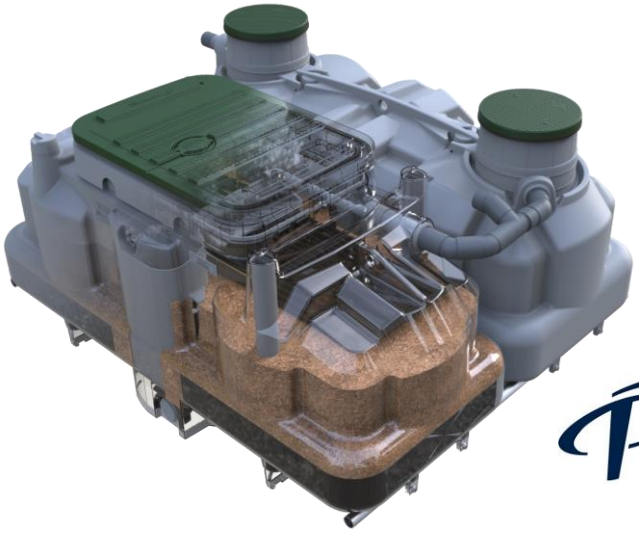
VERSION [1.0]

27TH NOVEMBER 2017



ENVIRONMENTAL AND HEALTH PRODUCT DECLARATION

ECOFLO® POLYETHYLENE PE2

5PE MODEL

NF EN 15804+A1 and NF EN 15804/CN compliant

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1 CAVEAT

As per NF EN 15804+A1 and NF EN 15804/CN, information in this document are of the sole responsibility of Premier Tech Aqua as the issuer of this EHPD.

Any reproduction in whole or in part of the content of this document shall at least be accompanied by an explicit reference to this EHPD as well as to the issuer of the EHPD. The latter would be able to provide a full copy of the document.

2 READING GUIDE

Ce following acronyms are used:

ABS	Acrylonitrile butadiene styrene
LCA	Life Cycle Assessment
AFNOR	Agence française de normalisation (French Standard agency)
CSTB	Centre Scientifique et Technique du Bâtiment
BOD5	5-day Biochemical oxygen demand
DTU	Document Technique Unifié (unified technical document)
PE	Person equivalent
EHPD	Environmental and Health Product Declaration
ST	Septic Tank
SM	Suspended Matter
HDPE	High Density Polyethylene
PP	Polypropylene
PTA	Premier Tech Aqua
GWM	Gross Weight Mass
PVC	Polyvinyl chloride

Numbers are expressed in units of the International.

3 PRECAUTION IN USE OF EPD FOR PRODUCTS COMPARISON

EPD for construction products may not be comparable if they are not compliant with NF EN 15804+A1.

Paragraph 5.3 of the standard NF EN 15804+A1 stipulates the requirements for the comparison of the environmental performance of construction products based on their EPDs:

A comparison of the environmental performance of construction products, based on their EPDs, shall be based on the use of the products and their impacts on the building, and shall account for the entire life cycle of the product (i.e. include all information modules).

4 GENERAL INFORMATION

Name and address of the manufacturer	Premier Tech Aqua Zone Artisanale de Doslet 35430 Châteauneuf-d'Ille-et-Vilaine
Production site	Châteauneuf-d'Ille-et-Vilaine
Type of EHPD	☐ cradle to factory gate ☑ cradle to grave
	☐ collective ☑ individual
Verifier name	Yannick Le Guern
Programme name	FDES INIES www.inies.fr www.declaration-environnementale.gouv.fr
Publication date	27th November 2017
Expiration date	27th November 2022
Name of commercial reference	ECOFLO® PE2 - capacity 5PE

The standard EN 15804 du CEN is the PCR[a)]
Independent verification of the EPD, according to EN ISO 14025:2010 ☐ Internal ☑ External
(as appropriate[b)]) Third party verification: Yannick Le Guern

a) Product Category Rule

b) Optional for B2B communication, mandatory for B2C communication (see EN ISO 14025:2010; 9.4)

5 FUNCTIONAL UNIT AND PRODUCT DESCRIPTION

5.1 Description of the functional unit (or declared unit)

The functional unit is to treat one (1) m^3 of domestic waste water by the mean of an onsite wastewater treatment system constituting of an ECOFLO® filter, model PE2 and sized for 5PE.

5.2 Product description

The filter ECOFLO® PE2 5PE includes:

- One 3m^3 capacity polyethylene septic tank and its accessories (lead, riser, pre-filter);
- One 4.9m^3 polyethylene filtration tank and its accessories (lid, riser, pump vault, distribution plates, tipping bucket, tipping bucker support et draining floor);
- 210kg of coconut fragments based filtering media, produced in Sri Lanka.

The filter is designed for a capacity of 5PE corresponding in an average use by 3 inhabitants, each generating a daily flow of about 135 liters of wastewater per day each or a total volume of 148m^3 per year.

Remark: it is assumed that 50% of installed systems are equipped with a lift pump.

5.3 Description of the product usage

This onsite wastewater treatment system is designed for a residential building with 5 principal rooms.

5.4 Other technical features not included in the functional unit

The purification performances of the ECOFLO® PE2 filter are in accordance with the French regulation "l'Arrêté du 7 septembre 2009" setting the technical requirements applicable to onsite wastewater treatment installations receiving an organic pollution less or equal to 1.2 kg/d of BOD5.

	Upstream waste water composition		Waste water composition after the septic tank		Treated waste water composition
Parameter	Min.	Max.	Min.	Max.	Max.
COD (mg.L^{-1})	600	1 000	200	600	/
BOD_5 (mg.L^{-1})	300	500	100	350	35
SM (mg. L^{-1})	300	700	40	150	30

5.5 Description of the product main components and/or material

5.5.1 Description of the tanks

Parameter	Unit	Septic tank	Filtering tank
Size			
Length	m	2.90	2.9
Width	m	1.22	1.2
Height	m	1.44	1.4
Tank volume	m^3	5.09	4.9
Total weight	kg	135	155
Tank			
Material		HDPE	HDPE
Weight	kg	126.5	120.5
Lid (data for 2 lieads)			
Material		HDPE	HDPE
Weight	kg	3	15
Rise			
Material		HDPE	HDPE
Weight	kg	1.20	1.5
Effluent filter			
Material		HDPE	
Weight	kg	3.10	
Pumping vault			
Material			HDPE
Weight	kg		8
Distribution plates (data 2 plates)			
Material			ABS
Weight	kg		6
Tipping bucket			
Material			HDPE
Weight	kg		1.5
Tipping bucket support			
Material			ABS
Weight	kg		1.5
Draining floor (data for 3 floors)			
Material			HDPE
Weight	Kg		7

5.5.2 Filtering media description

Parameter	Unit	Value
Material		Coconut fragments
Quantity	kg	210
Volume	m^3	1.84
Density	kg/m^3	114

5.6 Substance in the candidate list of the REACH regulation

No substance.

5.7 Description of the lifetime

- **Reference lifetime**

  The reference lifetime for this product is set to 50 years, considering maintenance recommendations to allow the sanitation system's technical performances to be maintained over the life cycle of the building (set to 50 years).

- **Declared product properties (when leaving the production site) and finishing etc.**

  The entire range of polyethylene ECOFLO® filters commercialised in France meets the French legal requirements of the "Arrêté du 07 septembre 2009" and of the Annex ZA of the standard EN 12566-3+A2.

- **Theoretical application parameters (if imposed by the producer), including references to the appropriate use practices**

  See user's guide (in French) "Guide de l'Usager - Premier Tech Aqua Filière « ECOFLO® Polyéthylène PE2 »" available at http://assainissement-non-collectif.developpement-durable.gouv.fr/.

- **Alleged quality of the construction work, when the installation is made in accordance with the manufacturer's instructions**

  See user's guide (in French) "Guide de l'Usager - Premier Tech Aqua Filière « ECOFLO® Polyéthylène PE2 »" available at http://assainissement-non-collectif.developpement-durable.gouv.fr/.

- **Exterior environment (for exterior applications), e.g. weather resistance, pollutants, UV and wind exposure, building orientation, shade, temperature**

  See user's guide (in French) "Guide de l'Usager - Premier Tech Aqua Filière « ECOFLO® Polyéthylène PE2 »" available at http://assainissement-non-collectif.developpement-durable.gouv.fr/.

- **Interior environment (for interior applications), e.g. temperature, humidity, chemicals exposure**

  Harmful products impair the proper wastewater treatment:

  - Pharmaceutical products;
  - Acids and their derivatives (ether, paint, ammonia ...);
  - Hygienic products (wipes, hygienic);
  - Non-biodegradable products (mineral oils, cardboard, plastic, rubber ...);
  - Products with pH below 6.5 or above 9.

- **Use conditions, e.g. usage frequency, mechanical exposure**

  See user's guide (in French) "Guide de l'Usager - Premier Tech Aqua Filière « ECOFLO® Polyéthylène PE2 »" available at http://assainissement-non-collectif.developpement-durable.gouv.fr/.

- **Maintenance, e.g. required frequency, type and quality and replacement of replaceable components**

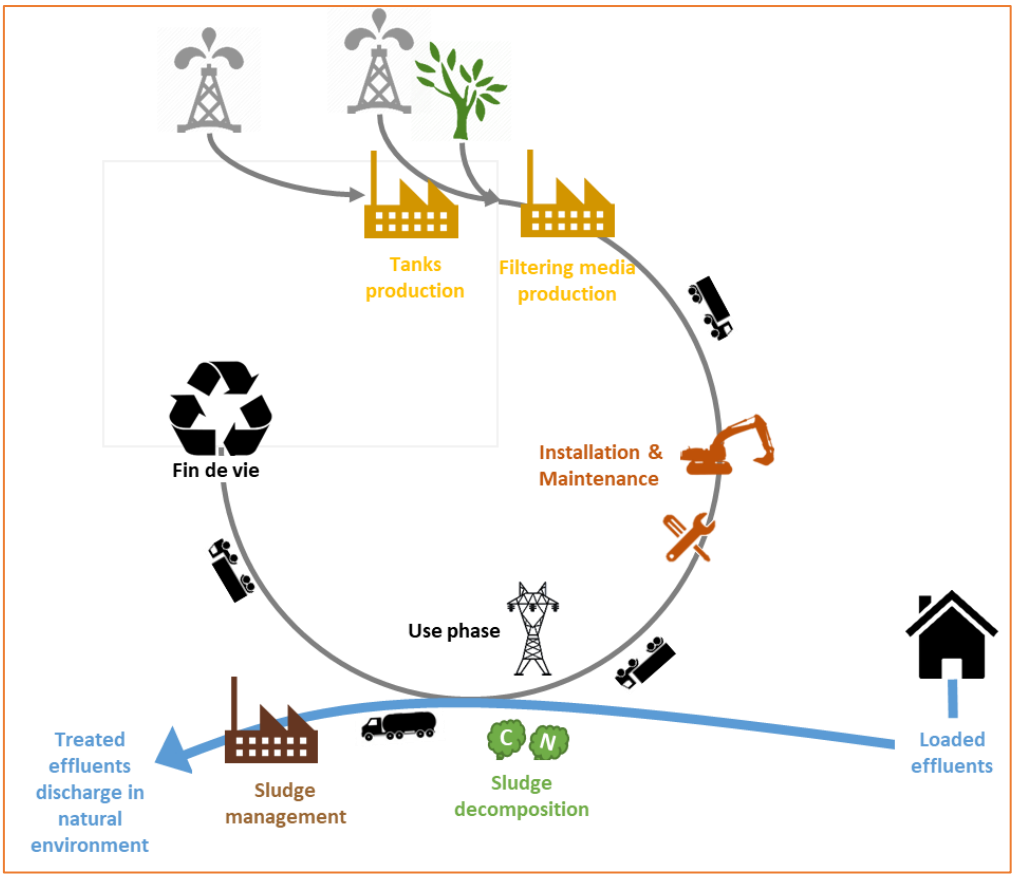
  See user's guide (in French) "Guide de l'Usager - Premier Tech Aqua Filière « ECOFLO® Polyéthylène PE2 »" available at http://assainissement-non-collectif.developpement-durable.gouv.fr/.

  Replacement frequencies are as follow:

  - Every 30 years for moving components (leads, tipping bucket, …);
  - Every 12 years for filtering media;
  - Every 8 years for the lift pump.

6 LIFE CYCLE STAGES

6.1 Lifecycle diagram



6.2 Cut-off and exclusion rules

No cut-off rule was applied.

Some components were excluded for the following reasons:

- Light weighting parts with respect to the total weight of the product (screws, colorants, moulds for rotational moulding);
- Components depending on the land configuration.

Infrastructures (production sites and roads construction) as well as administrative processes are excluded.

6.3 Production stage, A1-A3

This stage encompasses the production of the two tanks (septic tank and filtering tank) as well as of their accessories (lids and other moving parts, pump). It also includes the production of the filtering media.

All upstream stages are included. The production stage ends on the production site located at Châteauneuf-d'Ille-et-Vilaine.

- **Tanks production**

The two tanks are made of HDPE and produced by rotational moulding. HDPE granulates are first micronized at Saint-Sauveur and then transported to Châteauneuf-d'Ille-et-Vilaine where the rotational moulding takes place.

Moving parts are thermoformed or injected by PTA. Some of these parts are produced in Canada and shipped to Châteauneuf-d'Ille-et-Vilaine by container ship followed by truck. This applies to the following parts of the filtering tank:

- Distribution plates
- Tipping bucket
- Tipping bucket support

Tanks production waste are sent to landfill.

- **Filtering media production**

The filtering media used by PTA is made of coconut mesocarp fragments. Coconuts are exclusively grown in Sri Lanka on small and family-run plantations. The filtering media production process is as follow:

1. Coconut cultivation with fertilizers;
2. Manual fruit harvesting;
3. Manual dehusking: fruits are sent to the food market;
4. Husks transport to Tropicoir plant (25km on average);
5. Cutting, grinding, sieving, drying, compacting and packing of coconut fragments, according to PTA specifications
6. Storage in containers;
7. Transport of containers to the port of Colombo (Sri Lanka), and ship to Le Havre port in France;
8. Discharging at Le Havre, transport to PTA facility at Châteauneuf-d'Ille-et-Vilaine;
9. Unpacking of the filtering media, and installation in the filtering tanks.

The filtering media production waste in Sri Lanka is incinerated.

6.4 Construction stage, A4-A5

The construction stage covers existing soil excavation, tanks installation, and sand backfilling.

Remark: at the end-of-life of the filtering system, the excavation process includes the deconstruction of the installation and the replacement by a news one.

- **Transport to the construction site**

The filtering systems are assembled on PTA production system and ready to be installed. The distance to the installation site is 250km on average. The trucks have a GVW of 40tonnes and are loaded with 8 ready-to-install products.

Parameter	Value
Fuel type and vehicle fuel consumption or type of vehicle used for transportation	Trucks, GVW 40 tonnes Fuel consumption = 33 litres / 100 km (based on the actual loading ratio)
Average distance to the installation site	250 km
Load factor (including empty return)	17%
Volumetric mass density of transported products	Not known
Coefficient of utilization of the volume capacity	1

- **Installation on site**

The wastewater treatment installation is placed in excavation that is a little wider than the tanks. The excavation is then backfilled with sand (assumption for sand supply: 33km by road). At the end of life of the installation, this sand stays on-site, and may be re-used for a new wastewater treatment installation.

A typical excavation is:

- 0.4 meter wider than the tanks
- 0.4 meter longer than the tanks
- 20cm deeper than the tanks.

Parameter	Value
Auxiliary inputs	Sand for septic tank and filtering tank backfilling = 20.7 m^3
Use of other resources	N/A
Quantitative description of the energy (type and amount) used during the installation process	Diesel (ecoinvent data)
Waste produced onsite prior to the treatment of waste generated by the product installation	N/A (the excavated soil is supposed to be reused onsite)
Material produced par the onsite treatment of waste, e.g. waste collection for recycling, energy recovery, final disposal (specified by end of life route)	N/A
Direct emissions to ambient air, soil and water	N/A

6.5 Life of the building stage, B1-B7

- **B1 – Use of the product**

No substance is released into the environment during the use phase of the product.

Water and air emissions related to biological processes occurring in the septic tank and the filtering tank are not included in the perimeter of this EHPD.

- **B2 – Maintenance**

Maintenance operations include:

- Controlling the installation by a professional every year;

Parameter	Unit	Value/description
Maintenance process		Inspection visit
Maintenance cycle	Year	Once a year
Auxiliary inputs for the maintenance	kg/cycle	0
Maintenance waste	kg	0
Freshwater net consumption during maintenance	m^3	0
Energy input during maintenance		Maintenance vehicle fuel consumption (average distance for inspection visit 18km)

- Replacement of moving parts every 30 years;

Parameter	Unit	Value/description
Maintenance process		Replacement of moving parts
Maintenance cycle	year	30
Auxiliary inputs for the maintenance	kg/cycle	0
Maintenance waste	kg/cycle	47.8
Maintenance Waste management		Landfill
Freshwater net consumption during maintenance	m^3	0
Energy input during maintenance		0

- Filtering media replacement every 12 years;

Parameter	unit	Value/description
Maintenance process		Filtering media removal and replacement
Maintenance cycle	year	12
Auxiliary inputs for the maintenance	kg/cycle	0
Maintenance waste	kg/cycle	210
Maintenance Waste management		Landfill
Freshwater net consumption during maintenance	m^3	0
Energy input during maintenance		2l of diesel per cycle

Remark: at the end-of-life, the filtering media is suitable for composting.

- Replacement of the lift pump every 8 years;

Parameter	Unit	Value/description
Maintenance process		Lift pump replacement
Maintenance cycle	year	8
Auxiliary inputs for the maintenance	kg/cycle	0
Maintenance process	kg/cycle	2.5 (steel, plastic and cast iron)
Freshwater net consumption during maintenance	m^3	0
Energy input during maintenance		0

Remark: it is considered that 50% of the wastewater treatment installations are equipped with a lift pump.

- Periodic septic tank sludge pumping.

Parameter	Unit	Value/description
Maintenance process		sludge pumping and management
Maintenance cycle	month	46
Auxiliary inputs for the maintenance	kg/cycle	0
Maintenance process	m^3/cycle	1.52
Freshwater net consumption during maintenance	m^3	0
Energy input during maintenance		0.5l of diesel per cycle

The treatment of sludge prior to agricultural spreading is included.

- **B3 – Repair**

  No repair action is necessary. The replacement of parts is accounted for under B2 - Maintenance.

- **B4 – Replacement**

  No replacement action is necessary. The replacement of parts is accounted for under B2 - Maintenance.

- **B5 – Rehabilitation**

  No rehabilitation action is necessary.

- **B6 – Energy consumption for the operation of technical systems integrated to the building**

  Electricity is required for the lift pump operation.

Parameter	Unit	Value/description
Auxiliary input specified by material type		
Type of energy		Electricity
Output power of the equipment	kW	0.37
Typical performance	kWh/m^3	0.133
Number of products concerned	%	50%

- **B7 – Water consumption for the operation of technical systems integrated to the building**

  No water consumption is required.

6.6 End-of-life stage, C1-C4

This stage includes the dismantlement of the wastewater treatment installation, the transport, treatment and elimination of waste at the end of life of the product.

In particular, this stage includes the excavation for the tank removal, components disassembly and their transport to the landfill facility. Landfill impacts are accounted for.

Parameter	Value/description
Waste collection by waste type	Mixed collection with deconstruction waste for landfilling (509kg)
Recovery system specified by waste type	Recycling of the lift pump (2.5kg)
Disposal specified by type	Non-recycled waste is sent to landfill
Hypothesis	Waste transport to the disposal site: 30km by road

Remark: the filtering media is suitable for composting.

6.7 Recycling / reuse / recovery potential, D

The lift pump is recycled.

The agricultural spreading of treated sludge avoids the uses of synthetic fertilisers.

7 INFORMATION FOR THE LIFE CYCLE CALCULATIONS

PCR used	The standards EN 15804+A1 and NF EN 15804/CN are used as rules to define product categories (PCR).
System boundaries	From cradle to factory gate with options: mandatory stages = A1-3, A4-5, B1-7, C1-4 and D
Allocations	coconut cultivation: economic allocation between the husk and the fruit
Geographic and temporal representativity of primary data	France Base year for data collection: 2016.
Results variability	N/A

8 LIFE CYCLE ASSESSMENT RESULTS

8.1 Environmental impacts

		Pro-duction stage	Construction stage			Use stage								End-of-life stage							
		Total - production stage	Transport	A5 Installation	**Total - construction stage**	Use	Maintenance	Repair	Replacement	Rehabilitation	Energy use	Water use	**Total - use stage**	Deconstruction/demolition	Transport	Waste treatment	Landfill	**Total - end of life stage**	**Total - life cycle**	**Benefits and burden beyond system boundaries**	**TOTAL**
		A1-A3	A4	A5	**A4-A5**	B1	B2	B3	B4	B5	B6	B7	**B1-B7**	C1	C2	C3	C4	**C1-C4**	**A+B+C**	**D**	
Environmental impacts (results/FU)																					
Climate change	kg CO2 eq	**1.0E-01**	6.3E-03	2.9E-02	**3.5E-02**	0.0E+00	1.9E-01	0.0E+00	0.0E+00	0.0E+00	6.6E-03	0.0E+00	**1.9E-01**	9.9E-04	2.2E-03	0.0E+00	1.5E-03	**4.6E-03**	**3.3E-01**	**2.2E-03**	**3.4E-01***
Ozone depletion	kg CFC 11 eq	**7.4E-09**	1.2E-09	6.0E-09	**7.2E-09**	0.0E+00	2.3E-08	0.0E+00	0.0E+00	0.0E+00	6.0E-09	0.0E+00	**2.9E-08**	1.9E-10	4.1E-10	0.0E+00	7.0E-13	**6.0E-10**	**4.4E-08**	**4.1E-10**	**4.5E-08**
Soil and water acidification	kg SO2 eq	**3.8E-04**	1.6E-05	1.1E-04	**1.3E-04**	0.0E+00	1.0E-03	0.0E+00	0.0E+00	0.0E+00	2.7E-05	0.0E+00	**1.1E-03**	7.8E-06	5.7E-06	0.0E+00	1.7E-08	**1.3E-05**	**1.6E-03**	**-7.5E-06**	**1.6E-03**
Eutrophication	kg (PO4)3- eq	**9.5E-05**	2.7E-06	2.0E-05	**2.3E-05**	0.0E+00	2.4E-04	0.0E+00	0.0E+00	0.0E+00	2.3E-06	0.0E+00	**2.4E-04**	1.7E-06	9.3E-07	0.0E+00	4.4E-07	**3.1E-06**	**3.6E-04**	**4.5E-06**	**3.7E-04**
Photochemical oxydation	kg Ethene eq	**3.2E-05**	7.8E-07	6.2E-06	**6.9E-06**	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	1.3E-06	0.0E+00	**4.2E-05**	1.9E-07	2.7E-07	0.0E+00	4.0E-07	**8.5E-07**	**8.2E-05**	**-9.4E-09**	**8.2E-05**
Abiotic resources deplection (elements)	kg Sb eq	**1.1E-08**	1.5E-11	2.5E-09	**2.5E-09**	0.0E+00	3.3E-08	0.0E+00	0.0E+00	0.0E+00	3.3E-09	0.0E+00	**3.6E-08**	2.3E-12	5.3E-12	0.0E+00	4.0E-13	**8.0E-12**	**4.9E-08**	**-2.9E-09**	**4.6E-08**
Abiotic resources deplection (fossil)	MJ	**3.3E+00**	9.0E-02	4.1E-01	**5.0E-01**	0.0E+00	2.1E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-02	0.0E+00	**2.2E+00**	1.4E-02	3.1E-02	0.0E+00	1.7E-05	**4.5E-02**	**6.0E+00**	**2.4E-02**	**6.0E+00**
Water pollution	m3	**5.0E-02**	1.8E-03	7.6E-03	**9.3E-03**	0.0E+00	4.0E-02	0.0E+00	0.0E+00	0.0E+00	8.3E-04	0.0E+00	**4.1E-02**	2.6E-04	6.1E-04	0.0E+00	7.9E-05	**9.5E-04**	**1.0E-01**	**1.1E-03**	**1.0E-01**
Air pollution	m3	**6.0E+00**	4.6E-01	3.1E+00	**3.5E+00**	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00	3.1E-01	0.0E+00	**1.6E+01**	1.1E-01	1.6E-01	0.0E+00	1.6E-03	**2.7E-01**	**2.6E+01**	**-2.4E-01**	**2.6E+01**

*Note: no carbon storage and no GHG emissions from land use change

8.2 Resources use

		Pro-duction stage	Construction stage			Use stage								End-of-life stage							
		Total - production stage	Transport	A5 Installation	**Total - construction stage**	Use	Maintenance	Repair	Replacement	Rehabilitation	Energy use	Water use	**Total - use stage**	Deconstruction/demolition	Transport	Waste treatment	Landfill	**Total - end of life stage**	**Total - life cycle**	**Benefits and burden beyond system boundaries**	**TOTAL**
		A1-A3	A4	A5	**A4-A5**	B1	B2	B3	B4	B5	B6	B7	**B1-B7**	C1	C2	C3	C4	**C1-C4**	**A+B+C**	**D**	
Resources use (results /FU)																					
Use of renewable primary energy, excluding feedstock renewable primary energy resources	MJ	**7.2E-02**	2.7E-04	8.0E-03	**8.3E-03**	0.0E+00	1.3E-01	0.0E+00	0.0E+00	0.0E+00	3.9E-02	0.0E+00	**1.7E-01**	2.7E-05	9.3E-05	0.0E+00	1.8E-05	**1.4E-04**	**2.5E-01**	**-9.9E-05**	**2.5E-01**
Use of renewable primary energy, used as feedstock	MJ	**5.1E-01**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	1.6E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**1.6E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**2.1E+00**	**0.0E+00**	**2.1E+00**
Total use of renewable primary energy (energy and feedstock)	MJ	**5.8E-01**	2.7E-04	8.0E-03	**8.3E-03**	0.0E+00	1.7E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-02	0.0E+00	**1.8E+00**	2.7E-05	9.3E-05	0.0E+00	1.8E-05	**1.4E-04**	**2.4E+00**	**-9.9E-05**	**2.4E+00**
Use of non-renewable primary energy, excluding feedstock non-renewable primary energy resources	MJ	**1.8E+00**	9.8E-02	5.6E-01	**6.6E-01**	0.0E+00	2.5E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-01	0.0E+00	**3.4E+00**	1.6E-02	3.4E-02	0.0E+00	9.3E-05	**4.9E-02**	**5.8E+00**	**3.0E-02**	**5.9E+00**
Use of non-renewable primary energy, used as feedstock	MJ	**1.9E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	2.6E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**2.6E-01**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**2.2E+00**	**-1.2E-03**	**2.2E+00**
Total use of non-renewable primary energy (energy and feedstock)	MJ	**3.7E+00**	9.8E-02	5.6E-01	**6.6E-01**	0.0E+00	2.8E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-01	0.0E+00	**3.6E+00**	1.6E-02	3.4E-02	0.0E+00	9.3E-05	**4.9E-02**	**8.0E+00**	**2.9E-02**	**8.1E+00**

		Pro-duction stage	Construction stage			Use stage								End-of-life stage							
		Total - production stage	Transport	A5 Installation	**Total - construction stage**	Use	Maintenance	Repair	Replacement	Rehabilitation	Energy use	Water use	**Total - use stage**	Deconstruction/demolition	Transport	Waste treatment	Landfill	**Total - end of life stage**	**Total - life cycle**	**Benefits and burden beyond system boundaries**	**TOTAL**
		A1-A3	A4	A5	**A4-A5**	B1	B2	B3	B4	B5	B6	B7	**B1-B7**	C1	C2	C3	C4	**C1-C4**	**A+B+C**	**D**	
Resources use (results /FU)																					
Secondary material use	kg	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	3.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**3.8E-04**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**3.8E-04**	**7.3E-05**	**4.6E-04**
Secondary renewable fuel use	MJ	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Secondary non-renewable fuel use	MJ	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Net freshwater use	m3	**1.6E-03**	8.0E-06	5.9E-03	**5.9E-03**	0.0E+00	2.9E-04	0.0E+00	0.0E+00	0.0E+00	7.3E-06	0.0E+00	**2.9E-04**	1.3E-06	2.8E-06	0.0E+00	8.0E-10	**4.0E-06**	**7.8E-03**	**1.7E-06**	**7.8E-03**

8.3 Waste types

		Pro-duction stage	Construction stage			Use stage								End-of-life stage							
		Total - production stage	Transport	A5 Installation	**Total - construction stage**	Use	Maintenance	Repair	Replacement	Rehabilitation	Energy use	Water use	**Total - use stage**	Deconstruction/demolition	Transport	Waste treatment	Landfill	**Total - end of life stage**	**Total - life cycle**	**Benefits and burden beyond system boundaries**	**TOTAL**
		A1-A3	A4	A5	**A4-A5**	B1	B2	B3	B4	B5	B6	B7	**B1-B7**	C1	C2	C3	C4	**C1-C4**	**A+B+C**	**D**	
Waste type (results /FU)																					
Hazardous waste disposal	kg	**1.1E-04**	5.4E-08	2.5E-05	**2.5E-05**	0.0E+00	3.2E-04	0.0E+00	0.0E+00	0.0E+00	3.7E-05	0.0E+00	**3.6E-04**	1.0E-08	2.3E-08	0.0E+00	1.7E-09	**3.5E-08**	**4.9E-04**	**-4.0E-05**	**4.5E-04**
Non-harzardous waste disposable	kg	**8.8E-04**	2.5E-07	9.8E-06	**1.0E-05**	0.0E+00	9.5E-02	0.0E+00	0.0E+00	0.0E+00	1.6E-05	0.0E+00	**9.5E-02**	6.8E-08	1.1E-07	0.0E+00	6.8E-02	**6.8E-02**	**1.6E-01**	**-1.4E-05**	**1.6E-01**
Radioactive waste disposal	kg	**4.4E-06**	5.3E-07	4.7E-06	**5.2E-06**	0.0E+00	9.6E-06	0.0E+00	0.0E+00	0.0E+00	3.8E-05	0.0E+00	**4.8E-05**	1.1E-07	2.3E-07	0.0E+00	1.2E-09	**3.4E-07**	**5.8E-05**	**3.5E-09**	**5.8E-05**

8.4 Output flows

		Pro-duction stage	Construction stage			Use stage								End-of-life stage							
		Total - production stage	Transport	A5 Installation	**Total - construction stage**	Use	Maintenance	Repair	Replacement	Rehabilitation	Energy use	Water use	**Total - use stage**	Deconstruction/demolition	Transport	Waste treatment	Landfill	**Total - end of life stage**	**Total - life cycle**	**Benefits and burden beyond system boundaries**	**TOTAL**
		A1-A3	A4	A5	**A4-A5**	B1	B2	B3	B4	B5	B6	B7	**B1-B7**	C1	C2	C3	C4	**C1-C4**	**A+B+C**	**D**	
Output (results /FU)																					
Parts for reuse	kg	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Material for recycling	kg	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	1.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**1.8E-03**	0.0E+00	0.0E+00	3.4E-04	0.0E+00	**3.4E-04**	**2.1E-03**	**0.0E+00**	**2.1E-03**
Material for energy recovery	kg	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Energy production	J	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Electricity	J	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Vapor	J	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**
Gas and process	J	**0.0E+00**	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**	**0.0E+00**

9 ADDITIONAL INFORMATION

9.1 Release of hazardous substances into indoor air, soil and water during the use stage

9.1.1 Indoor air

The product is not exposed to indoor air.

9.1.2 Soil and water

The wastewater treatment installation is contained in non-porous plastic resin tanks. No water or soil emissions occurs due to the product use.

9.2 Contribution of the product to the indoor quality of life

Not applicable.