VIMAR FOR THE ENVIRONMENT

One of Vimar's strategic choices is to protect and respect the environment by optimising consumption, reducing waste, using energy production systems from highly efficient alternative sources; with a focus on the pursuit for materials and production processes for its products, which allow waste to be recovered and reduced, and promoting the development of a circular economy, to be applied also outside of the company. To implement all the above, Vimar operates in an integrated manner, respecting the environment in compliance with ISO 14001.

For more information please contact:

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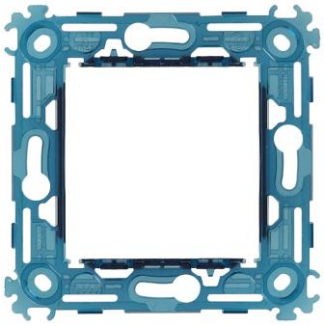
PRODUCT INFORMATION

The functional unit describes a plate switch and components constituting the reference product are reported in the table below.

FUNCTIONAL UNIT
To establish, support and interrupt for 20 years (Reference Life Time - RLT) rated currents I_{th} = 10A under normal conditions with operating voltage U_e = 250V. The parameters Icw (Rated short time withstand current), Ie (Overcurrent) are not reported because they are not relevant for these electrical devices. The use scenario is load current 50% I_{th} and frequency of use of 30% of RLT. The reference product is characterized by an IP40 protection degree.

REFERENCE PRODUCT DESCRIPTION



19603
Frame 2M without screws 71mm

19642.74
Classic plate 2M technopolymer white

19000.2.B
1P 10AX 1-way switch 2M white

COVERED COMMERCIAL REFERENCES

The environmental declaration is also representative of the following products:

19603	19642.74 (white)	19000.2.B (white)
19602(claws 71mm)	19642.71 (black) 19642.80 (Metal)	19000.2 (grey) 19000.2.M (Metal)

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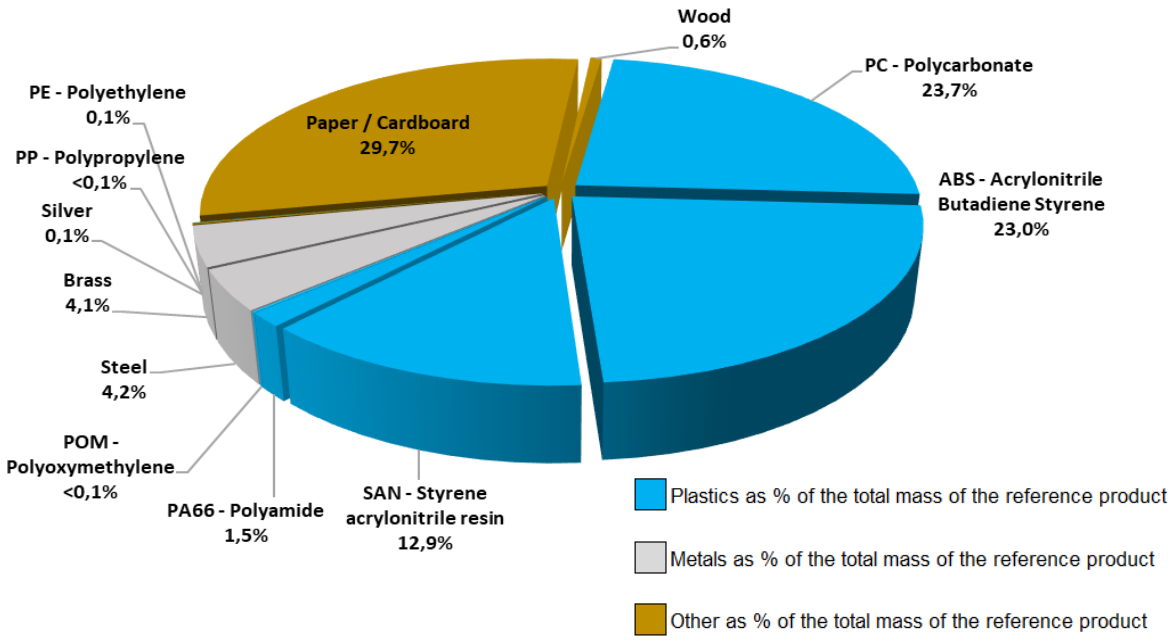
MATERIALS COMPOSITION

The products do not contain any of the restricted substances in compliance with REACh Regulation (EU) n.1907/2006 and RoHS Directive 2011/65/EU according to the latest updates.

