Electrical, Electronic and HVAC-R Products (PCR-ed4-EN-2021 09 06) v4 Date of issue: September 06, 2021
Sub-category PCR:	PEP ecopassport® PROGRAM PSR Specific Rules for Electrical Switchgear and Control Gear Solutions(PSR-0005-ed3.1-EN-2023 12 08) v3.1 Date of issue: June 06, 2023 Valid until: June 06, 2028
Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.2.0, March 2025

Verification Information

LCA Author/Creator:	Trenor Philbin TrueNorth Collective matt.neiman@truenorthcollective.net
EPD Program Operator:	Smart EPD info@smartepd.com www.smartepd.com 585 Grove St., Ste. 145, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External Mari Kirss | mari.kirss@meetripuu.ee Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External Mari Kirss | mari.kirss@meetripuu.ee

Product Information

Functional Unit:	Measure and control the ambient temperature(s) set by the user in a range of 'Ambient temperature between 0° and 40°C' in 5 zones, with a temperature step of '0.1°C' and characterised by a closed contact current 10 A, according to the appropriate use scenario, and for the reference service life of the product of 10 years.
Mass:	0.135 kg
Reference Service Life:	10 Years
Product Specificity:	✓ Product Average ✗ Product Specific ✓ Representative Product EPD

Product Description

Battery powered thermostat with a digital display measuring the room temperature and communicating temperature change to a receiver to control heating and cooling equipment.

Further information can be found at: https://www.watts.eu/en/products/eu/smart-home-and-controls/vision-wireless

Product Specifications

Product SKU(s):	WAT BT-D03 RF868 WHITE W is a battery powered thermostat with a digital display measuring the room temperature and communicating temperature change to a receiver to control heating and cooling equipment. This product was selected as the representative unit as it is the top-selling variant. EPD results are reported for 1 declared unit of WAT BT-D03 RF868 WHITE W. Other products in Watt's wireless digital thermostat line, as described above, are also covered by this EPD. The products covered include but are not limited to the following products: WAT BT-DP03 RELAY WAT BT-D03 RF868 RH WHITE W WAT BT-DP03 RF868 WAT BT-DP03 HC RF RH
Product Classification Codes:	UNSPSC - 41112209
Product Family:	thermostats

Product Composition Diagram



Table 1. Material Composition

Material/Component Category	Origin	% Mass
Electrical Components	None	14-19%

Material/Component Category	Origin	% Mass
Housing	None	45-51%
Battery	None	12-16%
LCD	None	12-14%
Other	None	7-8%

Packaging Material	Origin	kg Mass
LDPE	None	0.045
PET	None	0.000001
Cardboard and Paper	None	0.0223

Biogenic Carbon Content	kg C per unit
Biogenic carbon content in product	None
Biogenic carbon content in accompanying packaging	0.00924

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.

EPD Data Specificity

Primary Data Year: 2024

Manufacturing Specificity:

- ✗ Industry Average
- ✗ Manufacturer Average
- ✓ Facility Specific

Averaging:
WAT BT-D03 RF868 WHITE W was selected as the representative product based on its status as the top-selling SKU. Impact results were calculated for all other products covered by this EPD, and variability was assessed. For most impact categories, including GWP, variation was low.

Table 2. System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓

Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	✓
	B2	Maintenance	✓
	B3	Repair	✓
	B4	Replacement	✓
	B5	Refurbishment	✓
	B6	Operational Energy Use	✓
	B7	Operational Water Use	✓
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	✓

