

Owner: Wygwam Denmark A/S
No.: MD-25001-EN
Issued: 12-03-2025
Valid to: 12-03-2030

3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Wygwam Denmark A/S
Stenager 5 DK-6400 Sønderborg,
Denmark
CVR: 35520112

**Programme**

EPD Danmark
www.epddanmark.dk



- ☐ Industry EPD
☒ Product EPD

Declared product(s)

The presented results are based on a product portfolio containing 49 similar products. To assess the environmental impact of the portfolio, a worst-case scenario is identified, based on careful consideration of product experts and LCA tools.

The declared products are listed below:

- Presence P46MR DALI-2 S BMS 12-13m FMB
- Presence P41LR 230V S 32-37m SM
- Presence P42LR 230V 2ch M 32-37m FM
- Presence P48LR DALI-2 M 32-37m FM
- Presence P48MR DALI-2 M 12-13m FM

It has not been possible to group the datasets within +/- 10% of the average. Therefore, the EPD is based on a 'reference worst case product' within the aforementioned product range.

Production site

Thailand

Use of Guarantees of Origin

- ☒ No certificates used
☐ Electricity covered by GoO
☐ Biogas covered by GoO

Declared/ functional unit

One unit of presence detector, weights vary from 76g-218g (depending on product)

Year of production site data (A3)

Calendar year 2023

EPD version

No 1.

Issued:
12-03-2025

Valid to:
12-03-2030

Basis of calculation

This EPD is developed and verified in accordance with the European standard EN 15804+A2.

This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- ☐ Cradle-to-gate with modules C1-C4 and D
☒ Cradle-to-gate with options, modules C1-C4 and D
☐ Cradle-to-grave and module D
☐ Cradle-to-gate
☐ Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ internal ☒ external

Third party verifier:



Stefan Emil Danielsson



Martha Katrine Sørensen
EPD Danmark

Life cycle stages and modules (ND = not declared)																
Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	ND	ND	ND	X	ND	X	X	X	X	X

Product information

Product description

Presence detectors are devices installed in buildings that allow efficient lighting system administration, monitoring, and setup. They enable automated modifications and scenario settings, which improve energy efficiency and user comfort.

The main product components are shown in the table below.

Products	353-6500 21	353-6514 21	353-7012 21	353-7020 21	353-7514 21
Total weight (g)	76.4	207.3	218	160	215.9
Material	Weight-% of declared product				
Electronics %	31.37	29.78	35.14	25.16	29.89
Plastics %	68.56	70.22	64.86	74.64	70.11
Total	100	100	100	100	100

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight of packaging material (kg)	Weight-% of packaging
Cardboard/Paper	0.060	95.06
Plastic	0.001	1.77
Wood	0.002	3.17
Total	0.0631	100

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of presence detectors on the production site located in Thailand. Product specific data are based on average values collected in the period 2023. Background data are based on Ecoinvent v.3.11 LCA database and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

The detectors portfolio is subject to the REACH Regulation.

Under Article 33, which addresses substances of very high concern (SVHC) in products —specifically those listed in the *Candidate List of Substances of Very High Concern for Authorisation* Wygwam has made available the list of SCIP notifications to ECHA.

(<http://echa.europa.eu/candidate-list-table>)

Product(s) use

Presence detectors are devices installed in buildings that allow efficient lighting system administration, monitoring, and setup. They enable automated modifications and scenario settings, which improve energy efficiency and user comfort.

Essential characteristics

Presence detectors are covered by harmonised technical specifications:

- CE: 93/68/EEC 22-07-1993
- RE: 2014/53/EU 16-04-2014
- RoHS: 2011/65/EU 08-06-2011

References to the relevant harmonized standards used or references to other technical specifications in relation to which conformity is declared:

- RE EMC:
 - EN IEC 60669-2-1: 2022
 - ETSI EN 301 489-17 V3.2.4
- RE safety:
 - EN IEC 60669-2-1: 2022
 - EN 62479: 2010
- RE spectrum: ETSI EN 300 328 V2.2.2
- RoHS: EN IEC 63000: 2018

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website: <https://www.niko.eu/nl-be/producten/detectoren>

Reference Service Life (RSL)

The reference service life is set to 10 years, which is an estimated average lifetime of product experts.

Picture of product(s)



Presence P46MR DALI-2 S BMS 12-13m
FMB

Product ID: 353-650021



Presence P41LR 230V S 32-37m SM

Product ID: 353-702021



Presence P42LR 230V 2ch M 32-37m FM

Product ID: 353-701221



Presence P48LR DALI-2 M 32-37m FM

Product ID: 353-751421



Presence P48MR DALI-2 M 12-13m FM

Product ID: 353-651421

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to one unit of presence detector, weights vary from 76g-218g (depending on product).

