PEP ecopassport® PROGRAM

PSR

PRODUCT-SPECIFIC RULES
FOR RESIDENTIAL WOOD
LOCAL SPACE HEATERS

PSR-0015-ed2-EN-2025 06 17
According to PSR-modele-ed2-EN-2021 11 18

Contents

List of modifications since edition 1.0

Online from 17/06/2025:

Modified part from ed 1.0 to ed 2.0	**Modification made**
1.1	Addition of rules for the justification of values outside of the proposed default scenarios
3.1.2	Definition of declared units added
3.6.6	Modification of extrapolation rules during use
5.3	Addition of examples of the application of extrapolation rules

1 Introduction

This reference document supplements and clarifies the Product Category Definition Rules (PCR) of the Product Environmental Profiles (PEP) defined by the PEP ecopassport® Programme (PCR-ed4-FR-2021 09 06), available at www.pep-ecopassport.org).

It defines the additional requirements applicable to residential wood local space heaters . Compliance with these requirements is required to:

- Qualify the environmental performance of these products on a consistent, objective basis
- Publish PEPs that comply with the ecopassport® PEP Programme and international reference standards.[1]

This reference document has been drawn up in accordance with the rules of openness and transparency of the PEP ecopassport® Programme, with the support of professionals in the wood heating market, particularly manufacturers of wood local space heater and stakeholders.

	www.pep-ecopassport.org
PSR identifier	PSR-0015-ed2-EN-2025 06 17
Critical review	The Third Party Critical Review was carried out by Tim Osmond from EVEA. The certificate of compliance published on 15/10/2024 is in annex.
Availability	The Critical Review report is available on request from the PEP Association contact@pep-ecopassport.org
Scope of validity	The critical review report and certificate of conformity remain valid for 5 years, or until an amendment of the PEP Drafting Rules or regulatory reference texts to which they refer.

[1] ISO 14025, ISO 14040 and ISO 14044 standards

2 Scope of application

In accordance with the General Instructions of the PEP ecopassport® programme (PEP-Instructions générales-ed4.1-FR-2017 10 17) and in addition to the PCR (PEP-PCR-ed4-FR-2021 09 06), Product Category Rules of the PEP ecopassport® eco-declaration programme for environmental product declarations, this document provides rules specific to residential wood local space heaters , as well as product specifications to be used by manufacturers when drafting their Product Environmental Profiles (PEP), particularly with regard to:

- the technology and its type of application,
- the reference lifespan (RL) taken into account in the Life Cycle Assessment (LCA) of products,
- conventional use scenarios to be adopted during the product use phase.

The main purpose of these specific rules is to provide a common basis for manufacturers to draft their product life cycle analyses.

Wood local space heaters are products whose main purpose is to provide thermal heating for an individual dwelling, as a complement to the dwelling's centralised climate management system. They are characterised by the presence of a combustion chamber, fire doors and a heat exchanger. While retaining this main objective, two main product families are preferred when it comes to wood local space heaters. These are appliances using logs as solid fuel, and appliances using wood pellets. These specific rules apply to appliances with a nominal heat output of up to 50 kW.

2.1 Wood logs local space heaters

2.1.1 Closed fireplaces and wood-burning inserts

Closed fireplaces or inserts are appliances with doors designed to be installed in a recess, an appliance enclosure or in the combustion chamber of an open fireplace. They are generally equipped with (non-exhaustive list):

- A combustion chamber,
- Fire doors,
- A heat exchanger.
- With or without a boiler.

2.1.2 Wood-burning stoves

Wood-burning stoves are appliances with a fully enclosed combustion chamber with one or more loading doors that are normally closed after refuelling, which provide heat by radiation and/or convection, and also produce hot water if fitted with a boiler. They are generally equipped with (non-exhaustive list):

- A combustion chamber,
- Fire doors,
- A heat exchanger.
- With or without a boiler.

2.1.3 Wood-burning cookers

Wood-burning cookers are fully-fledged heating appliances that also cook food using a hotplate and/or oven. They are generally equipped with (non-exhaustive list):

- A combustion chamber,
- Fire doors,
- A heat exchanger,
- Hotplates and/or an oven
- With or without a boiler.

The function of cooking food is considered as a secondary function, and is not considered in the scenario of use. The following details shall be added and presented in the declaration, to ensure clarity and transparency for users:
The food cooking function is not considered in this declaration, and must be calculated by the user of the declaration according to specific consumption when the product is used.

2.1.4 Slow heat release appliances

Slow heat release appliances are intermittent combustion appliances whose thermal storage capacity enables them to accumulate heat by mass, and release a certain temperature for a specified period of several hours after combustion has ended. They are generally equipped with :

- A combustion chamber
- A loading door
- A heat absorber
- With or without a boiler

2.2 Wood pellet local space heaters

2.2.1 Wood pellet closed fireplaces, inserts, and stoves

Pellet-burning closed fireplaces, inserts and stoves are free-standing or built-in appliances fed by an automatic loading system. They can have an integrated and/or external fuel hopper. They are generally equipped with (non-exhaustive list):

- A combustion system,
- An on/off device,
- Fire doors,
- A heat exchanger,
- Integrated pellet storage,
- A pellet feed motor,
- An electric spark plug for automatic ignition,
- A forced convection fan,
- A combustion and extinguishing air fan.
- With or without a boiler.

They may not be fitted with a forced convection fan.

Note: If an external fuel hopper is used, this must be included in the scope of the study, along with the silo and its feed system.

2.2.2 Wood pellet cookers

Pellet cookers are fully-fledged heating appliances that include a cooking function with a hotplate and/or oven. They are fed by an automatic loading device, and can have an integrated and/or external fuel hopper. They are generally equipped with (non-exhaustive list):

- A combustion chamber,
- Hotplates and/or an oven,
- Fire doors,
- A heat exchanger,
- Integrated pellet storage,
- A pellet feed motor,
- An electric spark plug for automatic ignition,
- A forced convection fan,
- A combustion and extinguishing air fan.
- With or without a boiler.

They may not be fitted with a forced convection fan.

The function of cooking food is considered as a secondary function, and is not considered in the scenario of use. The following details shall be added and presented in the declaration, to ensure clarity and transparency for users:

The food cooking function is not considered in this declaration, and must be calculated by the user of the declaration according to specific consumption when the product is used.

Note: If an external fuel hopper is used, this must be included in the scope of the study, along with the silo and its feed system.

2.2.3 Other equipment

Appliances that are not included in the scope of standards EN 16510, EN 13240; EN 13229, EN 12815, EN 15250, EN 14785, EN 12809 for appliances with boilers intended for water circuits in direct contact with domestic hot water are not covered by these PSR.

3 Product lifecycle analysis

3.1 Functional unit and description of the reference flow

These specific rules supplement paragraph 2.1 "Functional unit and description of the reference flow" of the applicable PCR.

3.1.1 Functional unit

The functional unit associated with wood local space heaters is:

"To produce 1 kW of heating power under the reference scenario of use over the reference product lifetime of X years."

The reference life of the equipment (X years) shall be specified in the description of the functional unit, as shown in Table 1.

For each of the categories of equipment defined, the study includes the following reference flows:

- A defined wood local space heater with a specific reference service life and meeting, where possible, the characteristics set out in Table 1[2]. Otherwise, the product characteristics chosen must be justified.
- Elements not included in the product, including waste and discarded materials generated at each stage of the life cycle (manufacturing process, cutting, installation, etc.).
- Its packaging as well as any other packaging not included in the product and used during the reference service life.
- The elements, flows and processes required to distribute, install, use (maintenance, repairs, replacements, etc.) remove, dismantle and process the reference product.