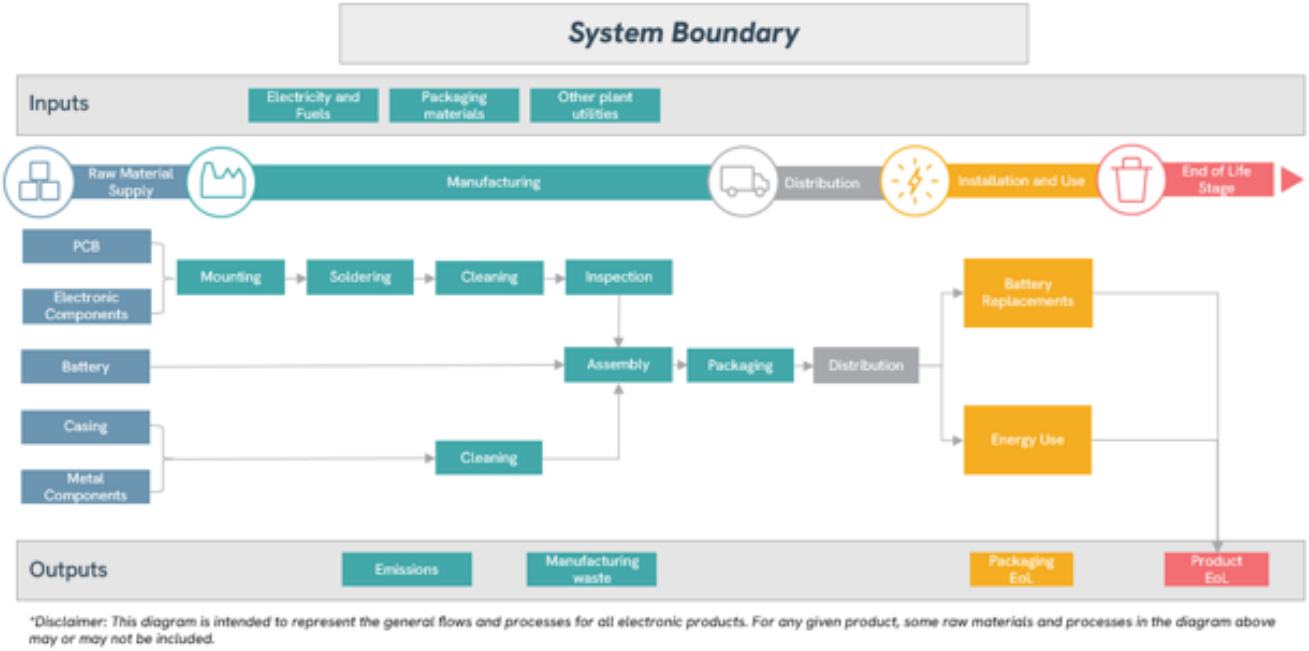
Note:

ND = Module not declared

Plants

Watts Industries Tunisia Watts Electronics, Monastir, Tunisia

Product Flow Diagram



*Disclaimer: This diagram is intended to represent the general flows and processes for all electronic products. For any given product, some raw materials and processes in the diagram above may or may not be included.

The main components - casing, electrical components, and fasteners - are purchased from suppliers and transported to the manufacturing facility. At the plant, these components are assembled to produce wireless digital thermostats.

The finished product is secured with plastic, cardboard, and paper packaging.

Because product weights vary the packaging per declared unit will vary.

Software And Database

LCA Software:	SimaPro v. 10.2		
LCI Foreground Database(s):	Ecoinvent v. 3.11	RER	Cut-Off, EN15804
LCI Background Database(s):	Ecoinvent v. 3.11	RER	Cut-Off, EN15804

A foreground LCI database is the database used to model the primary, site-specific data collected for this EPD. A background LCI database is the database used to model generic or non-specific data.

Data Quality

The LCI model is based on primary data from the Watts's facility in Tunisia for the 2024 production year. These data reflect the current technology, location, and operating conditions of the plant. The inventory is considered complete, as all relevant material, energy, and transport flows within the defined system boundaries have been included.

Data quality scores were assigned to both foreground data (activity data) and background datasets. Foreground data quality is generally high. Electricity data are metered and externally verified, and distribution data are based on actual sales and transport records. Bill-of-material data include minor adjustments to align with product weights and are therefore treated as calculated values. End-of-life assumptions follow the PCR.

Background data quality is also considered good. Most datasets are recent (less than three years old) and sourced from ecoinvent. Appropriate regional datasets were selected to reflect geographic conditions. Technological representativeness is high overall.

The PCR requires the EPD to report the GWP of the A3 electricity mix. The Tunisia plant electricity was modeled with the ecoinvent dataset “Electricity, medium voltage {TN}| market for electricity, medium voltage” which has a GWP of 0.691 kg CO_2e/kWh.

Life Cycle Module Description

Information Module A1 covers the supply of all raw materials for product manufacturing, including additional material to account for production scrap.

Information Module A2 covers the transport of raw materials, based on known supplier distances.

Information Module A3 includes manufacturing processes at the Tunisia facility, including assembly and manufacturing of wireless digital thermostat products.

Information Module A4 covers transport to the installation site, based on known sales regions.

Information Module A5 includes disposal of packaging waste. No installation waste is considered.

