PEP ecopassport® PROGRAMME

PSR

SPECIFIC RULES FOR FIRE SAFETY SYSTEMS (FSS)

PSR-0019-ed1-EN-2023 06 06

According to PSR-modele-ed2-FR-2021 11 18

Contents

1. Introduction

This reference document complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP ecopassport® program (PEP-PCR ed.4-EN-2021 09 06), available at www.pep-ecopassport.org).

It sets out the additional requirements applicable to Fire Safety Systems (FSS). Compliance with these requirements is necessary to:

- Qualify the environmental performance of these products on an objective and consistent basis,
- Publish PEPs compliant with the PEP ecopassport® program and international reference standards.[1]

This reference document was drawn up in compliance with the open, transparent rules of the PEP ecopassport® program and with the support of stakeholders and professionals in the Fire Safety Systems market.

	www.pep-ecopassport.org
PSR reference	PSR-0019-ed1-EN-2023 06 06
Critical Review	The third-party Critical review was carried out by Marlène DEMICHELI (Bureau véritas CODDE) The declaration of conformity published on 2023/03/01 can be found in the Appendices.
Avaibility	The Critical review report is available on request from the P.E.P. Association contact@pepecopassport.org
Scope of validity	The critical review report and the declaration of conformity remain valid within 5 years or until the PEP Drafting Rules, or the normative reference texts to which they refer, are modified.

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

2. Scope

In accordance with the general instructions of the PEP ecopassport® program (PEP-General instructions-edX-EN-2017 10 17) and additional to the PCR, "PRODUCT CATEGORY RULES", (PEP-PCR ed.4-EN-2021 09 06) of the PEP ecopassport® environmental product declaration program, this document sets out the specific rules for Fire Safety Systems (FSS) and defines the product specifications to be adopted by manufacturers in the development of their PRODUCT ENVIRONMENTAL PROFILES (PEPs) particularly with regard to:

- the technology and its type of application,
- the conventional typical lifetime taken into account for the Life Cycle Assessment (LCA),
- the conventional use scenarios to be adopted during the product use phase.

2.1. Description of the product family(ies) covered

This document applies to Fire Safety Systems, regardless of their place of manufacture or their destination market.
This category includes five product families:

- fire detection and fire alarm (FDAS) (see details in § 2.1.1)
- manual call points (MCP) (see details in § 2.1.2)
- control and indicating equipment (CIE) (see details in § 2.1.3)
- fire safety centralizing equipment (FSCE) (see details in § 2.1.4)
- electrical power supply equipment (PSE, EPSSD, SPSE) (see details in § 2.1.5)

2.1.1. Fire Dectection and Firm Alarm (FDAS)

2.1.1.1. Definition

FDAS make it possible to automatically detect the start of a fire inside a building thanks to an automatic measurement. They can be addressable or conventional.
A conventional FDAS is a detector that uses communication technology with the control unit that does not allow it to be identified individually, unlike an addressable FDAS.

This automatic measurement captures one of the following physical quantities:

- Increase of a temperature
- Opacification of the atmosphere by smoke and carbon monoxide
- Infrared or ultraviolet radiation (flame optics)

Automatic fire detectors communicate with control and indicating equipment (CIE).

2.1.1.2. Applicables standards

The devices defined in paragraph 2.1.1 must comply with a body of standards and regulations established at international and European level, supplemented by national texts.

The European standards applied for FDAS are cited in the table below. The technical and legal texts quoted must be considered in their latest version in effect. The standards are classified by capture theme.

Table 1 : list of applicable standards for FDAS

Automatic fire detectors			
NF EN 54-25 : components using radio links			
Thermal detectors standards	Smoke optics detectors standards	Flame optics detectors standards **(**Infrared or ultraviolet radiation**)**	Carbon monoxide detectors standards
NF EN 54-5 : heat detectors - Point heat detectors **NF EN 54-22 :** resettable line-type heat detectors **NF EN 54-28 :** Non-resettable line-type heat detectors **NF EN 54-29 :** multi-sensor fire detectors - Point detectors using a combination of smoke and heat sensors **NF EN 54-30 :** multi-sensor fire detectors - Point detectors using a combination of carbon monoxide and heat sensors **NF EN 54-31 :** multi-sensor fire detectors - Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors	**NF EN 54-7 :** smoke detectors - Point detectors using scattered light, transmitted light or ionization **NF EN 54-12 :** smoke detectors - Line detectors using an optical beam **NF EN 54-20 :** aspirating smoke detectors **NF EN 54-29 :** multi-sensor fire detectors - Point detectors using a combination of smoke and heat sensors **NF EN 54-31 :** multi-sensor fire detectors - Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors	**NF EN 54-10 :** flame detectors - Point detectors	**NF EN 54-30 :** multi-sensor fire detectors - Point detectors using a combination of carbon monoxide and heat sensors **NF EN 54-31 :** multi-sensor fire detectors - Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors

2.1.2. Manual call points (MCP)

2.1.2.1. Definition

MCPs make it possible to signal a fire starting inside a building thanks to a manual action on a specific incorporated device. These can be addressable or conventional.

Activation of the MCP sends information to the control and indicating equipment, or the Type B Regulation fire safety control Panel (FSCE).

2.1.2.2. Applicables standards

The devices defined in paragraph 2.1.2 must comply with a body of standards and regulations established at international and European level, supplemented by national texts.

The European standards applied for MCPs are cited in the table below. The technical and legal texts quoted must be considered in their latest version in effect. The standards are classified by capture theme.

Table 2 : list of applicable sandards for MCPs

Manual call points
NF EN 54-11 : manual call points
NF S 61-936 : alarm equipment for evacuation
NF EN 54-25 : components using radio links

2.1.3. Control and indicating equipment (CIE)

2.1.3.1. Definition

CIE monitor connected equipment and centralize information from automatic fire detectors, manual call points, to ensure:

- identification and indicating of the damaged or faulty area,
- the transmission of the information necessary to the FSCE to ensure the safety of the building.

2.1.3.2. Applicables standards

The devices defined in paragraph 2.1.3 must comply with a body of standards and regulations established at international and European level, supplemented by national texts.

The European standards applied for CIEs are cited in the table below. The technical and legal texts quoted must be considered in their latest version in effect. The standards are classified by capture theme.

Table 3 : list of applicable sandards for CIEs

Control and indicating equipement
NF EN 54-2 : control and indicating equipment
NF EN 54-25 : components using radio links
NF EN 54-4 : Fire detection and fire alarm systems. Part 4 : power supply equipment

2.1.4. Fire safety centralizing equipment (FSCE)

2.1.4.1. Definition

The FSCEs monitor connected equipment and actuators, and transmit orders to secure the building in correlation with the information received from the CIE or its own manual controls for the evacuation, smoke extraction and compartmentalization functions.

Note: FSCEs are only intended for the French market. The PEPs on these products must be representative of the French market.

2.1.4.1. Applicables standards

The devices defined in paragraph 2.1.4 must comply with a body of standards and regulations established at international and European level, supplemented by national texts.

The European standards applied for FSCEs are cited in the table below. The technical and legal texts quoted must be considered in their latest version in effect. The standards are classified by capture theme.

Table 4 : list of applicable sandards for FSCE

Fire safety centralizing equipment
EN 54-4 : power supply equipment. (PSE.)
EN 12101-10 : power supplies (SPSE)
NF S 61-940 : Electrical power supplies as safety devices (EPSSD)
NF S 61-934 : Fire safety centralizing equipment (F-S-C-E-)
NF S 61-935 : Indicating units (IU)
NF S 61-936 : Alarm equipment for evacuation (AE)

2.1.5. Electrical power supply equipment (PSE, EPSSD, SPSE)

2.1.5.1. Definition

Power supply equipment is used to supply direct voltage to all or part of a fire safety system, ensuring autonomy in the event of loss of the main power source.

2.1.5.2. Applicables standards

The devices defined in paragraph 2.1.5 must comply with a body of standards and regulations established at international and European level, supplemented by national texts.

The European standards applied for electrical power supply equipments are cited in the table below. The technical and legal texts quoted must be considered in their latest version in effect. The standards are classified by capture theme

Table 5 : list of applicable standards for PSE

Electrical power supply equipment
NF EN 54-4 : power supply equipment (PSE)
NF EN 12101-10 : power supplies (SPSE)
NF S 61-940 : Electrical power supplies as safety devices (EPSSD)

3. Product Life Cycle Assessment

3.1. Functional Unit (FU), Declared Unit (DU) and reference flow description

These specific rules supplement the rules of the currently applicable PCR (PEP-PCR-ed4-EN-2021-09 06) paragraph 2.1 “Functional unit and description of the reference flow”.