TOTAL MASS OF THE REFERENCE PRODUCT INCLUDING ITS PACKAGING	75,53 g



The recycled content in the packaging material is 28% of the reference product mass

MANUFACTURING STAGE

The products are designed in view of facilitating re-use, dismantling and recovery of WEEE (Waste of Electric and Electronic Equipment), its components and materials, according to Directive 2012/19/EU. The packaging materials are compliant with Directive 2004/12/CE.
The products of interest are manufactured in the Italian plants of Vimar, certified according to ISO 14001.
In particular the location of the product's final assembly site: Vimar S.p.A.–Corso della Ceramica n.63, 36063 Marostica (VI) – Italy.

DISTRIBUTION STAGE

The distribution phase is implemented considering the products' market. The distance and the means of transportation adopted are in accordance with PEP-PCR-ed4-EN-2021 09 06.

INSTALLATION STAGE

In the installation phase there are no significant environmental impacts since the installation takes place through screwing and interlocking of the devices. The installation phase concerns only the management of the packaging waste (e.g. cardboard packs and containers, pallets), which consists in collection, transport, and treatment up to the final disposal.

USE STAGE

The products do not require assistance, maintenance, or additional products under normal conditions of use. The potential environmental impacts of the use phase are determined by the power dissipated by the device during the 30% of its RLT. The calculation was conducted in accordance with PSR-0005-ed2-EN-2016 03 29 - Product Specific Rules for Electrical switchgear and control gear Solutions (§ 3.5) and the electrical resistance of the device.

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END-OF-LIFE STAGE

In accordance with the WEEE Directive 2012/19/EU, Vimar products are designed to be easily disassembled and recycled into every component at the end of their life.

LIFE CYCLE IMPACT ASSESSMENT

The life cycle impact assessment considers all the life stages from “cradle to grave”, according to the PEP-PCR-ed4-EN-2021 09 06, and it is representative of the production, marketing, and use of products at global level.
The latter represent the geographical boundaries within which technological boundaries are also defined.
The life cycle stages considered are:

Manufacturing stage[1]	The manufacturing phase considers: 1. Production (extraction, treatment, transformation, etc.), transportation and packaging of raw materials and components that constitute the reference product, including packaging, the waste generated and its disposal. 2. Industrial processes to manufacture and assemble the reference product and packaging components. 3. Transport of the packaged product from the factory to the manufacturer's last logistics platform.
Distribution stage	The distribution phase considers the transport of the product in its packaging from the last logistics platform of the manufacturer to the distributor and from the distributor to the place of installation.
Installation stage[2]	The installation phase concerns only the management of waste generated at the installation site (collection and treatment up to the final disposal) due to product packaging and the production of waste associated with the installation processes.
Use stage[3]	The use phase considers product operation under normal conditions of use and refers to the energy consumption and other flows of the products during their use in the Reference Life Time (RLT) according to the load conditions indicated in the PSR-0005-ed2-EN-2016 03 29. In particular the scenario was modeled considering 20 years of RLT with a loading rate of 50% of the nominal current and 30% as use time rate.
End-of-life stage[4]	The end-of-life phase considers: 1. Transport required to collect the products at end-of-life and transport them from the installation site to the final treatment site. 2. Treatment processes of items covered by the WEEE Directive 2012/19/EU to be sent to special end-of-life product treatment facilities until final treatment.

[1] For the Manufacturing stage are considered the following energy models:
- Extraction of raw materials: Electricity, medium voltage {RoW}| market for.
- Production: Electricity, medium voltage {IT}| market for.

These models use an average market energy mix of the respective geographical areas.
[2] For the Installation stage no energy model is considered, because there are no energy consuming operations.
[3] For the Use stage the energy mixes considered are related to the actual distribution of products within the system boundaries, using the dataset Electricity, low voltage | market for.
[4] For the End-of-life stage the energy mixes considered are related to the waste treatment processes according to the actual distribution of products within the system boundaries.
The reference product is characterized by a recyclability rate of **42%** divided into:
- Plastic materials: 10%
- Metallic materials: 6%
- Packaging materials: 26%

Values are estimated according to PEP-PCR-ed4-EN-2021 09 06 and ISPRA Waste Report 355/2021.

For LCA modelling the following tools are used:

- **LCA Software:** *SIMAPRO v. 9.3.0.2*
- **Database:** *Ecoinvent v. 3.8*

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ENVIRONMENTAL IMPACTS – RESULTS

The environmental impacts are calculated for a lighting outlet position composed by frame 2-modules, cover plate 2-modules white and 1P 10AX 1-way switch 2-modules white.

TOTAL	Manufacturing stage		Distribution stage		Installation stage		Use stage		End-of-life stage	
MANDATORY ENVIRONMENTAL INDICATORS										
Climate change – total expressed in kg CO_2 eq.										
3,82E+00	6,36E-01	**16,7%**	5,12E-02	**1,3%**	1,77E-02	**<1%**	3,05E+00	**79,8%**	6,41E-02	**1,7%**
Climate change - fossil fuels expressed in kg CO_2 eq.										
3,80E+00	6,21E-01	**16,3%**	5,11E-02	**1,3%**	1,41E-02	**<1%**	3,05E+00	**80,3%**	6,40E-02	**1,7%**
Climate change - biogenics expressed in kg CO_2 eq.										
1,57E-02	1,49E-02	**94,7%**	1,17E-04	**<1%**	3,57E-03	**22,7%**	-2,92E-03	**0***	6,61E-05	**<1%**
Climate change - land use and land use transformation expressed in kg CO_2 eq.										
5,94E-04	2,07E-04	**34,9%**	2,28E-05	**3,8%**	2,25E-05	**3,8%**	3,29E-04	**55,4%**	1,23E-05	**2,1%**
Ozone depletion expressed in kg CFC-11 eq.										
1,67E-07	3,42E-08	**20,5%**	1,16E-08	**7,0%**	1,73E-09	**1,0%**	1,17E-07	**70,0%**	2,53E-09	**1,5%**
Acidification Potential expressed in mol H+ eq.										
2,38E-02	4,53E-03	**19,0%**	4,73E-04	**2,0%**	7,85E-05	**<1%**	1,86E-02	**78,3%**	9,72E-05	**<1%**
Freshwater eutrophication expressed in kg P eq.										
2,02E-03	2,99E-04	**14,8%**	3,07E-06	**<1%**	8,40E-06	**<1%**	1,70E-03	**84,4%**	4,93E-06	**<1%**
Marine aquatic eutrophication expressed in kg N eq.										
3,51E-03	5,57E-04	**15,9%**	1,38E-04	**3,9%**	1,97E-05	**<1%**	2,72E-03	**77,6%**	6,96E-05	**2,0%**
Terrestrial eutrophication expressed in mol N eq.										
3,49E-02	6,43E-03	**18,4%**	1,52E-03	**4,3%**	2,18E-04	**<1%**	2,65E-02	**75,7%**	3,07E-04	**<1%**
Photochemical ozone formation expressed in kg NMVOC eq.										
9,25E-03	1,61E-03	**17,4%**	3,70E-04	**4,0%**	4,85E-05	**<1%**	7,14E-03	**77,2%**	7,51E-05	**<1%**
Abiotic resource depletion - metals and minerals expressed in kg Sb eq.										
1,14E-04	9,72E-05	**85,6%**	1,62E-07	**<1%**	3,43E-08	**<1%**	1,61E-05	**14,2%**	1,00E-07	**<1%**
Abiotic resource depletion - fossil fuels or fossil resource expressed in MJ										
5,06E+01	8,37E+00	**16,6%**	7,59E-01	**1,5%**	2,58E-01	**<1%**	4,09E+01	**80,9%**	2,51E-01	**<1%**
Water requirement expressed in m^3 of equivalent deprivation worldwide										
5,82E-01	2,61E-01	**44,9%**	2,07E-03	**<1%**	1,87E-03	**<1%**	3,13E-01	**53,8%**	3,89E-03	**<1%**
OPTIONAL ENVIRONMENTAL INDICATORS										
Total use of primary energy during the life cycle expressed in MJ										
5,56E+01	9,23E+00	**16,6%**	7,69E-01	**1,4%**	3,88E-01	**<1%**	4,49E+01	**80,8%**	2,64E-01	**<1%**
Emission of fine particles expressed in incidence of diseases										
7,02E-08	3,33E-08	**47,5%**	3,35E-09	**4,8%**	6,44E-10	**<1%**	3,18E-08	**45,3%**	1,08E-09	**1,5%**
Ionizing radiation, human health expressed in kBq U-235 eq.										
1,05E-01	3,12E-02	**29,6%**	3,84E-03	**3,6%**	4,85E-03	**4,6%**	6,37E-02	**60,4%**	1,84E-03	**1,7%**
Ecotoxicity (fresh water) expressed in CTUe										
6,17E+01	3,52E+01	**57,1%**	5,76E-01	**<1%**	5,95E-01	**<1%**	2,49E+01	**40,4%**	4,07E-01	**<1%**
Human toxicity, cancer effects expressed in CTUh										
1,58E-09	8,13E-10	**51,3%**	2,14E-11	**1,3%**	6,57E-12	**<1%**	6,13E-10	**38,7%**	1,30E-10	**8,2%**

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Human toxicity, non-cancer effects expressed in CTUh										
6,03E-08	3,67E-08	**60,9%**	5,77E-10	**<1%**	2,38E-10	**<1%**	2,23E-08	**37,0%**	4,62E-10	**<1%**
Impacts related to land use/soil quality expressed in Pt										
8,78E+00	2,40E+00	**27,3%**	4,83E-01	**5,5%**	5,39E-01	**6,1%**	5,22E+00	**59,5%**	1,42E-01	**1,6%**

** represents less than 0,01% of the total life cycle of the reference flow.*

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "<1%" was chosen for a reason of data relevance.

The use phase is the life cycle phase which has the greatest impact on most environmental indicators.

TOTAL	Manufacturing stage		Distribution stage		Installation stage		Use stage		End-of-life stage	
MANDATORY INVENTORY FLOWS INDICATOR										
Use of renewable primary energy non used as raw materials expressed in MJ										
4,59E+00	7,23E-01	**15,8%**	7,42E-03	**<1%**	2,55E-02	**<1%**	3,82E+00	**83,3%**	1,02E-02	**<1%**
Use of renewable primary energy resources used as raw materials expressed in MJ										
4,17E-01	1,40E-01	**33,6%**	2,55E-03	**<1%**	1,04E-01	**25,0%**	1,67E-01	**40,1%**	2,69E-03	**<1%**
Total use of renewable primary energy resources expressed in MJ										
5,00E+00	8,63E-01	**17,3%**	9,97E-03	**<1%**	1,30E-01	**2,6%**	3,99E+00	**79,7%**	1,29E-02	**<1%**
Use of non-renewable primary energy non used as raw materials expressed in MJ										
4,89E+01	6,68E+00	**13,7%**	7,59E-01	**1,6%**	2,58E-01	**<1%**	4,09E+01	**83,7%**	2,51E-01	**<1%**
Use of non-renewable primary energy resources used as raw materials expressed in MJ										
1,69E+00	1,69E+00	**100,0%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Total use of non-renewable primary energy resources expressed in MJ										
5,06E+01	8,37E+00	**16,6%**	7,59E-01	**1,5%**	2,58E-01	**<1%**	4,09E+01	**80,9%**	2,51E-01	**<1%**
Use of secondary materials expressed in kg										
2,10E-02	2,10E-02	**100,0%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Use of renewable secondary fuels expressed in MJ										
0,00E+00	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Use of non-renewable secondary fuels expressed in MJ										
0,00E+00	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Net use of fresh water expressed in m³										
1,53E-02	6,74E-03	**44,1%**	7,38E-05	**<1%**	-3,65E-05	**0***	8,38E-03	**54,8%**	1,34E-04	**<1%**
Hazardous waste disposed of expressed in kg										
7,97E-05	3,85E-05	**48,4%**	1,82E-06	**2,3%**	2,70E-07	**<1%**	3,86E-05	**48,5%**	4,48E-07	**<1%**
Non-hazardous waste disposed of expressed in kg										
4,07E-01	9,27E-02	**22,8%**	3,42E-02	**8,4%**	5,15E-03	**1,3%**	2,43E-01	**59,8%**	3,14E-02	**7,7%**
Radioactive waste disposed of expressed in kg										
4,50E-05	1,26E-05	**28,0%**	5,15E-06	**11,5%**	1,70E-06	**3,8%**	2,42E-05	**53,8%**	1,31E-06	**2,9%**
Components for reuse expressed in kg										
0,00E+00	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Materials for recycling expressed in kg										
4,12E-02	8,06E-03	**19,5%**	0,00E+00	**0***	1,96E-02	**47,5%**	0,00E+00	**0***	1,36E-02	**33,0%**
Materials for energy recovery expressed in kg										
2,08E-02	2,18E-04	**1,0%**	0,00E+00	**0***	1,68E-03	**8,1%**	0,00E+00	**0***	1,89E-02	**90,9%**

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Exported energy expressed in MJ										
0,00E+00	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Biogenic carbon content of the product expressed in kg C										
0,00E+00	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***
Biogenic carbon content of the associated packaging expressed in kg C										
1,02E-02	1,02E-02	**100,0%**	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***	0,00E+00	**0***

** represents less than 0,01% of the total life cycle of the reference flow.*

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "< 1%" was chosen for a reason of data relevance.

In order to consider the potential environmental impacts of the covered commercial references, for representational purposes, the multiplicative coefficients (Ce) for the worst-case configuration are shown below.
To obtain the result of a n-th environmental impact category, the following formula shall be applied:

$$Environmental\ Impact_n = C_{e,i} \times Environmental\ Impact_{i,n}$$

C_e = extrapolation rule coefficient
i = i-th Life Cycle Stage
n = n-th Environmental Impact

Specifically, the configuration is the following:

- Frame 2-module + claws 71mm: **19602**
- Cover plate 2-module (Metal): **19642.80**
- 1P 10AX 1-way switch 2M (Metal): **19000.2.M**

Impact category	Unit	Total	Manufacturing stage	Distribution stage	Installation stage	Use stage	End-of-life stage
Climate change - total	kg CO2 eq	1,08	1,43	1,16	1,05	1,00	1,09
Climate change - fossil fuels	kg CO2 eq	1,07	1,42	1,16	1,05	1,00	1,09
Climate change - biogenics	kg CO2 eq	1,78	1,81	1,15	1,05	1,00	2,19
Climate change - Land use and LU change	kg CO2 eq	1,24	1,65	1,16	1,05	1,00	1,43
Ozone depletion	kg CFC11 eq	1,26	2,21	1,16	1,05	1,00	1,19
Acidification	mol H+ eq	1,04	1,20	1,17	1,05	1,00	1,24
Freshwater eutrophication	kg P eq	1,03	1,18	1,15	1,05	1,00	1,44
Marine aquatic eutrophication	kg N eq	1,05	1,29	1,17	1,05	1,00	1,09
Terrestrial eutrophication	mol N eq	1,06	1,25	1,17	1,05	1,00	1,20
Photochemical ozone formation	kg NMVOC eq	1,06	1,29	1,17	1,05	1,00	1,20
Abiotic resource depletion - metals	kg Sb eq	1,01	1,02	1,15	1,05	1,00	1,36
Abiotic resource depletion - fossil	MJ	1,07	1,40	1,16	1,05	1,00	1,27
Water requirement	m3 depriv.	1,21	1,46	1,15	1,05	1,00	1,20
Renewable - Non Raw Material	MJ	1,09	1,56	1,15	1,05	1,00	1,55
Renewable - Raw Material	MJ	1,17	1,47	1,15	1,05	1,00	1,48
Renewable - Total	MJ	1,10	1,54	1,15	1,05	1,00	1,53
Non Renewable - Non Raw Material	MJ	1,07	1,50	1,16	1,05	1,00	1,27

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Non Renewable - Raw Material	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Non Renewable - Total	MJ	1,07	1,40	1,16	1,05	1,00	1,27
Use of secondary Material	kg	1,05	1,05	1,00	1,00	1,00	1,00
Use of renewable secondary fuels	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Use of non-renewable secondary fuels	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Net Use of Fresh Water	m3	1,24	1,53	1,15	1,05	1,00	1,27
Hazardous waste disposed	kg	1,23	1,47	1,15	1,05	1,00	1,19
Non-hazardous waste disposed	kg	1,30	2,22	1,15	1,05	1,00	1,16
Radioactive waste disposed	kg	1,24	1,77	1,16	1,05	1,00	1,31
Components for re-use	kg	1,00	1,00	1,00	1,00	1,00	1,00
Materials for recycling	kg	1,43	2,40	1,00	1,05	1,00	1,41
Materials for energy recovery	kg	1,02	1,20	1,00	1,05	1,00	1,02
Exported energy	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Biogenic carbon content in product	kg C	1,00	1,00	1,00	1,00	1,00	1,00
Biogenic carbon content in packaging	kg C	1,06	1,06	1,00	1,00	1,00	1,00
Total use of primary energy	MJ	1,07	1,41	1,16	1,05	1,00	1,28
Emission of fine particles	disease inc.	1,11	1,21	1,15	1,05	1,00	1,35
Ionizing radiation, human health	kBq U-235 eq	1,25	1,78	1,16	1,05	1,00	1,53
Ecotoxicity (fresh water)	CTUe	1,08	1,13	1,16	1,05	1,00	1,22
Human toxicity, cancer effects	CTUh	1,74	2,26	1,16	1,05	1,00	2,14
Human toxicity, non-cancer effects	CTUh	1,06	1,10	1,15	1,05	1,00	1,25
Land use	Pt	1,09	1,29	1,15	1,05	1,00	1,23

$$Total\ Environmental\ Impact_n = \sum_{i=1}^{6} C_{e,i} \times Environmental\ Impact_{i,n}$$

C_e = extrapolation rule coefficient
i = i-th Life Cycle Stage
n = n-th Environmental Impact

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Registration number: VMAR-19000-V01.04-EN	**Drafting Rules:** «PCR-ed4-EN-2021 09 06» Supplemented by «PSR-0005-ed2-EN-2016 03 29»
Verifier accreditation number: VH42	**Information and reference documents:** www.pep-ecopassport.org
Date of issue: 12-2022	**Validity period:** 5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006	
Internal: ☐	External: ☒
The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)	
PEP are compliant with XP C08-100-1 :2016 or EN 50693:2019 The elements of the present PEP cannot be compared with elements from another program.	
Document in compliance with ISO 14025 : 2006 «Environmental labels and declarations. Type III environmental declarations»	