Information Modules B1 - B7 (Use Phase) are included in this assessment with battery replacement impact (B2) for the product. All other information modules in the use phase (B1 and B3-B7) are reported as zero.

Information Module C1 is included in this assessment. No additional processes or inputs are required during these modules; therefore, the reported results are zero.

Information Module C2 covers transport to the end-of-life treatment facility, assuming a distance of 1000 km based on the PSR.

Information Modules C3 and C4 include waste processing and disposal. The PSR does list assumptions for the end of life treatment for packaging materials at installation. Considering no available information on the end of life treatment for the product components, the same assumptions for packaging materials are used for product materials of the same type (plastic, paper, metal, other). Electronics components follow the conservative waste scenarios of the PSR.

Information Module D, covering potential burdens and benefits beyond the system boundary, includes the effects of recycled content in the packaging materials, and energy recovery from the incineration of packaging materials.

LCA Discussion

Allocation Procedure

Allocation is based on mass and applied across all semifinished and finished goods produced at the plant.

Cut-off Procedure

No known mass or energy flows are excluded from the system boundary.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:	✕ No

Scenarios

Transport to the building/construction site (A4)

A4 Module

Vehicle Type:	freight, lorry; freight, sea, container ship
Transport Distance:	2.00E+04 km
Packaging Mass:	6.73E-02 kg
Assumptions for scenario development:	An assumed distance is used for transportation of 19,000 km by ocean and 1,000 km by truck based on the international PSR requirements.

Installation in to the building/construction site (A5)

A5 Module

Mass of Packaging Waste Specified by Type:	6.73E-02 kg
Assumptions for scenario development:	Packaging materials include injection molded polyethylene plugs and end-caps, LDPE film and PET straps. Recycling, incineration and landfilling rates are determined in accordance with Section 3.1.5.2.1 of the PEP PSR0005 methodology.
PE Recycled:	1.80E-02 kg
PE Incinerated:	1.67E-02 kg
PE Landfilled:	1.04E-02 kg
PET Recycled:	4.00E-07 kg
PET Incinerated:	3.70E-07 kg
PET Landfilled:	2.30E-07 kg
Paper/Cardboard Recycled:	1.83E-02 kg
Paper/Cardboard Incinerated:	2.01E-03 kg
Paper/Cardboard Landfilled:	2.01E-03 kg

Use (B1)

B1 Module

Use Conditions:

Product reference service life is assumed to be met without requiring additional materials in use. Additionally, the product does not generate direct emissions to air, soil, or water during normal operation. On this basis, module B1 is declared zero.

Maintenance (B2)

B2 Module

Maintenance Cycle:	4 Cycles/RSL
Maintenance Process Information:	Electronics products modeled in this study that contain batteries require replacement over the reference service life. The impacts associated with battery materials, transport, and waste are modeled with the same assumptions of raw material supply, distribution and waste treatment. In accordance with the PSR, the associated impacts are included in the B2 module. Product spec sheets indicate a battery replacement period of 2 years. The total weight of batteries used in maintenance is calculated as the weight of batteries in the initial product times the number of replacements. For the wireless digital thermostats included in this study the weight of batteries are 0.022 kg per product

Repair (B3)

B3 Module

Repair Process Information:	Product reference service life is assumed to be met without requiring repair. On this basis, module B3 is declared zero.

Replacement (B4)

B4 Module

Further assumptions for scenario development:	No replacements are included, since product lifetime is assumed to match the reference service life of 10 years.

Refurbishment (B5)

B5 Module

Refurbishment Process Description:	Product reference service life is assumed to be met without requiring refurbishment. On this basis, module B5 is declared zero.

Operational Energy Use (B6) & Operational Water Use (B7)

B6 & B7 Modules

Characteristic Performance:
The product does not require any water to fulfill the functional unit. The energy required of this product is sourced from batteries and no additional energy is required for the products function.
Further assumptions for scenario development:
Considering no energy or water is required for the operation of this product the operational water use module (B7) and the operational energy use module (B6) are declared as 0.

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected with Mixed Construction Waste:	1.35E-01 kg

Recovery

Recycling:	7.41E-02 kg
Landfill:	2.59E-02 kg
Incineration:	2.18E-02 kg
Incineration with Energy Recovery:	1.34E-02 kg

Assumptions for scenario development:
There is no default scenario assumption for the products. The PSR does list assumptions for the end of life treatment for packaging materials at installation. Considering no available information on the end of life treatment for the product components, the same assumptions for packaging materials are used for product materials of the same type. The material fractions are sent to each waste treatment pathway determined by material type (plastic, paper, metal, other). A transport distance of 100 km by truck to treatment facility is assumed.