[2] The definition of a reference product, defined by its power, makes it possible to compare products with the same functionality, without favouring high-power appliances.

Equipment category		Characteristics of the reference product	Reference service life (value of X)[3]
Wood local space heaters	Closed fireplaces and wood-burning inserts	Nominal heat output: 11 kW	30 years
	Wood-burning stoves	Nominal heat output: 8 kW	25 years
	Wood-burning cookers	Nominal heat output: 9 kW	30 years
	Slow heat release appliances	Nominal heat output: 3 kW	30 years
Wood pellet local space heaters	Wood pellet closed fireplaces and inserts	Nominal heat output: 12 kW Minimum heat output: 2.5 kW	20 years
	Wood pellet stoves	Nominal heat output: 10 kW Minimum heat output: 2.5 kW	20 years
	Wood pellet cookers	Nominal heat output: 8 kW Minimum heat output: 2.5 kW	20 years

Table 1 - Power and reference service life by equipment category

For a mixed product using wood logs and wood pellets, the product is studied in its most penalising configuration, i.e. the system operating with wood pellets, which has a shorter lifespan.

3.1.2 Declared unit

The declared unit can be used as additional information to help future PEP users. In France, it must be declared and used as a reference unit for an environmental declaration when a functional unit cannot be used directly.

The declared unit is defined below:

- wood local space heaters:

"Provide heating using an independent xx kW wood-burning appliance (nominal heat output)[4] for a reference service life of XX years."

The reference heat output and service lifetime are to be adapted according to the product in question in the range as indicated in paragraph 3.1 "Functional unit".

[3] EN 16510-1: Domestic solid-burning space heaters - Part 1: General requirements and test methods 2022

[4] The reference heat output is defined in ecodesign regulation 2025/1185.

3.2 System boundaries

These rules supplement paragraph 2.2. "System boundaries" in the current PCR (PEP-PCR-ed4-FR-2021 09 06), which describes the boundaries for each stage of the life cycle

3.2.1 Manufacturing stage

The description of the product categories presented in paragraph "2. Scope of application" is not intended to be exhaustive. All the components supplied with the product and enabling it to function properly must be included in the scope of the study. This includes the heater, accessories and packaging used to distribute the product.

3.2.2 Distribution stage

For this stage, the rules defined in the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.2.3 Installation stage

Conventionally, the installation of wood local space heaters involves:

- Connecting the appliance to the flues (smoke extraction, air intake), connecting it to the electrical network, masonry work and/or adding cladding to help the appliance blend in aesthetically with the home.
  These parameters are not taken into account for variants. By industry convention, connecting ducts are excluded from the scope of the study, and are the subject of a specific declaration. In addition, any modification to the frame and/or addition of elements not provided for by the manufacturer is excluded from the scope of the study. The actual impact of these operations can be calculated by the user of the declaration, if they so wish, based on the installation components used during the construction phase.
- However, the treatment of packaging waste is included. Packaging waste generated during the installation stage is assumed to be disposed of by the installer once the equipment has been installed.

3.2.4 Use

For the breakdown of module B, as defined in paragraph 2.2.6 of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06), the environmental impact of the use stage must be broken down as follows for all product families in these PSR.

B1: Use or application of the installed product	For wood logs local space heaters : ash from wood combustion For wood pellet local space heaters: ash from burning wood pellets

B2: Maintenance	For wood logs local space heaters: maintenance operations for upkeep of the appliance For wood pellet local space heaters: maintenance operations for upkeep of the appliance
B3: Repair	Not applicable. Module equal to 0.
B4: Replacement	Not applicable. Module equal to 0.
B5: Refurbishment	Not applicable. Module equal to 0.
B6: Energy requirements during the use stage	For wood logs local space heaters: consumption of wood logs, electrical energy consumption, related to ventilation and the programmer/thermostat/regulator. For wood pellet local space heaters: consumption of wood pellets, electrical energy consumption related to ventilation and the programmer/thermostat/regulator. For wood logs local space heaters: Air emissions from burning wood logs For wood pellet local space heaters: Air emissions from wood pellet combustion
B7: Water requirements during use	Not applicable. Module equal to 0.

Table 2: Breakdown of the B module

It shall be noted that the breakdown of module B is compulsory for France. The EN 16510 Standard also makes it compulsory to breakdown Module B for Europe. The total for module B must be declared.

3.2.5 End-of-life stage

For this stage, the rules defined in the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.
For the breakdown of module B, as defined in paragraph 2.2.7 of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06), the environmental impacts of the end-of-life stage must be broken down as follows for all product families in these PSR. The total for module C must be declared.

C1: Deinstallation	Not applicable. Module equal to 0.
C2: Transport to waste treatment	Transport to end-of-life treatment centre
C3: Treatment of waste for reuse, recovery and/or recycling	Impact of material recovery and end-of-life energy recovery operations
C4: Elimination	Impacts of end-of-life disposal operations

Table 3: Breakdown of the C module

This breakdown is compulsory.

3.2.6 Benefits and costs beyond system boundaries

For this stage, the rules defined in the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

It shall be noted that the declaration of Module D is compulsory for products intended for the French market, and is to be used for the building LCA.

3.3 Cut-off rules

The rules specified in paragraph 2.3 "Cut-off rules" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.4 Rules for the allocation amongst co-products

The rules specified in paragraph 2.4 "Rules for allocation amongst co-products" of the current PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.5 Description of scenarios (default scenarios)

These specific rules supplement paragraph 2.5. "Development of scenarios (default scenarios)" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06)).

Any changes to the default scenarios defined below must be justified in the LCA report, and mentioned in the PEP.

Justifications accepted for the modification of default scenarios

This PSR contains default assumptions and scenarios. If the declarant wishes to use specific data, this must be justified in the LCA report. These data, transmitted by manufacturers, are not necessarily certified, but are based on supporting documents in the traceability chain. These supporting documents are the responsibility of the declarant, supplier or a third party (example of a third party: independent certification body). These documents must be available if requested.

The recycled content of raw materials (see paragraph "3.5.1. Manufacturing stage (modules A1-A3)") may, for example, be supported by supplier data (datasheet or supplier declaration), but may not be supported by generic data (e.g. sector, unions, ADEME). In the absence of justified specific recycled content, the default data presented in paragraph 3.5.1.1. shall be used.

Scrap rates of raw materials (see paragraph "3.5.1. Manufacturing stage (modules A1-A3)") can be supported, for example, by an internal document from the production plant (e.g. an annual balance sheet showing the quantity of input and output material in the process). In the absence of justified specific rates, the default data presented in paragraph 3.5.1.4. shall be used.

End-of-life waste treatment (see paragraph "3.5.1. Stage of manufacture (modules A1-A3)") could, for example, be supported by a certificate from the company in charge of waste treatment at the plant. In the absence of specific data or default data provided by these PSR for the installation and end-of-life stages, table 7 of appendix D of PCR-ed4-FR 2021 09 06 applies.

3.5.1 Manufacturing stage (modules A1-A3)

The rules defined in paragraph 3.8.1 "Primary and secondary data collection requirements" of these specific rules apply.

3.5.1.1 Recycled content of raw materials

In the absence of specific, justified data on the recycled content of materials, a recycled content of 0% must be applied.

3.5.1.2 Packaging of raw materials and components

The packaging of raw materials, components, and their transport to the manufacturing site(s) must be taken into account. Supplier data must be used.

In the absence of justification, an average packaging rate of 5% of the mass of the reference equipment (equipment + packaging) will be considered, broken down as follows:

- Wood 50%
- Cardboard 40%
- Low-density polyethylene 10%

This average rate of 5% takes into account material waste from this packaging. Packaging reused on site is not taken into account.

The end-of-life treatment of packaging is modelled as in paragraph 3.5.3.2 of these PSR.

3.5.1.3 Waste from the manufacturing stage

Manufacturing (material) and waste treatment are included in the manufacturing stage.

Manufacturers may dispose of manufacturing waste themselves, or under their own responsibility. The LCA report shall specify how the manufacturer, or any person working for or on behalf of the manufacturer, meets these stages, distinguishing between hazardous and non-hazardous manufacturing waste and ensuring that these claims are substantiated.

Where known, the treatment processes (reuse, recycling, energy recovery, landfill, incineration without recovery) must be presented and justified in the LCA report, and the associated environmental impact shall be taken into account as indicated in paragraph 2.5.6. "Treatment scenarios for product at the end of its life" section of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06).

In the LCA report, the justification for treatment processes must then be accompanied by a justification for the treatment channels and recovery rate for each waste product (e.g. via an annual report on the treatment of end-of-life equipment by an eco-organisation).

Where the producer does not provide proof of treatment processes for waste generated during the manufacturing stage of the appliance used, the treatment is calculated by default as follows:

- For raw materials and components generating non-hazardous waste, the quantity of waste generated is calculated by multiplying the quantity of materials in the total product (finished product and associated packaging) by 0.05 for plastic and elastomer injection processes, and 0.3 for other manufacturing processes. The treatment of the non-hazardous waste generated is modelled as follows: 100% incinerated waste (no energy recovery).
- For raw materials and components generating hazardous waste, the quantity of waste generated is calculated by multiplying the quantity of materials in the total product (finished product and associated packaging) by 0.05 for plastic and elastomer injection processes, and 0.3 for other manufacturing processes. The treatment of hazardous waste generated is modelled as follows: 100% of waste incinerated (without energy recovery).

As this is a default penalty value, where applicable, no energy recovery is taken into account. The production of this lost material must be taken into account.

The table below summarises the default scrap coefficients for all materials comprising the total product (finished product and associated packaging):

Process	Default scrap coefficient	Mass of material after manufacture	Mass of material to be considered with scraps
Plastic and elastomer injection moulding	5%	1kg	1.05kg
Other processes	30%	1kg	1.30kg

Table 4. Default scrap rate for all materials making up the total product (finished product and associated packaging)

Example of application of the default scenario:
If 1 kg of a total product (final mass of the part excluding packaging) is made up of 0.8 kg of steel and 0.2 kg of electronic board:

For materials generating non-hazardous waste (0.8kg of steel):
Mass of waste = Mass of steel x 0.30 = 0.8 kg x 0.30 = 0.24 kg of waste incinerated (without energy recovery).

For materials generating hazardous waste (0.2 kg of electronic board):
Mass of waste = Mass of electronic board x 0.30 = 0.2 kg x 0.30 = 0.06 kg of waste incinerated (without energy recovery)

Any other waste treatment scenario at the manufacturing stage taken into account for the calculation must be justified in the LCA report, and mentioned in the PEP.

By industry convention, the transport stage of this waste is taken into account on the basis of an assumed transport distance of 100 km by lorry.

3.5.2 Distribution stage (module A4)

The distribution stage must be analysed in accordance with paragraph 2.5.3 "transport scenarios" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06).

3.5.3 Installation stage (module A5)

The installation stage includes any process, component, energy or consumption and/or emission necessary for the installation of an INDEPENDENT WOOD FIREPLACE.

3.5.3.1 Waste from the installation stage

The end-of-life of packaging, the production of which was taken into account at the manufacturing stage, is taken into account at the installation stage.
Packaging waste produced during the installation stage falls into the category of non-hazardous waste, and is disposed of, in principle, by the installer once the equipment has been installed.

In the absence of evidence of a specific end-of-life, the treatment scenarios provided in the table below shall be used by default. The tables below are representative of 2019. More recent consolidated Eurostat

data can be used if available from the Eurostat website[5]. The reference year of data used must be mentioned in the PEP.

For France, the default values to be used are as follows:

	Recycling rate	Incineration with energy recovery	Incineration without energy recovery	Landfill rate
Metal	83%	1%	0%	16%
Steel	88%	0%	0%	12%
Aluminium	60%	7%	0%	33%
Paper and cardboard	91%	5%	0%	4%
Wood	7%	31%	0%	62%
Plastic	27%	43%	0%	30%

Table 5. Default end-of-life packaging treatment scenarios for France.

For Europe, the default values to be used are as follows:

	Recycling rate	Incineration with energy recovery	Incineration without energy recovery	Landfill rate
Metal	77%	2%	0%	21%
Paper and cardboard	85%	7.5%	0%	7.5%
Wood	50%	25%	0%	25%
Plastic*	40%	30%	0%	30%

Table 6. Default end-of-life packaging treatment scenarios for Europe.

Note: values* are taken from the EN 16510 standard.

For other areas, waste must be treated in accordance with the default waste treatment scenario in the applicable PCR (PEP-PCR-ed4-FR-2021 09 06), paragraph 2.5.6.

By industry convention, the transport stage of this waste is taken into account on the basis of an assumed transport distance of 100 km by lorry.

Strapping, packing slips, labels or any other paper support present on or in the packaging are considered negligible, and are not included in the life cycle analysis of packaging waste if these elements represent less than 10% of the total mass of the packaging in total.

3.5.4 Use stage (modules B1-B7)

These rules supplement paragraph 2.5.4 "Scenarios for use of the reference product" of the applicable PCR.

[5] See source in paragraph 6.2.

3.5.4.1 Reference scenario of use

"standby mode" means a situation in which the product is connected to the mains, depends on a power supply from the mains to operate as intended, and performs only the following functions, which may be for an indefinite period of time: a reactivation function, or a reactivation function associated only with an indication that the reactivation function is activated, and/or the display of information or status;

By sector convention, the reference usage scenarios to be applied are as follows:

Equipment category	Reference scenario of use [6]
Wood local space heaters	Operational mode: T = 1000 h annual at nominal heat output That is approximately 05h28 per day during the 6-month annual heating period. Standby mode: If the appliance has auxiliaries that require power consumption (ventilation), then standby mode must be taken into account for 3380 h per year. Otherwise, standby mode is set to 0h. Stop mode: If the appliance has auxiliaries that require power consumption (ventilation), then the 4380 h annual shutdown mode must be taken into account. Otherwise, stop mode is set to 7760 h per year.
Wood pellet local space heaters	Operational mode: T = 1500 h per year, 20% of the time atnominal heat output power and 80% of the time at minimum heat output That is approximately 8h55 per day over the 6-month annual heating period. Standby mode: 2880 h per year The rest of the time, during the 6 months of heating, the appliance is in standby mode. Stop mode: 4380 h per year During the 6 months of the year, outside the heating period, the appliance is unplugged.

Table 7 - Reference scenario of use

With:
T = Number of hours per year the appliance is operational

3.5.4.2 Consideration of ash waste (module B1)

The use of wood local space heaters results in the production of ash.

The quantity of ash generated is calculated as follows:

$$Mass\ of\ ashes\ (kg) = Fuel\ mass * Ash\ coefficient$$

With:

Ash coefficient = 1% for logs and 0.7% for pellets (EN 16510)

The ash resulting from combustion in the heating appliance is used to improve private gardens, an assumption that reflects the current practices of private individuals who use wood for heat.

[6] Source: Scenarios defined by a panel of experts (see Appendix 5.3)

For the spreading of ash in private gardens, the leaching behaviour of metals contained in the ash was considered as follows[7]:

	Heavy metal content per kg of ash spread (mg/kg)			
	Ash from wood logs		Ash from wood pellets	
	Soil emissions	Water emissions	Soil emissions	Water emissions
Cadmium	0.09	0.002	0.77	0.002
Chrome	14.40	1.40	14.40	1.40
Cobalt	2.23	/	12.30	/
Copper	140.87	0.13	140.87	0.13
Iron	4455.00	/	5030.00	/
Manganese	1213.00	/	4236.00	/
Mercury	/	0.005	/	0.005
Nickel	18.99	0.006	8.67	0.006
Lead	1.79	0.01	200.54	0.47
Zinc	91.80	0.02	223.00	0.14

Table 8 - Secondary data to take account of ash spread

3.5.4.3 Maintenance stage (B2 modules)

These rules supplement paragraph 2.5.5 "Maintenance scenarios" of the applicable PCR.

Maintenance of wood local space heaters is carried out by a qualified professional, who is responsible for cleaning the appliance and/or replacing worn parts. By default, transport will be equal to a 100km return journey for one person (assumed to weigh 80kg) alone in their vehicle, specifying the "car passenger" LCI module used.

Note: Connecting flues are subject to a specific declaration; chimney sweeping, which is carried out twice a year, is excluded from the scope of the study.

If, within the framework of the manufacturer's specifications, parts must be replaced during the product's reference service life, the impact of their production, distribution, installation and end-of-life will be taken into consideration. The replacement of parts linked to a malfunction is not taken into consideration.

[7] Source: ADEME See sources used in paragraph 6.3. of this document

In the absence of available information, the maintenance stage involves the following elements:

Equipment category	Type of work carried out on the RSL	Frequency on the RSL
Wood local space heaters	Intervention by a qualified professional	Once per year
	Replacement of seals	1 time every 5 years
	Replacement of the inner lining (refractory material)	1 time every 8 years
	Ventilation	1 time every 10 years
Wood pellet local space heaters	Intervention by a qualified professional	Once per year
	Replacement of seals	1 time every 3 years
	Replacement of the inner lining (refractory)	1 time every 8 years
	Replacement of the spark plug	Steel spark plug: 1 time every 3 years Ceramic spark plug: 1 time every 10 years
	Geared motor	1 time every 10 years
	Extractor	1 time every 10 years
	Fan	1 time every 10 years
	Power supply unit	1 time every 10 years
	Temperature sensor	1 time every 10 years
	Pressure switch	1 time every 10 years
	Motherboard	1 time every 10 years
	Display screen	1 time every 7 years

Table 9 - Maintenance scenario

3.5.4.3.1 Waste from the maintenance stage

The manufacture of spare parts and end-of-life of waste generated during the maintenance stage (end-of-life of spare parts) are taken into account during the use stage.

Material components, as specified in table 9 in paragraph 3.5.4.3. In the "Maintenance stage" section of this document on replacement, these are to be considered as "waste from the maintenance stage", and their end-of-life is to be taken into account here.

The end of life of these elements is then dealt with in the same way as described in paragraph 3.5.7 "End-of-life stage" of this document.

By industry convention, the transport stage of this waste is taken into account on the basis of an assumed transport distance of 100 km by lorry.

If a new product on the market requires maintenance or consumables not taken into account herein, these elements will be included in the study.

3.5.4.3.2 Energy consumption (module B6)

The following formula can be used to calculate the final energy consumption required by an wood local space heater over its reference service life:

$$\boxed{C\ (kWh) = Celec + Cwood}$$

With:

C = Final energy consumption of the heating appliance, expressed in kWh, over the reference service life

C_{elec} = Electrical energy consumption of the heating appliance, expressed in kWh, over the reference service life.

C_{wood} = Wood consumption (logs or pellets) of the heating appliance, expressed in kWh, over the reference service life

Electricity consumption for wood-burning appliances:

For wood-burning appliances not equipped with ventilation:

$$\boxed{Célec(kWh) = 0}$$

For wood-burning appliances with ventilation, the following formula applies:

$$\boxed{Célec(kWh) = [\text{El max} * \text{T} + \text{El sb} * (4380 - \text{T})] * RSL}$$

With:

El_{max} = Electrical power absorbed by the appliance at nominal heat output, expressed in kW

El_{sb} = Electrical power absorbed by the appliance in standby mode, expressed in kW

T = Number of hours per year the appliance is in operational mode (T = 1000 h)

RSL = Reference service life of the appliance, expressed in years

Electricity consumption for wood pellet appliances:

$$\boxed{Célec(kWh) = [(0{,}2 * \text{El max} + 0{,}8 * \text{El min}) * \text{T} + \text{El sb} * (4380 - \text{T})] * RSL}$$

With:

El_{max} = Electrical power absorbed by the appliance at nominal heat output, expressed in kW

El_{min} = Electrical power absorbed by the appliance at minimum thermal output, expressed in kW

El_{sb} = Electrical power absorbed by the appliance in standby mode, expressed in kW

T = Number of hours per year the appliance is in operational mode (T = 1500 h)

RSL = Reference service life of the appliance, expressed in years

Wood consumption for wood logs and pellet appliances:

$$Cwood\ (kWh) = \frac{Pref}{\eta} * T * DVR$$

$$\boxed{Cwood\ (kg) = Cwood\ (kWh) * \frac{1}{LCV} = \frac{Pref}{\eta_{th,nom}} * T * RSL * \frac{1}{LCV}}$$

With:

Pref = Heating appliance power expressed in kW

For wood logs appliances: Pref = nominal heat output

For wood pellet appliances: Pref = 0.2*nominal heat output+ 0.8*Minimum heat output

Nominal and minimum heat output are defined according to the european ecodesign regulation n°2015/1185.

$\eta_{th,nom}$ = Useful efficiency, at nominal heat output' according to the European ecodesign refulation n°2015/1185.

T = Number of hours per year the appliance is in operational mode

For wood logs appliances: T = 1000 h

For wood pellet appliances: T = 1500 h

RSL = Reference service life of the appliance, expressed in years

LCV = Lower calorific value of wood, expressed in kWh/kg

By industry convention, the LCV values are:

LCV $_{wood\ log}$ = 4.17 kWh/kg (i.e. 15 MJ/kg, moisture content 18.5%)[8]

LCV$_{wood\ pellet}$ = 5.06 kWh/kg (i.e. 18.2 MJ/kg, moisture content 12%)[9]

3.5.4.3.3 Taking account of wood production (module B6)

In order to enable a fair comparison between the different environmental declarations created as part of these PSR, the inventory data to be used for modelling wood logs and wood pellets has been established. The life cycle inventory data provided in the EcoInvent database[10] (available) in Appendix 6.1 must be used.

Note for the "wood log" data:

- The inventory is representative of logwood production on the European market.
- Distribution transport between the production site and the end customer is already included in inventory data (i.e. a transport distance of 10 km by lorry, which is representative of a local market). Wood logs are generally sourced locally[11]: self-consumption, purchase from a producer or reseller.
- The inventory is given for 1kg of dry logs with a moisture content of 18.5% (wet mass = 1.34478 kg; water content = 0.34478 kg).

[8] Source: NF EN 16510-1 (2022) Domestic solid fuel-burning space heaters - Part 1: General requirements and test methods table B.2

[9] Source: NF EN 16510-1 (2022) Domestic solid fuel-burning space heaters - Part 1: General requirements and test methods table B.2

[10] Source: EcoInvent See sources used in paragraph 6.3. of this document

[11] Source : ADEME See sources used in paragraph 6.3. of this document

- The LCV of wood is 4.17 kWh/kg (i.e. 15 MJ/kg) with a moisture content of 18.5%.

Note for the "wood pellets" data:

- The inventory is representative of wood pellet production on the European market.
- Wood pellets are produced in plants using sawmill residues and wood chips as raw materials.
- Distribution transport between the production site and the end customer is not included in inventory data. This supply is to be considered by a lorry transport of 100 km
- The inventory is given for 1kg of wood pellets with a moisture content of 12% (wet mass = 1.1 kg; water content = 0.1 kg).
- Wood has a LCV of 5.06 kWh/kg (or 18.2 MJ/kg) and a moisture content of 12%.

3.5.4.3.4 Taking atmospheric emissions into account (module B6)

The use of independent biomass appliances means that emissions are released into the air when the wood is burnt.

Depending on the geographical representativeness targeted by the declaration, the air emissions to be modelled and their calculation methods must comply with applicable national regulatory requirements.

Air emissions to be modelled are, at minimum:

- Carbon monoxide (CO) emissions (Flux ILCD: Elementary flow / Emissions / Emissions to air / Emissions to air, unspecified / carbon monoxide)
- Nitrogen oxides (NOx) (Flux ILCD: Elementary flow / Emissions / Emissions to air / Emissions to air, unspecified / nitrogen oxides)
- Organic gaseous compounds (OGCs) (Flux ILCD: Elementary flow / Emissions / Emissions to air / Emissions to air, unspecified / organic gaseous compound)
- And fine particles (PM/PME) (Flux ILCD: Elementary flow / Emissions / Emissions to air / Emissions to air, unspecified / particles)

The use of European standard EN 16510 with an oxygen content of 13% atnominal heat output is recommended.

The declarant is free to choose whether or not to include the biogenic carbon entering and leaving in the form of CO2. The declarant must justify that the incoming and outgoing masses of carbon (CO2 and CO) are equal.

Note: wood is deemed to have come from a sustainable forestry regime. So, over the life cycle of wood up to its combustion, the treatment of biogenic carbon can be considered neutral. Biogenic carbon emissions do not therefore need to be modelled, unless the mass of incoming carbon is modelled (see paragraph above).

3.5.5 End-of-life stage (Modules C1-C4)

In the European Union, some of the waste from independent appliances falls into the WEEE (Waste Electrical and Electronic Equipment) category.

After presenting local requirements for the management of end-of-life WEEE, the LCA report describes the organisation of known treatment and/or recovery channels, the associated environmental impacts, and

how the manufacturer meets these requirements (where applicable). These factors will determine the effective rate of collection and processing in the treatment chain.

Use of LCI ecosystem modules is valid for France and Europe.

For equipment not covered by the WEEE Directive in Europe, the following default scenario shall be used (EN 16510) :

	Recycling rate	Landfill rate
Cast iron	90%	10%
Steel	90%	10%
Artificial stone	90%	10%
Natural stone	95%	5%
Electronics and electronic equipment, where applicable	50%	50%

Table 10: Default end-of-life scenario

For equipment not covered by the WEEE Directive and outside the scope of Europe and/or in the absence of justification for the end-of-life treatment of such equipment, this will be carried out using the default scenario of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06).

By industry convention,the cost of collecting and transporting end-of-life products from the site where they are used to their final processing site is accounted for on the basis of:
- a transport assumption of 100 km by truck within France,
- by default, the PCR assumptions applicable for the other locations. Any other scenario must be justified in the LCA report, and mentioned in the PEP.

3.5.6 Benefits and costs beyond system boundaries (Module D)

For this stage, the rules defined in the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.6 Rules for extrapolation to a homogeneous environmental family

These rules supplement paragraph 2.6 "Rules for extrapolation to a homogeneous environmental family" of the applicable PCR (PEP-PCR-ed4-FR-202109 06).

The following paragraphs detail the conditions for belonging to a homogeneous environmental family, and the extrapolation rules applicable to each stage of the life cycle.

3.6.1 Definition of a homogeneous environmental family

It is accepted that the PEP covers products other than the reference product. These other products, which differ from the reference product, may be mentioned (commercial references) in the PEP or in the LCA report, provided that they belong to the same homogeneous environmental family as the reference product.

A homogeneous environmental family is defined as equipment in the same range that complies with the following characteristics:

- Identical function
- Same product standard
- Similar manufacturing technology: identical type of materials and identical manufacturing process

3.6.2 Extrapolation rule applied at the manufacturing stage

The environmental impact generated during the manufacturing stages is directly correlated to the total mass of the product (including packaging) and electronic components.

For the manufacturing stage, the extrapolation coefficient to be used on the PEP results for any other power in the same range is as follows:

Coefficient at the FU level	$\left(\left(\frac{Massof\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product\ (kg)}\right)+\left(\frac{Mass\ of\ electronic\ components\ in\ the\ product\ considered\ (kg)}{Mass\ of\ electronics\ of\ the\ reference\ product\ (kg)}\right)\right) \div 2) \times \left(\frac{Pref\ du\ produit\ de\ référence\ (kW)}{Pref\ du\ produit\ considéré\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\left(\frac{Massof\ the\ product\ considered\ (kg)}{Mass\ of\ the\ reference\ product\ (kg)}\right)+\left(\frac{Mass\ of\ electronic\ components\ in\ the\ product\ considered\ (kg)}{Mass\ of\ electronics\ of\ the\ reference\ product\ (kg)}\right)\right) \div 2$

With:
Mass = mass of the product (including packaging and excluding electronics) in kg
Mass of electronics = mass of electronics in the device in kg (board and components)
electronic control unit(s))
Pref = Reference heat output as defined in paragraph 3.9, in kW

Note: The extrapolation coefficient takes into account the power of the products to ensure that the environmental impact results are consistent between the functional unit, the reference product and the product under consideration.

3.6.3 Extrapolation rule applied in the distribution stage

The environmental impact generated at the distribution stage is directly correlated to the total mass of the product and its packaging.

For the distribution stage, the mass extrapolation coefficient to be used on the PEP results for any other power in the same range is as follows:

Coefficient at the FU level	$\left(\frac{Total\ mass\ of\ the\ product\ considered\ + Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Total\ mass\ of\ the\ reference\ product\ + Mass\ of\ packaging\ of\ reference\ product\ (kg)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ considered\ product\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\frac{Total\ mass\ of\ the\ product\ considered\ + Mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Total\ mass\ of\ the\ reference\ product\ + Mass\ of\ packaging\ of\ reference\ product\ (kg)}\right)$

With:
Total mass = mass of the product (excluding packaging) in kg
Packaging mass = mass of packaging (leaflets, plastic film, polystyrene, pallets, etc.) in kg
Préf = référence heat output as defined in paragraph 3.9, in kW

3.6.4 Extrapolation rule applied at the installation stage

For the purposes of these specific rules for boilers, the installation stage includes only the end-of-life treatment of packaging. The environmental impact generated during the installation stage is directly correlated to the total weight of packaging.

For the installation stage, the mass extrapolation coefficient to be used on the PEP results for any other power in the same range is as follows:

Coefficient at the FU level	$\left(\frac{Packaging\ mass\ of\ the\ product\ considered\ (kg)}{Packaging\ mass\ of\ the\ reference\ product\ (kg)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\frac{Packaging\ mass\ of\ the\ product\ considered\ (kg)}{Packaging\ mass\ of\ the\ reference\ product\ (kg)}\right)$

With:
Packaging mass = mass of packaging (leaflets, plastic film, polystyrene, pallets, etc.) in kg
Pref = reference heat output as defined in paragraph 3.9, in kW

3.6.5 Extrapolation rule applied at the use stage

Extrapolation rules must be applied during the use stage, i.e.:
- at each sub-module (B1 to B7). The use stage is equal to the sum of the extrapolated indicators of sub-modules B, if the detailed modelling of phase B is chosen (as a reminder, this is compulsory for France).
- to the whole phase according to the extrapolation rule defined in 3.6.4.6 for module B6, if only the total for module B is declared in the report and PEP.

3.6.5.1 Module B1

The environmental impact generated by module B1 are correlated with total energy consumption.

The extrapolation rule to be applied to the reference product to assess the impact of any other appliance in the same range is as follows:

Coefficient at the functional unit level	$\left(\frac{Total\ energy\ consumption\ of\ the\ product\ considered\ (kWh)}{Total\ energy\ consumption\ of\ the\ reference\ product\ (kWh)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (or declared unit)	$\left(\frac{Total\ energy\ consumption\ of\ the\ product\ considered\ (kWh)}{Total\ energy\ consumption\ of\ the\ reference\ product\ (kWh)}\right)$

3.6.5.2 Module B2

The environmental impacts generated during the maintenance stage are due to the need for an operator to travel to carry out maintenance operations on the product, the replacement of parts and the processing of pellet packaging waste for manually-loaded pellet appliances.

For the maintenance stage, the extrapolation rule to be used for any other product in the same range is calculated as a function of the total mass of product(s) replaced. The extrapolation coefficient to be used on PEP results for any other product in the same range is as follows:

Coefficient at the FU level	$\left(\frac{total\ mass\ of\ component(s)\ replaced\ for\ the\ product\ considered\ (kg)}{total\ mass\ of\ component(s)\ replaced\ for\ the\ reference\ product\ (kg)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\frac{total\ mass\ of\ component(s)\ replaced\ for\ the\ product\ considered\ (kg)}{total\ mass\ of\ component(s)\ replaced\ for\ the\ reference\ product\ (kg)}\right)$

3.6.5.3 Module B3

Not applicable.

3.6.5.4 Module B4

Not applicable.

3.6.5.5 Module B5

Not applicable.

3.6.5.6 Module B6

The environmental impacts generated by module B6 are correlated with biomass energy consumption (wood pellets or logs), electricity consumption and emissions into the air due to wood combustion.

The extrapolation rule to be applied to the reference product to assess the impact of any other appliance in the same range is as follows:

Coefficient at the functional unit level	$\left(\frac{Total\ energy\ consumption\ of\ the\ product\ considered\ (kWh)}{Total\ energy\ consumption\ of\ the\ reference\ product\ (kWh)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (or declared unit)	$\left(\frac{Total\ energy\ consumption\ of\ the\ product\ considered\ (kWh)}{Total\ energy\ consumption\ of\ the\ reference\ product\ (kWh)}\right)$

3.6.5.7 Module B7

Not applicable.

3.6.6 Extrapolation rule applied at the end-of-life stage

The environmental impact generated at the end-of-life stage is directly correlated to the total mass of the product (excluding packaging).

For the end-of-life stage, the mass extrapolation coefficient to be used on the PEP results for any other power in the same range is as follows:

Coefficient at the FU level	$\left(\frac{Mass\ of\ the\ product\ considered, excluding\ packaging\ (kg)}{Mass\ of\ the\ reference\ product\ of\ the\ range, excluding\ packaging\ (kg)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\frac{Mass\ of\ the\ product\ considered, excluding\ packaging\ (kg)}{Mass\ of\ the\ reference\ product\ of\ the\ range, excluding\ packaging\ (kg)}\right)$

With:
Pref = reference output as defined in paragraph 3.9, in kW

3.6.7 Extrapolation rule applied to profits and costs beyond the system's boundaries

After a documented sensitivity study, it was shown that the environmental impact of these systems in phases A1 to C4 is generally proportionate to their mass. An extrapolation method applying to all phases of the life cycle (A1-C4) has been established, and is shown in the tables above.
The parameters that influence the D modulus are as follows:

- The quantity of recycled content in the raw materials used to manufacture the products,
- The quantity of losses and waste generated throughout the life cycle, and their treatment.

These parameters are directly linked to the mass of the product, and are not supposed to vary within a homogeneous environmental family (in accordance with paragraph 2.6. of the applicable PCR (PEP-PCR-

ed4-FR-2021 09 06): "similar manufacturing technology: same type of materials and manufacturing process".
In this way, the extrapolation rule based on the mass of the product can also be applied to Module D.

For the benefits and costs beyond system boundaries, the mass extrapolation coefficient to be used on the PEP results for any other power in the same range is as follows:

Coefficient at the FU level	$\left(\frac{Total\ mass\ of\ the\ product\ considered + mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Total\ mass\ of\ the\ reference\ product + \ mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}\right) \times \left(\frac{P_{ref}\ of\ the\ reference\ product\ (kW)}{P_{ref}\ of\ the\ product\ considered\ (kW)}\right)$
Coefficient for the declared product (additional information)	$\left(\frac{Total\ mass\ of\ the\ product\ considered + mass\ of\ packaging\ of\ the\ product\ considered\ (kg)}{Total\ mass\ of\ the\ reference\ product + \ mass\ of\ packaging\ of\ the\ reference\ product\ (kg)}\right)$

With:
Total mass = mass of the product (excluding packaging) in kg
Packaging mass = mass of packaging (leaflets, plastic film, polystyrene, pallets, etc.) in kg
Pref = reference output as defined in paragraph 3.9, in kW

3.7 Rules for drafting collective environmental declarations

These rules supplement paragraph 2.7 "Rules for drafting collective environmental declarations" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06).

For a collective environmental declaration, the study must relate to a "typical product" that complies with the rules defined in paragraph 3.1.2 "Reference product and description of the reference flow" of these specific rules. In addition, the PEP must mention the validity of the application of the extrapolation rules on the basis of technical criteria that enable it to be verified that the products belong to the same homogenous environmental family as the standard product.

3.8 Data collection requirements

These rules supplement paragraphs 2.9.1 "Primary data collection requirements" and 2.9.2 "Secondary data requirements" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06).