Name	Value	Unit
Declared unit	1	Presence detector
Conversion factor to 1 kg.	13.2-4.6	-

Functional unit

The functional unit is defined as: *To provide light control, over 10 years with 365 days operation and 24 operating hours per day.*

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804, and PCR EN 50693:2019.

Energy modelling principles

Foreground system:

The energy used for these processes comes both from residual mix and solar energy in Thailand. Proof of solar energy usage comes from software reports the manufacturer owns.

Information about the energy mix in the foreground system:

Dataset	EF	Unit
Residual grid mix, Thailand, ref. 2021	0.9474	kg CO ₂ e/kWh
Solar, Thailand, ref. year 2021	0.00192	kg CO ₂ e/kWh

Background system:

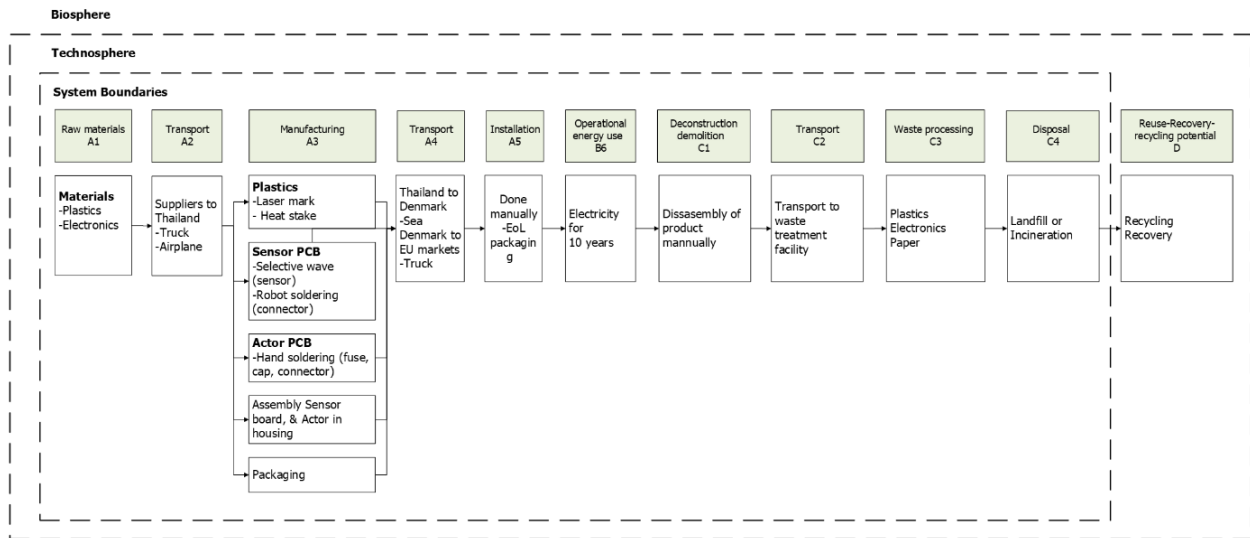
Upstream processes are modelled using the global grid mix. For some specific processes where it has been possible to define the specific electricity mix, these were modelled using the country-specific residual mix.

Downstream processes are modelled using country-specific grid mix.

Geographical area

The geographical area is Europe.

Flowdiagram



System boundary

This EPD is based on a cradle-to-grave with Module D LCA, in which 100% weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

The production of a presence detector begins with the extraction of raw materials, including plastics, packaging materials, and electronic components. These materials are sourced from various suppliers across the globe and are then shipped to Thailand for the manufacturing and assembly of the product.

Construction process stage (A4-A5) includes:

Once assembled, the finished products are shipped to Denmark by sea, from where they are

distributed to European markets. Installation of these presence detectors is done manually. Collected packaging waste undergoes partly recycling and disposal.

Use stage (B1-B7) includes:

After installation, the presence detectors function for up to 10 years and no maintenance is required. Therefore, only module B6 is included. The total energy use during the detectors lifespan is 50.90 kWh. The energy consumption was modelled for each of the EU countries, according to their respective sale-shares. The process 'market for electricity, low voltage' was used, specific for each country.

End of Life (C1-C4) includes:

When they reach the end of their lifespan, different end-of-life scenarios are considered for the collected and non-collected E-waste. Collected E-waste is sent to a WEEE recycling facility, whereas non-collected E-waste joins the municipal waste stream and is treated in a municipal solid waste incinerator in Europe, modelled by a Swiss technology mix.

Collected PCBs undergo shredding and separation and are sent to a recovery facility, after which the remaining scrap is treated in a municipal solid waste incinerator. Collected plastic waste undergoes a fraction of recovery, after which the non-

recovered materials are also treated in a municipal solid waste incinerator. Non-collected waste goes directly to municipal incineration.

Re-use, recovery and recycling potential (D) includes:

Includes loads and benefits from electronics material recovery from avoided virgin material, including precious metals and plastics amounts as recovered from collected waste.

LCA results

ENVIRONMENTAL IMPACTS PER DETECTOR											
Parameter	Unit	A1	A2	A3	A4	A5	B6	C2	C3	C4	D
GWP-total	[kg CO2 eq]	7.37E+00	3.12E-01	1.11E+00	9.92E-02	1.24E-02	4.79E+00	3.18E-02	9.06E-04	6.40E-01	-3.86E-02
GWP-fossil	[kg CO2 eq]	7.34E+00	3.12E-01	1.10E+00	9.92E-02	1.23E-02	4.62E+00	3.18E-02	9.03E-04	6.40E-01	-3.84E-02
GWP-bio	[kg CO2 eq]	1.17E-02	2.30E-05	6.82E-03	1.62E-05	1.37E-04	3.21E-02	6.35E-06	1.53E-06	5.90E-06	-8.92E-05
GWP-luluc	[kg CO2 eq]	1.43E-02	2.54E-05	3.19E-03	4.90E-05	3.36E-06	1.38E-01	1.10E-05	1.78E-06	1.68E-06	-7.01E-05
ODP	[kg CFC11 eq]	1.02E-07	4.63E-09	3.19E-08	1.57E-09	2.06E-10	1.13E-07	6.93E-10	5.72E-12	1.71E-10	-2.92E-10
AP	[mol H+ eq]	7.69E-02	1.29E-03	3.78E-03	2.32E-03	3.40E-05	3.50E-02	1.03E-04	4.53E-06	1.53E-04	-1.38E-03
EP-freshwater	[kg P eq]	6.31E-03	5.39E-06	6.43E-04	4.31E-06	7.80E-07	4.33E-03	2.24E-06	4.34E-07	4.98E-06	-1.79E-04
EP-marine	[kg N eq]	8.84E-03	5.25E-04	1.10E-03	5.85E-04	1.30E-05	6.26E-03	3.48E-05	9.23E-07	1.05E-04	-1.14E-04
EP-terrestrial	[mol N eq]	9.02E-02	5.72E-03	9.33E-03	6.48E-03	1.29E-04	6.83E-02	3.75E-04	9.32E-06	8.20E-04	-1.52E-03
POCP	[kg NMVOC eq]	3.08E-02	1.85E-03	3.03E-03	1.80E-03	5.12E-05	1.67E-02	1.59E-04	2.71E-06	1.99E-04	-4.05E-04
ADPm ¹	[kg Sb eq]	9.73E-04	9.31E-08	2.05E-06	1.50E-07	3.05E-08	2.19E-04	1.02E-07	1.04E-09	1.86E-08	-4.60E-05
ADPF ¹	[MJ]	1.55E+02	4.36E+00	1.85E+01	1.36E+00	1.48E-01	2.18E+02	4.95E-01	1.68E-02	1.01E-01	-7.83E-01
WDP ¹	[m3-world eq]	2.81E+00	8.24E-03	2.07E-01	4.53E-03	1.06E-03	9.48E+00	2.45E-03	1.88E-04	1.51E-02	-2.73E-02
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication - aquatic freshwater; EP-marine = Eutrophication - aquatic marine; EP-terrestrial = Eutrophication - terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential - minerals and metals; ADPF = Abiotic Depletion Potential - fossil fuels; WDP = water use										
Disclaimer	1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER DETECTOR											
Parameter	Unit	A1	A2	A3	A4	A5	B6	C2	C3	C4	D
PM	[Disease incidence]	3.76E-07	3.99E-09	6.55E-08	4.23E-09	8.36E-10	2.05E-07	2.76E-09	4.19E-11	5.42E-10	-4.62E-09
IRP2	[kBq U235 eq.]	2.10E+00	1.13E-03	1.21E-02	8.05E-04	1.67E-04	1.26E+01	5.59E-04	1.26E-04	2.27E-04	-3.14E-03
ETP-fw1	[CTUe]	9.14E+02	6.80E-01	3.12E+01	5.96E-01	5.75E-01	4.94E+02	3.04E-01	2.78E-02	2.61E+01	-5.37E+01
HTP-c1	[CTUh]	3.18E-08	1.87E-10	2.66E-09	2.45E-10	3.36E-11	3.12E-08	8.69E-11	2.29E-12	1.89E-09	-7.17E-10
HTP-nc1	[CTUh]	6.97E-07	3.53E-09	2.00E-08	8.42E-10	2.38E-10	4.16E-07	4.44E-10	2.02E-11	3.01E-08	-2.56E-08
SQP1	-	2.93E+01	3.59E-01	1.47E+01	3.19E-01	1.03E-01	1.16E+02	3.50E-01	2.00E-03	1.94E-02	-5.74E-01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation - human health; ETP-fw = Eco toxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP-nc = Human toxicity - non cancer effects; SQP = Soil Quality (dimensionless)										
Disclaimers	1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

WASTE CATEGORIES AND OUTPUT FLOWS PER DETECTOR											
Parameter	Unit	A1	A2	A3	A4	A5	B6	C2	C3	C4	D
HWD	[kg]	5.80E-03	3.85E-05	1.57E-03	1.87E-05	1.01E-03	1.56E-02	1.22E-05	5.60E-07	1.19E-02	-1.71E-06
NHWD	[kg]	1.05E+01	2.22E-02	3.69E-01	3.19E-02	1.08E-02	7.99E+00	3.42E-02	7.64E-04	8.82E-03	-4.65E-01
RWD	[kg]	5.38E-04	2.74E-07	2.87E-06	1.97E-07	4.13E-08	2.72E-03	1.38E-07	3.07E-08	5.72E-08	-7.88E-07
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-02	0.00E+00	0.00E+00	0.00E+00	1.26E-02	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	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-02	0.00E+00	0.00E+00	0.00E+00	9.18E-01	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.28E-02	0.00E+00	0.00E+00	0.00E+00	1.78E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy										

RESOURCE USE PER DETECTOR											
Parameter	Unit	A1	A2	A3	A4	A5	B6	C2	C3	C4	D
PERE	[MJ]	2.35E+01	1.76E-02	4.34E+00	1.48E-02	2.71E-03	1.86E+02	8.85E-03	1.76E-03	4.02E-03	-8.44E-02
PERM	[MJ]	0.00E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.35E+01	1.76E-02	5.39E+00	1.48E-02	2.71E-03	1.86E+02	8.85E-03	1.76E-03	4.02E-03	-8.44E-02
PENRE	[MJ]	1.51E+02	4.36E+00	1.85E+01	1.36E+00	1.48E-01	2.18E+02	4.95E-01	1.68E-02	1.01E-01	-7.24E-01
PENRM	[MJ]	4.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.96E-02
PENRT	[MJ]	1.55E+02	4.36E+00	1.85E+01	1.36E+00	1.48E-01	2.18E+02	4.95E-01	1.68E-02	1.01E-01	-7.83E-01
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	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	0.00E+00	0.00E+00	0.00E+00
FW	[m3]	7.75E-02	1.99E-04	4.94E-03	1.11E-04	2.58E-05	2.99E-01	6.06E-05	5.20E-06	3.54E-04	-6.75E-04
Caption		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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water									

BIOGENIC CARBON CONTENT PER DETECTOR		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	0.1576
Note:		1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂

Additional information

LCA interpretation

The results of the EPD show the environmental impact associated with one presence detector. The LCA implemented for this EPD focused on the calculation of multiple impact categories according to EN 50693:2019. Results indicate that the main hotspots for presence detectors are in modules A1 Raw Materials, A3 Production, and B6 Operational Energy Use across all impact categories.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Heavy fuel oil	-
Vehicle type	Ship	-
Transport distance	25122	km

Installation of the product in the building (A5)

Scenario information	Value	Unit
Ancillary materials	0	kg
Water use	0	m ³
Other resource use	0	kg
Energy type and consumption	0	kWh
Waste materials	0.0664	kg
Output materials	0.2760	kg

Reference service life

RSL information		Unit
Reference service Life	10	Years
Declared product properties	see section 1.5	-
Outdoor environment	None	-
Indoor environment	Room temperature	-
Maintenance	None	As appropriate

Use (B6)

Scenario information	Value/description	Unit
Electricity	50.90	kWh
Environmental condition	Room temperature and stable 230V power connection	-
Further assumptions for scenario development	The energy used was modelled for each of the EU countries taking into account their representative shares. The process of 'market for electricity, low voltage' representative to each country was used. Additionally, for calculating the energy consumption there was no distinguishment between day/night/weekend/etc.	

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	0.0932	kg
Collected with mixed waste	0.1248	kg
For reuse	0	kg
For recycling	0.0126	kg
For energy recovery	0	kg
For final disposal	0.2054	kg
Further assumptions for scenario development	The geographical scope of the waste treatment scenario is Europe.	

Re-use, recovery and recycling potential (D)

Scenario information/Material	Value	Unit
Recovered material	0.0044	kg
Energy recovery from waste incineration	0	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	 www.epddanmark.dk Template version 2024.1
Programme operator	Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Impulse – Alejandra Sentená, Klaske Houtsma and Jonathan Luyts
LCA software / background data	<i>Earthster / Ecoinvent vers. 3.11</i> <i>EN 15804 reference package 3.1</i>
3rd party verifier	Stefan Emil Danielsson Circonomy Consulting

General programme instructions

General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

Product-specific cPCR

EN 50693:2019

Product category rules for life cycle assessments of electronic and electrical products and systems

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"