Reuse, Recovery and / or Recycling Potentials & Relevant Scenario Information (D)

D Module

Recycling Rate of Product:	54.8 %
Net Energy Benefit from Energy Recovery from Waste Treatment Declared as Export Energy in C3:	0.629 MJ
Process and Conversion Efficiencies:	Ecoinvent incineration datasets used in the model assume the following energy recovery efficiencies: Gross thermal efficiency= 28.51% Gross electric efficiency= 15.84% Lower heating values used in the model are: Plastic: 32.71 MJ Metal: 0 MJ Paper: 16.94 MJ Electronics: 0 MJ Other: 16.55 MJ
Further assumptions for scenario development:	Materials for recycling are grouped by material type, metal, paper, plastic, and other. These materials are assumed to replace the equivalent primary raw material in another product system.

Results

Table 3. Environmental Impact Assessment Results

EF 3.1

Measure and control the ambient temperature(s) set by the user in a range of 'Ambient temperature between 0° and 40°C' in 5 zones, with a temperature step of '0.1°C' and characterised by a closed contact current 10 A, according to the appropriate use scenario, and for the reference service life of the product of 10 years.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Unit	Method	A1	A2	A3	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	EF 3.1	4.35e+0	5.77e-1	6.11e-1	5.54e+0	5.82e-2	5.81e-2	0	1.05e+0	0	0	0	0	0	0	2.09e-2	2.45e-1	7.57e-3	-1.47e-1	6.83e+0
GWP-fossil	kg CO2 eq	EF 3.1	4.35e+0	5.77e-1	6.14e-1	5.54e+0	5.82e-2	5.45e-2	0	1.05e+0	0	0	0	0	0	0	2.09e-2	2.37e-1	7.56e-3	-1.69e-1	6.80e+0
GWP-biogenic	kg CO2 eq	EF 3.1	5.24e-3	3.81e-5	2.95e-3	8.23e-3	8.52e-6	2.76e-4	0	1.16e-3	0	0	0	0	0	0	3.41e-6	2.28e-5	1.24e-6	4.60e-3	1.43e-2
GWP-luluc	kg CO2 eq	EF 3.1	5.60e-3	4.76e-5	1.08e-3	6.73e-3	2.66e-5	6.11e-6	0	1.21e-3	0	0	0	0	0	0	7.82e-6	1.65e-5	1.52e-6	-1.81e-5	7.98e-3
ODP	kg CFC 11 eq	EF 3.1	1.91e-7	8.91e-9	1.51e-8	2.15e-7	9.11e-10	2.09e-10	0	1.91e-8	0	0	0	0	0	0	3.61e-10	3.37e-10	3.73e-11	-2.39e-7	-3.04e-9
AP	mol H+ eq	EF 3.1	3.51e-2	2.72e-3	2.14e-3	4.00e-2	1.06e-3	6.36e-5	0	7.60e-3	0	0	0	0	0	0	9.44e-5	1.44e-4	1.32e-5	-1.56e-3	4.74e-2
EP-freshwater	kg P eq	EF 3.1	4.47e-3	9.68e-6	6.12e-5	4.54e-3	2.96e-6	1.37e-6	0	3.41e-4	0	0	0	0	0	0	1.56e-6	4.76e-6	3.63e-7	-1.50e-4	4.74e-3
EP-marine	kg N eq	EF 3.1	6.62e-3	1.04e-3	7.47e-4	8.40e-3	2.80e-4	4.95e-5	0	1.06e-3	0	0	0	0	0	0	3.62e-5	5.26e-5	2.49e-5	-1.73e-4	9.73e-3
EP-terrestrial	mol N eq	EF 3.1	6.19e-2	1.14e-2	7.68e-3	8.10e-2	3.10e-3	2.65e-4	0	1.01e-2	0	0	0	0	0	0	3.95e-4	4.65e-4	2.75e-5	-2.29e-3	9.31e-2
POCP	kg NMVOC eq	EF 3.1	1.81e-2	3.62e-3	3.02e-3	2.48e-2	8.79e-4	8.79e-5	0	3.62e-3	0	0	0	0	0	0	1.39e-4	1.48e-4	1.22e-5	-8.77e-4	2.88e-2
ADP-minerals&metals	kg Sb eq	EF 3.1	9.02e-4	1.87e-7	1.41e-6	9.03e-4	1.12e-7	4.95e-8	0	5.99e-6	0	0	0	0	0	0	6.50e-8	1.54e-7	1.79e-8	-6.76e-5	8.42e-4
ADP-fossil	MJ	EF 3.1	5.71e+1	7.65e+0	1.08e+1	7.56e+1	7.65e-1	1.72e-1	0	1.29e+1	0	0	0	0	0	0	2.98e-1	2.92e-1	3.67e-2	-3.57e+0	8.65e+1