To carry out the LCA of an FSS and establish its environmental declaration in the form of a PEP, the manufacturer must comply with the specific requirements provided for characterizing and quantifying the service provided by these systems in the Functional Unit (FU).[2]

Through the safety function they perform, FSS are subject to high requirements both in terms of reliability and fitness for function (e.g. fire resistance, autonomy, precision, product qualification), and in terms of implementation and maintenance (e.g. installation rules by type of establishment, verification by mandatory periodic checks). These requirements are most often covered by specific regulations that differ from one country to another, specified by standards.

Note: FSCEs are only intended for the French market.

These particular conditions, to which are added other types of local particularities (e.g. quality of the electrical network) are decisive in characterizing and quantifying the service provided by the product and have a significant impact on the environmental impact generated by the product.

In addition to the functional unit, it is possible to add the Declared Unit (DU) to facilitate the interpretation of the results of environmental impacts via a product-oriented scaling.

The table below lists the UFs and DUs for each product family:

Table 6 : list of FU et DU for the 5 families in the category FSS

FSS					
Familly	**FDAS**	**MCP**	**CIE**	**FSCE**	**PSE, EPSSD, SPSE**
FU	« Detecting a fire starting inside a building by automatically measuring a physical quantity while respecting the rules for installing fire systems. This function is ensured	« Emit information of a fire outbreak inside a building by manual action on a specific built-in device for a reference lifetime of XX years »	«Identify damaged or faulty areas of a building and transmit the necessary information to the FSCE for a reference life of XX years »	« Order the safety of the building in correlation with the information received from the ECS or its own manual controls for a reference lifetime of XX years »	« Supply the fire safety system of Y Watts at a nominal voltage of X Volts for a minimum of 12 hours on standby and 5 minutes on alarm and this for a reference lifetime of XX years»

2 The ISO 14040 standard defines the functional unit (FU) as "the quantified performance of a product system intended to be used as a reference unit in a life cycle analysis"

	for a reference lifetime of XX years. »				
DU	« Detecting a fire starting inside a building using a FDAS»	« Report a fire outbreak inside a building using a MCP»	« Control and signal information from the various detectors using an CIE »	« Order the security of the building using a FSCE»	« Supply electrical energy to a fire safety system, while ensuring minimum autonomy in the event of the disappearance of the main power source using an PSE»

To determine the relevant reference flow, on a consistent and transparent basis, the manufacturer must, for each of the FSS families, take into account:

- the device specific to the family,
- its primary packaging (packaging that contains and protects the product) and secondary (grouping and transport packaging systems such as grouping boxes, wooden pallets and plastic films),
- the packaging of raw materials and components,
- instructions and labels dedicated to marking or production traceability,
- labels and signaling label holders, delivered with the product (pictograms and arrows),
- the maintenance parts and consumables necessary for the function of the product (e.g. batteries, accumulator, etc.) during its Reference Lifetime,
- only when they are delivered and/or prescribed with the product, the accessories (e.g.: anti-vandal screws, cable glands, tools, etc.), the assembly and installation elements (e.g.: mounting spacers, screwing and locking, flush-mounting box and accessories, sealing cap and plug, etc.), as well as the elements for fixing to the frame,
- Filters for FDAS by suction.

The manufacturer must identify and provide information in the PEP accompanying report, the packaging, components, products and accessories accounted for in the LCA to ensure the function expressed by the corresponding functional unit.

Flows that should be omitted from system boundaries are evacuation drills, spurious or real triggers, and manual verification phases.

As part of a PEP for a range of products, extrapolation rules will apply for all references, as described in paragraph 8 “Rules for extrapolation to a homogeneous environmental family”. The product selected within the range, which will act as the reference product, will be the most penalizing product (any function or option possible). This choice must be described and justified in the LCA report.

In the case of FDAS, single-sensor and multi-sensor FDAS can be covered by a homogeneous environmental family. In this case, the reference product is the product having the greatest number of sensors.

3.1.1. Reference Service Lifetime (RSL)

This requirement completes and clarifies the Product Category Definition Rules (PCR) of the Product Environmental Profiles (PEP) defined by the PEP ecopassport® Program (PEP-PCR ed.4-FR2021 09 06) and defined in the paragraph “Functional unit and description of the reference flow”.

In the field of fire detection and safety systems, product obsolescence cycles are highly dependent on the quality of their implementation, the type of structure in which they are installed, the quality of their maintenance and of their terms of use.

Based on feedback from manufacturers in the sector and installation professionals, the following table presents the different reference service lifetimes (RSL) to be taken into account according to the 5 families of FSS:

Table 7 : liste of RSL for the 5 families in the category FSS

FSS					
Familly	**FDAS**	**MCP**	**CIE**	**FSCE**	**PSE, EPSSD, SPSE**
RSL	12 years	12 years	12 years	12 years	12 years

The statement below must be specified in the PEP:
«The reference service life is also referred to as "typical". This is a theoretical period used for calculation purposes. It can never be compared to the minimum, average or actual lifetimes of the products» Appendix G of PEP-PCR-ed4-FR-2021 09 06
These requirements supplement and specify the Rules for defining product categories (PCR) of Product Environmental Profiles (PEP) defined by the PEP ecopassport® Program (PEP-PCR ed.4-FR2021 09 06) and defined in paragraphs:

- manufacturing stage
- distribution stage
- installation stage
- use stage
- end of life stage
- Net benefits and loads beyond the system boundaries stage

3.1.2. Manufacturing stage

The rules specified in § 2.2.3 of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

The environmental impacts associated with original consumables are to be accounted for at the manufacturing stage.

3.1.3. Distribution stage

The rules specified of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.1.4. Installation stage

Conventionally, the installation of FSS involves:

- The manufacture and processing of the components, including their packaging(s) of the equipment necessary for its operation but which would only be integrated at the time of its installation.
- The processes and energies that are implemented at the time of installation are negligible.
- Transportation and treatment of packaging waste. Indeed, the packaging waste produced during the installation stage is assumed to be eliminated by the installer once the equipment has been installed.

The installation stage may include:

- Modifications to the building (eg masonry work, connection to the electrical network). 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 real impact of these operations is to be calculated by the user of the declaration if he wishes according to the installation elements used during the construction phase.

The processes, components and energies accounted for in the installation stage will be described and justified in the LCA report and must be specified in the PEP.

3.1.5. Use stage

L'étape d'utilisation SSI, une fois l'élément installé comprend :

- Des opérations de maintenance et visites de contrôle (module B2).
- Une consommation d'énergie électrique (module B6).

Dans le cas d'une décomposition des modules B telle que définie dans le paragraphe 2.2.6 du PCR ed.4, les impacts environnementaux de l'étape d'utilisation doivent se décomposer de la manière suivante pour l'ensemble des produits du PSR -0019 :

The FSS use stage, once the element is installed, includes:

- Maintenance operations and control visits (module B2).
- Electrical energy consumption (module B6).

In the case of a breakdown of the B modules as defined in paragraph 2.2.6 of the PCR ed.4, the environmental impacts of the use stage must be broken down as follows for all the products of the PSR -0019:

Table 8 : breakdown of module B

B1 : Use or application of the product installed	Not applicable. Module equal to 0.
B2 : Maintenance	Maintenance operations and control visits
B3 : Repair	Not applicable. Module equal to 0.
B4 : Replacement	Not applicable. Module equal to 0.
B5 : Restoration	Not applicable. Module equal to 0.
B6 : Energy requirements during the use stage	Electrical energy consumption of the reference product by applying the scenario as defined by the PSR-0019.
B7 : Water requirements during the use stage	Non applicable. Module égal à 0.

Flows that should be omitted from system boundaries are evacuation drills, spurious or real triggers, and manual verification phases.
The environmental impacts associated with replacement consumables are to be accounted for at the use stage

Note 1: At this stage, conventional and addressable devices are not differentiated. Thus, the presence of short-circuit insulators, often integrated in MCPs and FDAS, has no consequence on the calculation of energy consumption in the use phase.

3.1.6. End-of-life stage

The rules specified of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.1.7. Net benefits and loads beyond the system boundaries stage

The rules specified of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.2. Cut-off criteria

The rules specified in section 2.3 « cut-off criteria » of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply

3.3. Rules for allocation between co-products

These specific rules are additional to section 2.4 "Rules for allocation between co-products" of the PCR (PEP-PCR ed.4-EN-2021 09 06). In the event that primary data is shared with other products (in particular for the assembly stage) than those covered by these specific rules, the calculation of the impacts is carried out in proportion to the mass of the devices manufactured.