Wherever possible, primary data (i.e. all data relating to the manufacturing stage of the reference product, specific to an organisation) shall be preferred and must be justified in the LCA report, distinguishing between:

1) primary data (in the case of a single supplier),
2) in the case of supplies from multiple suppliers, the primary data to be taken into account are those of the most significant suppliers representing at least 50% of the supply by volume (in relation to the

total quantity purchased). For example, for 10 suppliers who each provide 10% of the supply by volume, at least 5 suppliers shall be considered in order to give an exhaustive view of the supply of primary information. Any other allocation rules must be mentioned in the LCA report and the PEP.

In the event that this primary data is shared with products other than those covered by these specific rules, the calculation of impacts is allocated in proportion to the mass of the products manufactured.

This information is not always available from appliance manufacturers: in the absence of primary data, secondary data, i.e. from the database of the software used for the life cycle analysis, shall be used. The applicable PCR (PEP-PCR-ed4-FR-2021 09 06) details how to choose LCI modules. If transport information is not available, the data defined in the "Transport scenarios" section of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) is used.

The LCI module used to model the raw material or component may contain a default scrap rate.

- If the scrap rate included in the LCI module can be modified, the default values in paragraph 3.5.1.3. must be applied.
- If the scrap rate included in the LCI module cannot be modified:
  - The scrap rate is lower than the default values in paragraph 3.5.1.3: this scrap rate must be entered in the LCA report and, where possible, the modelling must be adapted to take account of the difference in waste generated (hazardous or non-hazardous).
  - The scrap rate is higher than the default values in paragraph 3.5.1.3: this scrap rate must be entered in the LCA report.

3.8.1 Data quality assessment

The rules specified in paragraph 2.9.3 "Data quality assessment" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.9 Calculation of environmental impact

To ensure that the environmental impact results are consistent between the functional unit and the reference product, the PEP must include the environmental impacts of the manufacturing, distribution, installation, use and end-of-life stages as follows:

$$\textbf{Environmental impacts from the PEP} = \frac{\textbf{Environmental impacts of the reference product}}{P_{ref}\ of\ the\ reference\ product\ (\boldsymbol{kW})}$$

The reference output is defined as:

Pref = Heating appliance power expressed in kW

For wood logs appliances: Pref = Nominal heat output

For wood pellet appliances: Pref = 0.2*nominal heat output+ 0.8*minimum heat output

Nominal and minimum heat output are defined according to the European regulation on Ecodesign n°2015/1185.

4 Drafting the Product Environmental Profile

4.1 General information

The rules specified in paragraph 4.1 "General information" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

The PEP must include:

- The product category in accordance with paragraph 2.2
    - For all product categories together, it is necessary to specify that "the PEP was carried out excluding smoke extraction and building connection works".
    - The following sentence shall be added for cookers: *The food cooking function is not considered in this declaration, and must be calculated by the user of the declaration according to actual consumption when the product is used.*
- The nominal heat output (and minimum, if applicable) of the appliance according to Table 1 in paragraph 3.1
- The reference scenario of use considered in the use stage, in accordance with paragraph 3.5.4.1
- Levels of emissions into the air during the use phase (as a minimum: emissions of carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs) and fine particles (PM/PME)) in accordance with paragraph 3.5.4.3.4.
- The energy model used to model wood fuels shall be indicated as follows:
    - Wood log energy model: "Ecoinvent version 3.9 (2022) - Wood logs, Europe excluding Switzerland
    - Wood pellet energy model: "Ecoinvent version 3.9 (2022) - Wood pellets, Europe

In accordance with Annex 6.1, it is possible to use equivalent data in another version of the Ecoinvent database if the registrant does not have version 3.9 of the database. The version of the Ecoinvent database used and the name of the data used must appear in the PEP in the same format as above.

- The following sentence shall be included in the paragraph presenting the results of the environmental indicators: "The PEP did not include smoke extraction and building connections.

Commenté [a1]: Question to CSTB: does it make sense to keep this sentence?

Commenté [AR2R1]: Is there a more up-to-date reference? Or is it better to use the data in EN 16510?

Commenté [MC3R1]: EN16510 data

4.2 Constituent materials

The rules specified in paragraph 4.2 "Constituent materials" of the applicable PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

4.3 Additional environmental information

The rules defined in paragraph 4.3 "Additional environmental information" of the applicable PCR (PEP-PCR-ed4-EN-2021 09 06) apply.

For the use stage, the default scenarios in Table 17 of EN 16510-1:2022 may apply.

Scenario	Material	Fuel consumption [kg/year]	Electricity consumption [kWh/year]
Normal use	Wood logs	1000	-*
Normal use	Granules	1500	70

Table 11: Default scenario of use

For the calculation of heat output, the default values are 80% for efficiency,
4.17 kWh/kg for the lower calorific value of wood logs, and 5.06 kWh/kg for wood pellets.

* For independent log-burning appliances that consume electricity, this consumption is excluded from the scope of the study, as it is considered negligible.

If the declarant uses the default scenario as additional information, the PEP must include:

- To ensure clarity and transparency for the user, the following statement shall be added: "The EN16 510 standard does not allow a distinction to be made between the performance of appliances, and neglects certain electrical consumptions. It includes a calculation of identical wood consumption for appliances of the same category, neglects electricity consumption for wood stoves, and includes identical electricity consumption for all pellet stoves".
- In order to ensure clarity and transparency for the user, the following statement shall be added: "The results calculated using the default scenario of standard EN 16510 are provided for information only in the following tables, at the level of the functional unit and the declared unit".
- The table of environmental impacts of the reference product expressed at the scale of functional unit and the unit declared for stage B6, Total use stage (B1-B7) and Total life cycle. The values must then be given as numerical values, expressed in the appropriate units to three significant figures (and, optionally, as a percentage) for each stage of the life cycle concerned, and for each indicator in the complete life cycle analysis.

4.4 Environmental impact

When carrying out Life Cycle Analyses for a building, the environmental impact of equipment must be considered at a product level, and the impact of energy consumption during use must be considered separately.

To make it easier to use the PEP to carry out building LCAs, the PEP can include:

- The table of the environmental impacts of the reference product expressed at product level (or declared product) in addition to the table at a functional unit level. The values must then be given as numerical values, expressed in the appropriate units to three significant figures (and, optionally, as a percentage) for each stage of the life cycle and the total for each indicator in the complete life cycle analysis.
  The following details must be included in the PEP to ensure clarity and transparency for the user:
  - For environmental impacts expressed per functional unit, the following statement appears: "per kW corresponding to the functional unit".

    - For environmental impacts expressed by declared product, the following statement appears: "by equipment corresponding to the reference product".
- The results of the environmental impact in the use phase, based on a breakdown of module B (B1 to B7), in line with standards EN 15978 and EN 15804.

The environmental impact table represents the environmental impact of the functional unit, i.e. the production of 1 kW of heating.

The total impact of the product installed in a real-life situation is therefore calculated by the PEP user on the basis of the heat output of the equipment, by multiplying the impact in question by the total number of kW of heating required for the installation.

The following details shall be added and presented in the declaration, to ensure clarity and transparency for users:
The PEP is based on the supply of 1 kW of heating power. The actual impact of the stages in the life cycle is calculated by the user of the declaration on the basis of actual consumption during use of the product, by multiplying the impact in question by the total heat output of the appliance in kW.

If extrapolation rules are used, the following must be specified:
The extrapolation coefficients are given for the environmental impact of the functional unit, i.e. the emission of 1 kW of heating power. For each stage of the life cycle, the environmental impact of the product in question are calculated by multiplying the impacts of the declaration corresponding to the reference product by the extrapolation coefficient. The "Total" column is calculated by adding together the environmental impacts of each stage in the life cycle.

5 Rule for updating PEPs

Any PEP duly registered by the PEP Ecopassport programme must be updated and re-registered as soon as possible if the product to which it relates increases by more than 5%:

- in mass,
- into new sub-elements,
- in its environmental indicators considered to be significant,
- for any other item considered significant,
- in materials used.

6 Annexes

6.1 Inventory data

The inventory data to be used to model the production of 1kg of wood logs are those available in the EcoInvent version 3.9 database:

EcoInvent data version 3.9:
Name: market for cleft timber, measured as dry mass
Reference product: cleft timber, measured as dry mass
Location: Europe excluding Switzerland
Allocation, cut-off by classification
Period: 01.01.2019 - 31.12.2022

The inventory data to be used to model the production of 1kg of dry wood pellets are those available in the EcoInvent version 3.9 database:

Name: market for wood pellet, measured as dry mass
Reference product: wood pellet, measured as dry mass
Location: Europe
Allocation, cut-off by classification
Period: 01.01.2019 - 31.12.2022

It is possible to use equivalent data in another version of the Ecoinvent database if the registrant does not have version 3.9 of the database. The version of the Ecoinvent database used and the name of the data used must appear in the PEP.

The 2 sets of life cycle inventory data are available on request from the PEP Ecopassport® programme, which can be contacted at: contact@pep-ecopassport.org

6.2 Glossary

LCA	Life Cycle Assessment
CET	Technical landfill centre
WEEE	Waste electrical and electronic equipment
Primary data	Actual data measured by the manufacturer or supplier
Secondary data	Generic data from a database or according to sector convention
RSL	Reference service life
kg	Kilogram
kW	Kilowatt
kWh	Kilowatt hour

MJ	Megajoule
LCV	Lower calorific value
PEP	Product environmental profile
Wh	Watt hour

6.3 References

Chapter	Subject	Source
2. Scope of application	Appliances limited to a nominal heat output of 50kW	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods
2. Scope of application	Definition of product categories	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods
3.1. Functional unit and description of the reference flow	Choice of functional unit	The functional unit has been determined on the basis of the general rules of the PEP ecopassport® Programme, and in line with the PSRs already published.
3.1. Functional unit and description of the reference flow	Heat output and	Values determined by the Syndicat SER and all its members by assessing the state of the market in 2023.
	reference service life	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods
3.5. Description of scenarios (default scenarios)	Definition of air emission measurements	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods
3.5.1. Waste from the manufacturing stage	Default scrap rate values	5% scrap rate for plastic injection moulded parts and . 30% scrap rate for other parts: Consistency between PSRs
3.5.3. Waste from the installation stage	Treatment of packaging waste	Scenario in France: Extracts from Eurostat's EUROBASE DATA EXPLORER database, Packaging waste, EU-27, reference year 2019(http://ec.europa.eu/eurostat/data/database). Scenario in Europe: EN 16510 (2022)
3.5.4.1. Reference scenario of use	Definition of the reference scenario of use	Default scenario based on standard EN 16510 (2022). Scenario presented in Annex 6.4: scenarios determined collectively by all the members of the Syndicat SER participating in drafting the PSR.
3.5.4.3.2 Taking account of wood production	LCV and moisture content of wood logs	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods

	LCV and moisture content of wood pellets	EN 16510-1 :2022 - Domestic heating equipment - Part 1: General requirements and test methods
3.5.4.3.2. Taking account of wood production	Modelling the production of wood logs or wood pellets	EcoInvent database (Version 3.9) "market for cleft timber, measured as dry mass, Europe without Switzerland, (Author: Emilia Moreno Ruiz inactive)" & "wood pellet production, RER, (Author: Christian Bauer active)"
3.5.4.2. Waste from the use stage	Ash management	Ash management scenario determined by the Syndicat SER and all its members
	Emissions to soil and water from soil improvers	"Environmental impact of domestic wood-based heating" ADEME - December 2005
3.5.4.3. Maintenance scenario	Frequency of replacement of consumable parts	Maintenance scenario determined by the Syndicat SER and all its members on the basis of manufacturers' data.
3.5.5. Waste from the end-of-life stage	End-of-life scenario excluding WEEE	EN 16510: 2022

6.4 Example of the application of extrapolation rules

In all the examples below for calculating extrapolation coefficients, product A is the reference product. Below are the elements relating to two products belonging to the same homogeneous environmental family. Product A is the reference product:

Pellet stove	Product A	Product B
Product weight (kg)	145	150
Weight of electronic components (kg)	8.5	8.5
Heat output (kW)	7.4	9.6
Product packaging weight (kg)	15	15
Energy consumption in b6 (kWh)	3337	4105
Total mass of components replaced in B2 (kg)	13.5	13.5

Based on the above parameters, extrapolation coefficients can be determined for each product and for each phase of the life cycle:

	Stages	**Product A**	**Product B**
FU scale	A1-A3: Manufacture	1	1.18
	A4: Distribution	1	0.79
	A5: Installation	1	0.77
	B1: Use	1	0.95
	B2: Maintenance	1	0.77
	B3: Repair	-	-
	B4: Replacement	-	-
	B5: refurbishment	-	-
	B6: Use of energy	1	0.95
	B7: Use of water	-	-
	C1-C4: End of life	1	0.80
	D: Benefits and costs beyond system boundaries	1	0.80
Product scale	A1-A3: Manufacture	1	1.03
	A4: Distribution	1	1.03
	A5: Installation	1	1.00
	B1: Use	1	1.23
	B2: Maintenance	1	1.00
	B3: Repair	-	-
	B4: Replacement	-	-
	B5: refurbishment	-	-
	B6: Use of energy	1	1.23
	B7: Use of water	-	-
	C1-C4: End of life	1	1.03
	D: Benefits and costs beyond system boundaries	1	1.03

6.5 Certificate of conformity

Programme PEP Ecopassport®

Attestation de revue critique des règles additionnelles sectorielles pour les appareils indépendants de chauffage au bois dans l'habitat individuel

Document revu : PSR0015 - REGLES SPECIFIQUES AUX APPAREILS INDEPENDANTS DE CHAUFFAGE AU BOIS DANS L'HABITAT INDIVIDUEL version 14/10/2024 (date de réception). (PSR-0015-ed2.0-FR-2024-10-15)
Etabli par : Uniclima : le syndicat des industries thermiques, aérauliques et frigorifiques

Uniclima, le syndicat des industries thermiques, aérauliques et frigorifiques, a demandé à EVEA, en tant que cabinet conseil spécialisé en Analyse du Cycle de Vie, la revue critique des règles additionnelles sectorielles.

Référentiels :
L'objectif de cette revue critique est de vérifier la conformité de ce document avec les référentiels suivants :

- Le PCR référence PEP-PCR ed.4-FR-2021 09 06, disponible sur www.pep-ecopassport.org établit par le programme PEP Ecopassport®,
- Les normes NF EN ISO 14020 - 2002 et NF EN ISO 14025 -2010,
- Les normes NF EN ISO 14040 et 14044 – 2006.

Conclusion :
Le document revu ne présente pas de non-conformité avec les référentiels précités.

Par conséquent le PSR relatif aux appareils indépendants de chauffage au bois est conforme aux exigences de ces référentiels.

Tim Osmond
Vérificateur PEP Ecopassport® - EVEA