Impact Category	Unit	Method	A1	A2	A3	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Total
WDP	m3 world eq deprived	EF 3.1	1.50e+0	1.60e-2	1.23e-1	1.64e+0	3.35e-3	1.23e-3	0	2.68e-1	0	0	0	0	0	0	1.74e-3	1.47e-2	-1.47e-3	4.07e+0	6.00e+0
PM	disease incidence	EF 3.1	2.50e-7	7.47e-9	9.74e-9	2.68e-7	3.47e-9	1.17e-9	0	8.92e-8	0	0	0	0	0	0	2.02e-9	1.11e-9	9.62e-11	-8.90e-9	3.56e-7
IRP	kBq U235 eq	EF 3.1	4.61e-1	2.49e-3	2.64e-2	4.89e-1	5.86e-4	2.99e-4	0	6.35e-2	0	0	0	0	0	0	3.26e-4	1.08e-3	1.02e-4	-2.04e-2	5.34e-1
ETP-fw	CTUe	EF 3.1	8.52e+1	5.72e-1	1.33e+0	8.71e+1	1.64e-1	1.81e-1	0	8.63e+0	0	0	0	0	0	0	7.78e-2	1.46e+0	4.89e-2	-2.56e+0	9.51e+1
HTP-c	CTUh	EF 3.1	1.81e-8	6.74e-10	1.28e-9	2.00e-8	2.90e-10	1.17e-10	0	8.19e-9	0	0	0	0	0	0	1.24e-10	2.59e-10	3.12e-11	-1.03e-9	2.80e-8
HTP-nc	CTUh	EF 3.1	3.47e-7	5.78e-9	4.74e-9	3.58e-7	3.64e-10	2.87e-10	0	8.93e-9	0	0	0	0	0	0	2.11e-10	2.86e-9	1.85e-10	-1.06e-8	3.60e-7
SQP	-	EF 3.1	2.03e+1	7.07e-1	1.93e+0	2.29e+1	3.09e-1	1.40e-1	0	2.52e+0	0	0	0	0	0	0	2.23e-1	1.34e-1	1.72e-2	-2.03e+0	2.42e+1

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Table 4. Resource Use Indicator

Measure and control the ambient temperature(s) set by the user in a range of 'Ambient temperature between 0° and 40°C' in 5 zones, with a temperature step of '0.1°C' and characterised by a closed contact current 10 A, according to the appropriate use scenario, and for the reference service life of the product of 10 years.

Indicator	Unit	A1	A2	A3	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Total
PERE	MJ, net calorific value	6.30e+0	3.17e-2	1.81e-1	6.52e+0	8.64e-3	4.30e-3	0	9.75e-1	0	0	0	0	0	0	4.59e-3	2.00e-2	2.35e-3	-5.08e-1	7.03e+0
PERM	MJ, net calorific value	0	0	2.86e-1	2.86e-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.86e-1
PERT	MJ, net calorific value	6.30e+0	3.17e-2	4.67e-1	6.80e+0	8.64e-3	4.30e-3	0	9.75e-1	0	0	0	0	0	0	4.59e-3	2.00e-2	2.35e-3	-5.08e-1	7.31e+0
PENRE	MJ, net calorific value	5.51e+1	7.65e+0	8.62e+0	7.14e+1	7.65e-1	1.72e-1	0	1.29e+1	0	0	0	0	0	0	2.98e-1	2.92e-1	3.67e-2	-3.57e+0	8.23e+1
PENRM	MJ, net calorific value	2.01e+0	0	2.20e+0	4.21e+0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.21e+0
PENRT	MJ, net calorific value	5.71e+1	7.65e+0	1.08e+1	7.56e+1	7.65e-1	1.72e-1	0	1.29e+1	0	0	0	0	0	0	2.98e-1	2.92e-1	3.67e-2	-3.57e+0	8.65e+1
SM	kg	2.70e-2	8.37e-4	2.33e-2	5.11e-2	3.54e-4	1.45e-4	0	3.60e-3	0	0	0	0	0	0	1.34e-4	1.47e-4	5.79e-6	5.28e-2	1.08e-1
RSF	MJ, net calorific value	1.56e-3	4.99e-6	2.75e-3	4.32e-3	2.49e-6	1.61e-6	0	3.98e-4	0	0	0	0	0	0	1.67e-6	1.40e-5	2.26e-6	3.27e-4	5.07e-3
NRSF	MJ, net calorific value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00e+0
FW	m3	3.80e-2	3.87e-4	2.96e-3	4.14e-2	8.20e-5	3.06e-5	0	6.75e-3	0	0	0	0	0	0	4.26e-5	3.57e-4	-3.20e-5	9.47e-2	1.43e-1