Any other rule must be justified in the LCA report and mentioned in the PEP.

3.4. Development of scenarios (default scenarios)

These specific rules are additional to section 2.5 "Development of scenarios (default scenarios)" of the PCR (PEP-PCR ed.4-EN-2021 09 06).

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

3.4.1.1. Supporting documents accepted to modify the default scenarios

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

The recycled content of the raw materials (see paragraph "3.5.1. Manufacturing stage") may for example be justified by supplier data (datasheet or supplier declaration) but cannot be justified by generic data (examples: , unions, ADEME).

The scrap rates for raw materials (see paragraph "3.5.1. Manufacturing stage") may, for example, be justified by an internal document from the production plant (example: annual report mentioning the quantity of material entering and leaving the process)

End-of-life treatment of waste (see paragraph "3.5.1. Manufacturing stage", "3.5.3. Installation stage", "3.5.6. End-of-life stage") may for example be justified by a certificate from the company in charge of processing the plant's waste In the absence of specific data or default data provided by this PSR, table 6 of appendix D of PCR-ed4-FR 2021 09 06 applies.

3.4.2. Manufacturing stage

The rules specified of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

All the components delivered with the product and enabling it to operate correctly must be included in the scope of the study.

3.4.2.1. Recycled content of raw materials

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

3.4.2.2. Packaging of raw materials and components

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

In the absence of justification, an average rate of packaging of 5% of the mass of the reference equipment (equipment + packaging) will be considered, distributed as follows:
- Wood 50%
- Cardboard 40%
- Low density polyethylene 10%

3.4.2.3. Waste from the manufacturing stage

Manufacturing and treatment of manufacturing waste are included in the manufacturing stage. Manufacturers can eliminate manufacturing waste themselves, or under their responsibility. The LCA report will specify how the manufacturer, or any person working for him or on his behalf, satisfies these stages by distinguishing hazardous manufacturing waste from non-hazardous manufacturing waste and making sure to provide proof of these claims.
When 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 impacts taken into account as indicated in the paragraph "Scenarios treatment of a product at the end of its life" of the current PCR.
The justification of the treatment processes must then be accompanied, in the LCA report, by the justification of the treatment channels and the recovery rate retained per waste (example: via an annual report on the treatment of waste by a management organization and waste recovery).

When the producer does not provide proof of the waste treatment processes generated during the manufacturing stage of the device 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 of the bare product, excluding packaging, by 0.1 for plastic injection processes and 0.3 for other manufacturing. The processing of non-hazardous waste generated is modeled as follows:

• 50% incinerated waste (without energy recovery) and 50% buried waste.

• For raw materials and components generating hazardous waste, the quantity of waste generated is calculated by multiplying the quantity of materials in the bare product, excluding packaging, by 0.1 for plastic injection processes and 0.3 for other manufacturing. The treatment of the hazardous waste generated is modeled as follows:

100% incinerated waste (without energy recovery).

Where applicable, as this is a penalizing value by default, no energy recovery is taken into account. The production of this lost material must be taken into account.

Example :

If 1 kg of a bare product (final mass of the part excluding packaging) composed 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, 0.12 kg of waste incinerated (without energy recovery) and 0.12 kg of waste buried

For materials generating hazardous waste (0.2 kg of electronic card):

Mass of waste = Mass of electronic card x 0.30 = 0.2 kg x 0.30 = 0.0.6 kg of incinerated waste (without energy recovery)

That is a total mass of waste of 0.3 kg and an initial mass of 1.3 kg, which corresponds to a fall rate of 23%.

By sectoral agreement, the transport stage of this waste is to be taken into account by considering a transport hypothesis of 100 km by truck.

3.4.3. Distribution stage

The rules specified inf the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

3.4.4. Installation stage

The installation stage includes any process, component, energy or any consumption and/or emission necessary for the installation of an FSS. Nevertheless, within the framework of the products covered by this PSR, these elements are considered negligible.

3.4.4.1. Waste from the installation stage

The end of life of packaging, the production of which was taken into account during the manufacturing stage, is taken into account during the installation stage. The 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 proof of a specific end of life, the processing scenarios presented in the table below must be applied by default. The tables presented below are representative of the year 2019. It is possible to use the most recent consolidated Eurostat data if available from the information available at the following address:
https://ec.europa.eu/eurostat
/databrowser/view/ENV_WASPAC__custom_3801295/default/bar?lang=en.
The reference year of the data used must be mentioned in the PEP.

For France :

	Recycling rate	**Incineration with energy recovery rate**	**Incineration without energy recovery rate**	**Landfill rate**
Metal	83	1	0	16
steel	88	0	0	12
Aluminum	60	7	0	33

Paper-cardboard	91	5	0	4
Wood	7	31	0	62
Plastic	27	43	0	30

For Europe:

	Recycling rate	**Incineration with energy recovery rate**	**Incineration without energy recovery rate**	**Landfill rate**
Metal	77	2	0	21
Paper-cardboard	82	9	0	9
Wood	31	31	0	38
Plastic	41	37	0	23

In the absence of data in the table and for another geographical area other than France or Europe, the waste must be treated according to the default waste treatment scenario of the current PCR (PEP-PCR-ed4-FR-2021 09 06), paragraph 2.5.6.

By sectoral agreement, the transport stage of this waste is to be taken into account by considering a transport hypothesis of 100 km by truck.

Strapping, packing slips and labels present on or in the packaging of the system are considered negligible and can be excluded from the scope of the analysis of the life cycle of packaging waste.

3.4.5. Use stage

3.4.5.1. Maintenance (B2)

The transport of maintenance operators is only considered in the case of CIE. During CIE maintenance, all associated equipment is checked.
By convention, a transport distance of 100 km round trip for one person (assumed weight of 80 kg), with an LCI "Car passenger" module must be used.
It is considered 1 maintenance scenario per year for CIE.
If the CIE has 100 entry/exit points or less, 1 day of maintenance is considered, above the number of entry-exit points will be specified in the PEP and will define the number of days required. No travel should be taken into account for other families.

It is defined in this PSR that a FSCE is always accompanied by an CIE.

The table below shows the quantity, frequency and type of parts to be replaced according to the family. If the product is not composed of the parts in question, there is no need to take them into account.

Table 11 : Maintenance scenarios

FSS					
Familly	**FDAS**	**MCP**	**CIE**	**FSCE**	**PSE, EPSSD, SPSE**
Replacement parts, quantity and frequency	Filter for FDAS by suction	No parts	Backup battery for site data + 1 battery (every 4 years)	Backup battery for site data + 1 battery (every 4 years)	1 battery (every 4 years)

If the manufacturer can prove that the battery he uses has a RSL greater than 4 years, he must provide the evidence defined below. Reminder: the RSL of the battery cannot be less than 4 years according to the requirements of the rules of the art.

The RSL of the battery used in the power supplies must be justified and documented if greater than 4 years. This RSL must be calculated under the normal operating conditions (temperature, voltage, intensity, etc.) to which the battery is subjected in the product supplied at rated voltage.
To this end, the manufacturer:
• Demonstrates on the basis of technical data sheets that he has designed his product in order to allow the battery to operate for > 4 years
• Keeps the evidence to be recorded in the PEP LCA report

3.4.5.2. Energy consumption (B6)

All the products of the 5 families operate 24 hours a day, over an annual period of 365 days, a total annual operating time of 8760 hours is obtained.

A fire safety system in its normal operation is in standby condition, its alarm state is of the order of 10 min during the annual regulatory maintenance. Over a year, the overconsumption due to the state of alarm for 10 min is neglected in front of the consumption in operation in standby condition (normal mode) for 8760 h.

The total consumption for a product must be calculated with the following formula:

Ct =Pc*8760 h/an*DVR

Where,

Ct : Total energy consumption (in Wh or kWh)
Pc : Power consumption in standby condition (regular mode) (in W or kW)
RSL : Reference Service Lifetime (in years)

The reference usage scenario as well as all the technical data allowing the calculation of energy consumption are to be included in the LCA report as well as in the PEP.

3.4.6. End-of-life stage

Within the European Union, waste from fire safety systems is considered as WEEE (Waste Electrical and Electronic Equipment).

For PEPs within the France scope:
When the producer joins an eco-organization (Ecologic, Ecosystem, etc.), or has set up an approved individual system, he must provide proof of this, which will appear in the LCA report, as well as provide the unique identifier (code of the environment article L541-10-13). In that case :

- if end-of-life collection rates and specific treatment rates are communicated by the sector, they must be applied.
- France, if only the specific end-of-life collection rates are communicated by the sector, they must be applied to the scenario below.

Table 12 : End of life scenario (France area)

	Proof of collection of WEEE[3]
Percentage of product recycled at end of life	73 %
Percentage of product energy recovered at end of life	11 %
Percentage of product incinerated without recovery at end of life	8 %
Percentage of product landfilled without recovery at end of life	8 %

The percentages apply to the mass of the bare product.

In the case of a PEP carried out for a perimeter outside France, refer to table 6 of appendix D of PEP-PCR-ed4-FR-2021 09 06. For all materials not included in the table, consider 50% of incineration without energy recovery and 50% landfill.

"With regard to recovery processes, for each component of the product, the study will cover all stages of the sector up to the point of substitution."

By sectoral agreement, transport for the collection and transport of the product at the end of its life from the site of use to its last treatment site is accounted for by considering an assumption of transport of 100 km by truck.

3.4.7. Net benefits and loads beyond the system boundaries stage

The rules specified inf the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

No specific values for the factors R1, R2 and R3 are defined in this PSR. Thus, without further documentation from registrants, the default values presented in Appendix D of the PCR should apply.

[3] In Extenso Innovation Croissance, Marion JOVER, Mathilde BORIE. ADEME, Sandrine MORICEAU. Novembre 2021. Équipements électriques et électroniques : données 2020 – Rapport annuel - 105 pages

REMINDER - the environmental impact of the production of the recycled material of the product are not taken into account during the manufacturing stage.

3.5. Rule(s) for extrapolation to a homogeneous environmental family

These rules are additional to section 2.6 "Rule(s) for extrapolation to a homogeneous environmental family" of the PCR (PEP-PCR ed.4-EN-2021 09 06).
It is accepted that the PEP covers products other than those constituting the reference product.
These products different from the reference product may be mentioned (under their trade names) in the PEP or in the LCA report, provided that they fall within the same homogeneous environmental family as the reference product.
These products different from the reference product may be mentioned (under their trade references) in the PEP or in the LCA report, provided that they are part of the same homogeneous environmental family as the reference product and that an appropriate extrapolation rule is defined in the PEP and in the LCA report.

The product selected within the range, which will act as the reference product, will be the most penalizing product (any function or option possible). This choice must be described and justified in the LCA report.

No default extrapolation rule has been defined in the context of the development of this PSR. Therefore, the following procedure applies:

- Validation of the products belonging to the same homogeneous family
- Carrying out LCAs on different representative products
- Identification and quantification of the parameters of variation within the homogeneous family
- Realization of sensitivity analysis
- Elaboration of the extrapolation rule
- Documentation of the process in the LCA report and presentation of the rule in the PEP.

3.6. Rules applying to joint environmental declarations

The rules specified to section 2.7 "Rule(s) applying to joint environmental declarations" of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

The version of Environmental database must be mentionned in the PEP and LCA report including EF version number (Environmental Footprint).

For biogenic carbon storage, both methodology 0/0 and -1/+1 are accepted until the update of environmental database. The methodology used for LCA must be mentionned in the PEP and LCA report.

3.7. Environmental data requirements

The rules specified to section 2.9 "Environmental data requirements" of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

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

- If the scrap rate included in the ICV module is editable, the defaults above should apply.
- If the scrap rate included in the ICV module is not modifiable:
    - The scrap rate is lower than the default values above: this scrap rate must be entered in the support report and the modeling must, as far as possible, be adapted to take into account the difference in waste generated (hazardous or not dangerous).
    - The scrap rate is higher than the default values above: this scrap rate must be entered in the support report.

3.8. Environmental impact calculation

The rules specified to section 2.10 "Environmental impact calculation" of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

4. Drawing up the Product Environmental Profile

4.1. General information

These rules supplement the “General information” paragraph of the applicable PCR (PEP-PCR-ed4-EN2021-09 06).
In addition to the information required by the PCR, the PEP must include:
- the family and type of equipment, as per Paragraph 2.1,
- For CIEs, the PEP must include the number of entry/exit points in the product characteristics
- the component elements of the system
- the reference usage scenario,

The following statement must be included: “
« The reference service life is also referred to as "typical". This is a theoretical period used for calculation purposes. It can never be compared to the minimum, average or actual lifetimes of the products» Appendix G of PEP-PCR-ed4-FR-2021 09 06

4.2. Constituent materials

The rules specified of the PCR (PEP-PCR-ed4-FR-2021 09 06) apply.

4.3. Additional environmental information

These specific rules supplement the “Additional environmental information” paragraph of the PCR (PEPPCR-ed4-EN-2021-09 06).
Where a Life Cycle Analysis is carried out at a building level, the environmental impact of the equipment must be considered at the product level and the impact associated with energy consumption during the usage stage must be extracted. Thus, to make it easier to use the PEP to realize a building LCA, the PEP may include:

- A table of the environmental impact of the reference product, expressed at the declared unit level in addition to a table at the functional unit level. The values must be expressed as numerical values, expressed in the appropriate units and to three significant figures (and, optionally, as a percentage) for each stage in the life cycle, as well as the totals for each indicator in the complete life cycle analysis. The information below should therefore be included in the PEP, in order to guarantee clarity and transparency for users:
    - For environmental impact expressed per functional unit, the following statement must be included: “per FU”.

    - For environmental impact expressed per declared unit, the following must be included: “per product”. The declared unit here corresponds to: “1 FSS inaccordance with the reference usage scenario over a period equal to the reference service life”. The quantity of electricity supplied during the RSL must be specifically stated in the PEP.
- The results for the environmental impact during the usage stage based on a breakdown of the B module (B1 to B7) consistent with the EN 15978 and EN 15804+A2 standards.
- The rules for extrapolation at the declared unit level.

For joint declaration, the scope of validity of the application of the extrapolation rules must be mentioned in the PEP on the basis of technical criteria making it possible to verify that the products belong to the same homogeneous environmental family as the reference product.

4.4. Environmental impacts

In order to comply with the requirements of the current PCR (PEP-PCR-ed4-FR-2021-09 06), the results presented in the table of environmental impacts relate to the implementation of the functional unit.
In the case of a PEP covering a family of products, the extrapolation rules must be mentioned and the precision below must be added in the PEP: « the extrapolation coefficients are given for the environmental impact of the unit functional ».

The extrapolation coefficients for the environmental impact of the declared unit must also be provided if the PEP declares the indicators at the scale of the declared unit. The following statement must be specified in the PEP: « the extrapolation coefficients are given for the environmental impact of the declared unit ».

The version of Environmental database must be mentionned in the PEP and LCA report including EF version number (Environmental Footprint).

For biogenic carbon storage, both methodology 0/0 and -1/+1 are accepted until the update of environmental database. The methodology used for LCA must be mentionned in the PEP and LCA report.

5. PEP update rules

The rules specified in the paragraph “Rules for updating PEPs” of the current PCR (PEPPCR-ed4-FR-2021-09 06) apply.

6. Appendices

6.1. Glossary

LCA : Life Cycle Assessment
FDAS : Fire dectection and fire alarm
FSCE : Fire safety centralizing equipment
MCP : Manual call points
RSL : Reference Service Lifetime
PSE : Power Supply equipment
EPSSD : Electrical power supplies as safety devices

CIE : Control and indicating equipment
FSS : Fire security system
DU : Declared Unit
FU : Fonctional Unit
SPSE : Safety Power Supply equipment

6.2. Declaration of conformity

Attestation de revue critique des « Règles spécifiques aux systèmes de sécurité incendie »

Chargée de revue critique	Marlène Demicheli	
Document revu	PSR - Règles spécifiques aux systèmes de sécurité incendie	
Etabli par	GESI	
Version et date	PSR-0019-ed1-FR-2023 02 28	
Période de revue	Octobre 2022 – Mars 2023	
Référentiels de revue	L'objectif de la revue critique est de vérifier la conformité du document avec les référentiels suivants : - Le programme PEP ecopassport, : PCR-ed4-FR-2021 090 06 - 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 comporte pas de non-conformité par rapports aux référentiels. Ainsi, le PSR relatifs aux systèmes de sécurité incendie est conforme aux exigences des référentiels.	
	Marlène DEMICHELI Consultante ACV et éco-conception Le 01/03/2023	Damien PRUNEL Responsable département CODDE Le 01/03/2023 LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES S.A.S au capital de 15.745.984 € RCS Nanterre B 480 163 174 33 avenue du Général Leclerc F - 92260 FONTENAY AUX ROSES

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