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRT or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Table 5. Waste and Output Flow Indicators

Measure and control the ambient temperature(s) set by the user in a range of 'Ambient temperature between 0° and 40°C' in 5 zones, with a temperature step of '0.1°C' and characterised by a closed contact current 10 A, according to the appropriate use scenario, and for the reference service life of the product of 10 years.

Indicator	Unit	A1	A2	A3	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Total
HWD	kg	4.35e-1	3.55e-3	1.06e-2	4.49e-1	1.12e-3	1.17e-3	0	1.12e-1	0	0	0	0	0	0	4.78e-4	4.78e-2	8.34e-3	-1.47e-2	6.05e-1
NHWD	kg	2.00e+1	7.21e-2	3.42e+0	2.35e+1	1.89e-2	9.41e-2	0	1.72e+0	0	0	0	0	0	0	9.49e-3	1.28e-1	5.55e-2	-1.08e+0	2.44e+1
RWD	kg	1.14e-4	6.07e-7	6.72e-6	1.21e-4	1.44e-7	7.51e-8	0	1.56e-5	0	0	0	0	0	0	8.05e-8	2.66e-7	2.50e-8	-5.16e-6	1.32e-4
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00e+0
MFR	kg	4.13e-3	3.98e-5	2.86e-3	7.02e-3	4.97e-5	3.43e-2	0	1.62e-3	0	0	0	0	0	0	2.28e-6	2.53e-2	4.49e-7	-6.77e-4	6.76e-2
MER	kg	1.29e-5	8.92e-8	4.19e-7	1.34e-5	2.79e-8	1.66e-8	0	9.62e-7	0	0	0	0	0	0	1.65e-8	1.94e-8	1.22e-9	-1.13e-6	1.33e-5
EEE	MJ	4.38e-2	2.49e-4	4.11e-3	4.81e-2	6.48e-5	3.86e-5	0	6.11e-3	0	0	0	0	0	0	3.73e-5	2.55e-3	4.01e-6	-2.81e-3	5.41e-2
EET	MJ	2.03e-2	2.20e-4	2.64e-3	2.31e-2	1.13e-4	4.79e-5	0	3.46e-3	0	0	0	0	0	0	8.01e-5	5.58e-4	1.51e-6	-7.13e-4	2.66e-2

Note:

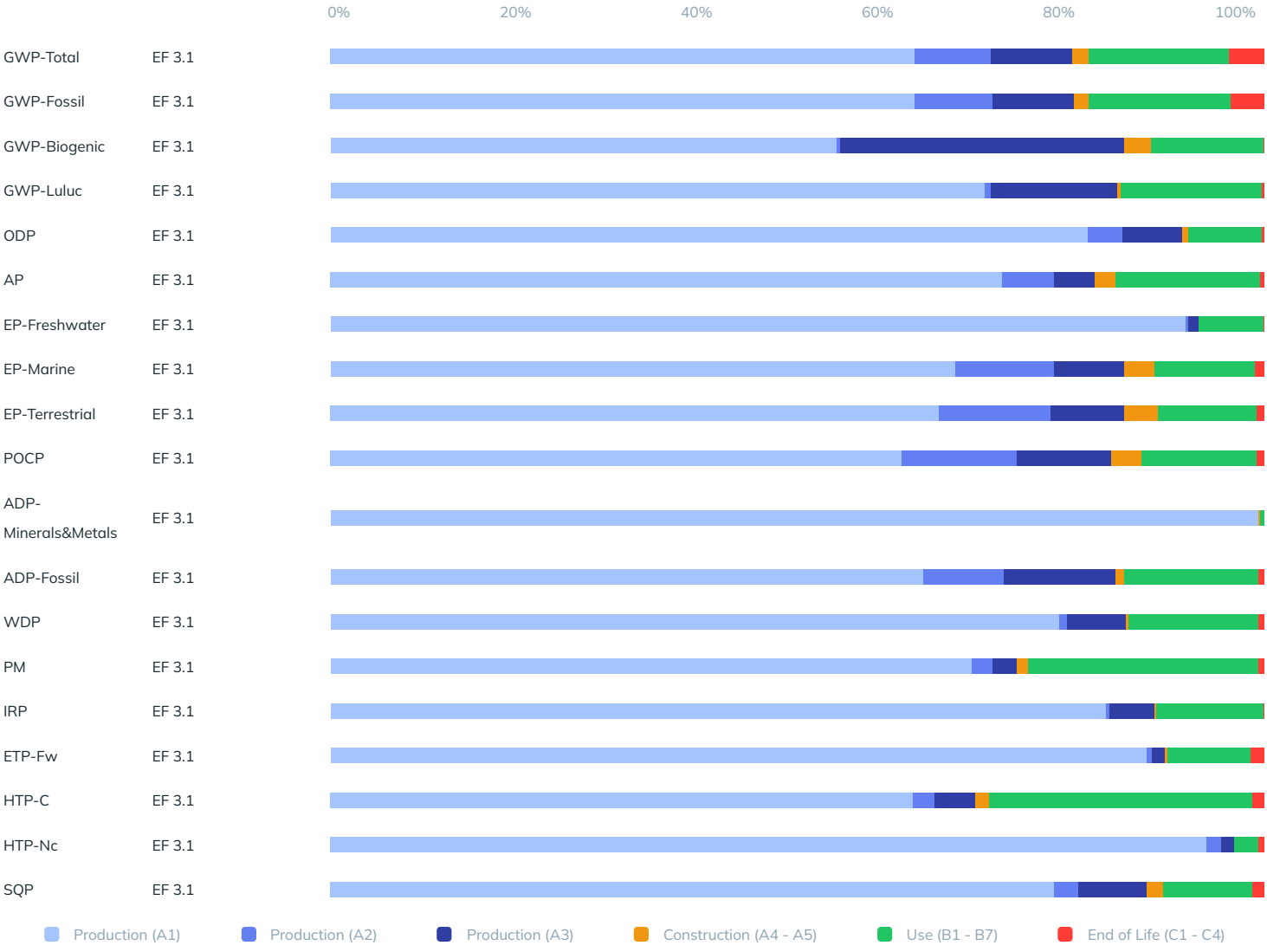
Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Interpretation

The majority of life cycle impacts arise from raw material extraction (A1) and maintenance due to replacement of batteries (B2). Module D indicates potential offsets of life cycle impacts through material and energy substitution.



References

EN15804. (2019). *EN15804:2012+A2:2019, Sustainability of Construction Works Environmental Product Declarations- Core Rules for the Product Category of Construction Products.*

EN 50693:2019.*Product category rules for life cycle assessments of electronic and electrical products and systems.*

International Electrotechnical Commission. (2025). Product category rules for life cycle assessment of electrical and electronic products and systems(IEC 63366:2025, Edition 1.0). IEC.

IPCC. (2021). *Climate Change 2021: The Physical Science Basis.* Retrieved from https://www.ipcc.ch/report/ar6/wg1/

ISO 14025. (2006). *ISO 14025:2006: Environmental labels and declarations — Type III environmental declarations — Principles and procedures.* International Organization for Standardization.
ISO 14044. (2006). *ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.* International organization for Standardization (ISO).
PEP Association. (2021). Product category rules for electrical, electronic and HVAC-R products(PCR-ed4-EN-2021 09 06, Edition 4). PEP ecopassport® Program.
PEP ecopassport Association.*PSR-0005-ed3.1-EN-2023 12 08, Product Specific Rules for Electrical Switchgear and Controlgear Solutions*, particularly Section 3.12, Unequipped enclosures and cabinets.
THE EUROPEAN COMMISSION. (2021). Commission Recommendation (EU) 2021/2279 of 15 December 2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations.