Environmental Product Declaration

In accordance with ISO 14025:2006
and EN 15804:2012+A2:2019/AC:2021 for:

HQ Serie
HQ85A10-6/ES
from
AFPRO Filters B.V.

Programme:	Open LCA with EcoInvent database
Programme operator:	Open LCA
EPD registration number:	Internal verification
Publication date:	2024-12-31 revision 2026-03-20
Valid until:	2029-12-31
	An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

AFPRO® Filtration Group®

MAKING THE WORLD SAFER, HEALTHIER & MORE PRODUCTIVE

HQ85A10-6 ES / Bag Filter, ePM1 60%

General information

Programme information

Programme:	OpenLCA 2.2.0
Address:	GreenDelta Alt-Moabit 130 10557 Berlin Germany
Website:	https://www.openlca.org/
E-mail:	gd@greendelta.com

Accountabilities for PCR, LCA and independent, third-party verification
According to
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Life Cycle Assessment (LCA)
LCA accountability/Study conducted by: AFPRO Filters B.V., Stephanie Telmo & Yanbin Zhuo
Third-party verification – Internal Verification by Stephanie Telmo
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No [Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

Company information

Owner of the EPD:
AFPRO Filters B.V.

Contactperson:
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Description of the organisation:
At AFPRO, we understand the significance of clean air. We are committed to protecting the safety and improving the well-being of students, employees, and patients in indoor environments such as schools, offices, factories, and hospitals. We strive to develop innovative air filtration solutions that extend lives, protect critical environments and production processes, and meet our customers' most demanding air purification requirements.
More information about the organisation can be found on the website of AFPRO Filters.

This Environmental Product Declaration (EPD) provides detailed information on the environmental performance of a compact air filter used in various industrial and commercial applications. The assessment is conducted according to the principles of ISO 14025 and EN 15804, which provide the framework for transparency and comparability in environmental product information.

Product-related or management system-related certifications:
Eurovent Certita certificate, N° 09.10.433, ECP FIL - « Air Filters », valid until 30/09/2026
VDI 6022 part 1 and VDI 3803 part 4 Certificate filters, valid from 01-07-2019
NEN-EN-ISO9001:2015 Certificate, TUV Nord, valid until 25-11-2026
NEN-EN-ISO14001:2015 Certificate, TUV Nord, valid until 15-11-2026

Name and location of production site(s):
AFPRO Filters EAF
East of University Road 253034
DEZHOU CITY

Product Information

Product name:
HQ85 ES Bag Filter

Product identification:
ePM1 60%

UN CPC code:
CPC 2.1: 43914 – Filtering or purifying machinery and apparatus, for liquids or gases, except oil filters, petrol filters and air intake filters for internal combustion engines.
HS 2017: 842139 – Machinery; for filtering or purifying gases, other than intake air filters for internal combustion engines.

Geographical scope:
Europe / Asia

Product description:

HQ85 ES Bag Filter

AFPRO Filters' bag filters are commonly used as pre-filters or fine filters in air conditioning systems. The filters are available in filter classes ISO Coarse, ePM10, ePM2.5, and ePM1, in compliance with ISO 16890. Additionally, the ePM1, ePM2.5, and ePM10 filters are Eurovent certified. The filter media, made from both polymer and fiberglass, are assembled in a durable steel or aluminum frame.

The bag filters are designed with a unique structure that ensures the lowest possible resistance. Each individual bag is assembled in an aluminum, plastic, or steel frame. The filters are resistant to temperatures up to 70°C and 95% relative humidity. Bag filters are used in air handling units, air conditioning systems, public spaces, as pre-filters for cleanrooms, and in the pharmaceutical industry.

The HQ series is perfectly suited for environments with high concentrations of fine dust. The medium of the HQ bag filters consists of a new generation of superfine fibers. The material is finished with a dense membrane that prevents fiber migration. The HQ series boasts the highest energy efficiency rating (A+).

Specification:
Application: Fine filter, HVAC, industry
Frame: Galvanized steel/aluminum
Spacers: Sewing thread
Bonding: -
Medium: Glass fiber
Gasket: Optional, Continuous poured gasket
Filter class according to ISO 16890: ePM1
Maximum final pressure drop: 450Pa
Maximum temperature: 70°C
Maximum relative humidity: 90%

Advantages:
- Lightweight frame
- High dust holding capacity
- Constant efficiency
- Energy label A+, A
- Protective pre-layer
- No fiber shedding

Options:
- ATEX

Life Cycle Analysis

Functional unit / declared unit:
One Bag Filter

Reference service life:
One year

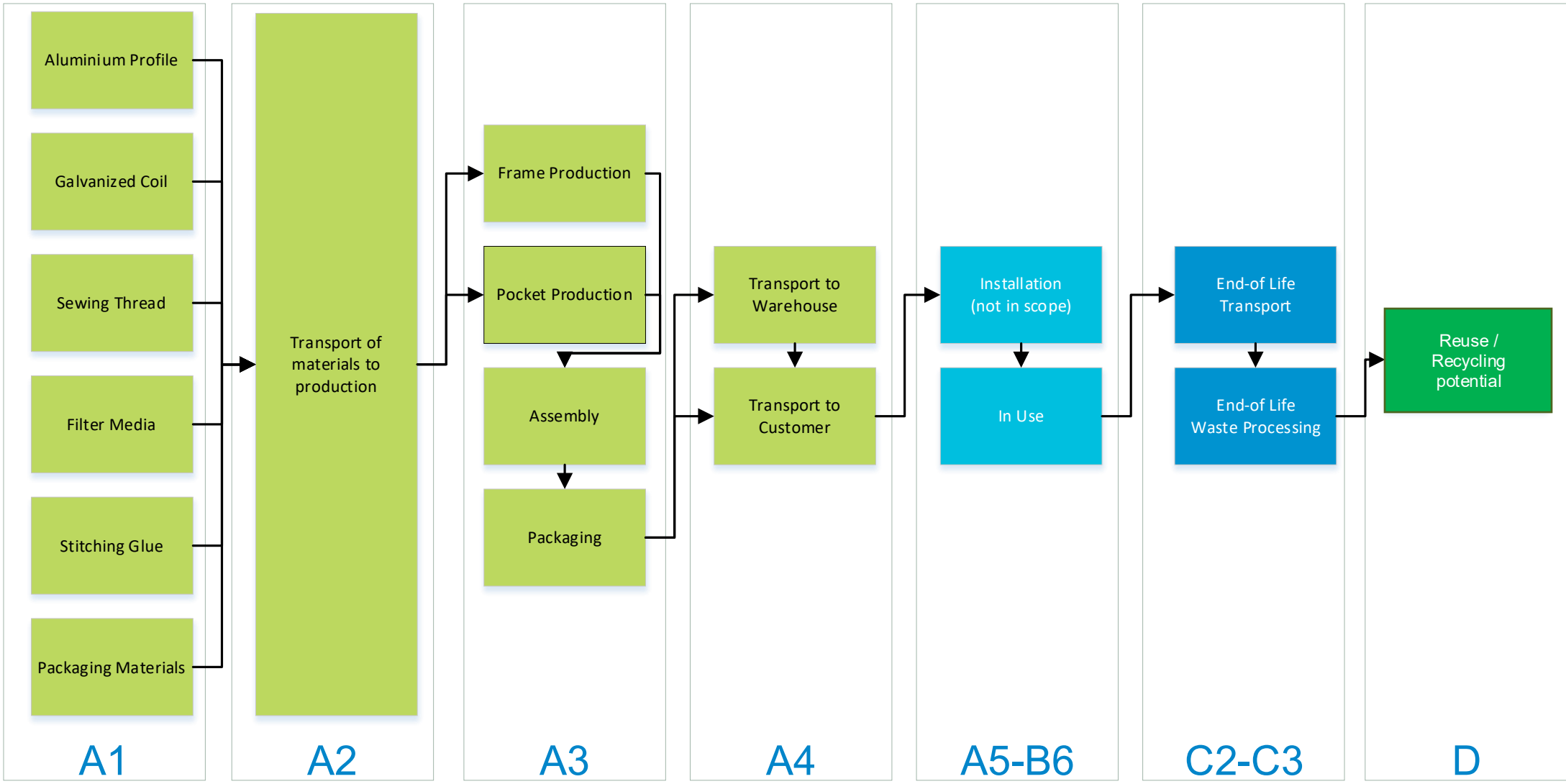
Time representativeness:
Data is collected for the LCA in 2023 and 2024. A1-A5 is based on data from 2023. Data with regard to A3-A4 is collected since 2014 and updated until 2023.

Database(s) and LCA software used:
EcoInvent v. 3.10
OpenLCA v2.2.0

Description of system boundaries:
The lifecycle includes all mandatory and optional modules A1-A4, B6, C2-C4. The report complies with the ISO standards. This EPD is for specific products within the HQ85 ES Bag Filter. HQ85A10-6 ES.

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	n.a.	x	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	x	x	x	x
Geography	CN	CN	CN	GL	x	EU	x	x	x	x	x	x	x	NL	NL	NL	NL

System Boundaries:



LCIA:

The LCIA is divided into distinct modules representing different stages of the product's life cycle, from raw material extraction to disposal. Each module is assessed for its environmental impacts, considering energy use, emissions, resource consumption, and waste generation.

Module A1 -A3: Product Stage:

A1: Raw Material Supply

This module covers the extraction and processing of raw materials used in the production of the filter, including Filter Media, Frame, Hotmelt, glue and packaging materials. All relevant materials are accounted for, and their environmental impacts are included in the assessment.

A2: Transport

Transportation of raw materials to the manufacturing site is included in this module. The environmental impacts associated with the logistics, including fuel consumption and emissions, are within the scope. We used an estimate of 200 km per supplier who ships from the inside of China to our production facility. For the Media we used an estimate of 2000km from supplier to our production facility.

A3: Manufacturing

The manufacturing process encompasses all activities involved in producing the filter. This includes the assembly of components, energy use, and emissions during production including generic transport. The assessment covers the full scope of manufacturing impacts.

Module A4-A5: Construction process stage

A4: Transport to Site:

Transportation of the filter from the production facility to our Warehouse in Alkmaar, The Netherlands and/or to the customer. We used an estimate based on shipped packages over 2023 and in which country the highest volumes of filters were sold. The estimate used is 100 km per unit.

Module B1-B6: Use Stage:

B1: Use/application

This module calculates possible damage/benefits of the item application. A single value is calculated to represent the quantity of particulate pm2.5 matter reduction after passing through the filter.

Module C1 – C4: End-of-Life Stage:

C2: Transport to Waste Processing

This module covers the transportation of the filter components to waste processing facilities. The environmental impacts of transport logistics are included.

C3: Waste Processing

The processing of waste materials, including recycling or disposal, is considered. The impacts associated with waste treatment methods are assessed.

C4: Disposal

Final disposal of the filter, including landfill or incineration, is within the scope. The environmental impacts of disposal methods are considered. C3 is waste processing, because the waste processing is incineration, it is combined with C4 (disposal). We currently have a contract with a waste processing company in The Netherlands to retrieve the filters and check whether parts can be reused, recycled or have to be incinerated.

Excluded:

Certain activities and processes have been excluded from the assessment due to the reasons outlined below:

- *B1 (Use):* Excluded as calculations are not complete.
- *A5 (Installation):* Excluded since the company does not perform installation.
- *Journey to Work:* Excluded as it does not significantly contribute to the environmental impact.
- *C1 (Deconstruction):* Excluded as it is not applicable to the company's operations.

Cut off criteria:

- *Mass:* All individual materials or components that represent more than 1% of the total product mass are included. Aggregated materials accounting for more than 95% of the total mass are also included.
- *Energy:* All processes and energy inputs contributing more than 1% to the total energy consumption are included.
- *Environmental Relevance:* Any material or process with a significant environmental impact, even if it is less than 1% by mass or energy, is included.

In this assessment, approximately 100% of the materials and processes have been inventoried and included, ensuring a comprehensive and accurate representation of the product's environmental impact.

Content information HQ85A10-6 ES

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight %
HQ Frame	1,764	0%	0%
Filter Media	0.82	0%	0%
Hotmelt	0.11	0%	0%
TOTAL	2.69		
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Recycled materials, weight %**
Box	0,72	12%	70%
Filter label	0,0005	0%	0%
Box label	0,0020	0%	0%
TOTAL	0,7224		

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

HQ85A10-6/ES			A1A2A3	A4	B1	B6	C2	C3	C4	D
Impact category	Indicator	Unit	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Acidification	AP	mol H+-Eq	1,57E-01	1,67E-02	0.00E+00	NA	2,72E-03	5,75E-04	0.00E+00	-1,66E-02
Climate change	GWP-total	kg CO2-Eq	8,36E+00	1,51E+00	0.00E+00	NA	5,22E-01	8,09E-01	0.00E+00	-2,78E+00
Climate change: biogenic	GWP-biogenic	kg CO2-Eq	-7,19E+00	5,22E-03	0.00E+00	NA	9,19E-05	4,40E-01	0.00E+00	-6,86E-02
Climate change: fossil	GWP-fossil	kg CO2-Eq	1,55E+01	1,50E+00	0.00E+00	NA	5,21E-01	3,69E-01	0.00E+00	-2,70E+00
Climate change: land use and land use change	GWP-luluc	kg CO2-Eq	3,77E-02	7,63E-04	0.00E+00	NA	5,72E-05	5,97E-05	0.00E+00	-6,50E-03
Energy resources/non-renewable:	ADP-fossil	MJ, net calorific value	1,80E+02	2,03E+01	0.00E+00	NA	6,76E+00	1,00E+00	0.00E+00	-5,50E+01
Eutrophication: freshwater	EP-freshwater	kg P-Eq	8,90E-04	3,03E-05	0.00E+00	NA	1,12E-06	1,02E-06	0.00E+00	-2,41E-04
Eutrophication: marine	EP-marine	kg N-Eq	2,32E-02	3,83E-03	0.00E+00	NA	1,19E-03	2,90E-04	0.00E+00	-2,02E-03
Eutrophication: terrestrial	EP-terrestrial	mol N-Eq	3,46E-01	4,30E-02	0.00E+00	NA	1,30E-02	2,65E-03	0.00E+00	-2,33E-02
Material resources: metals/minerals	ADP-minerals&meta	kg Sb-Eq	3,71E-04	3,23E-06	0.00E+00	NA	3,54E-07	1,99E-07	0.00E+00	-2,92E-05
Ozone depletion	ODP	kg CFC-11-Eq	1,96E-07	2,58E-08	0.00E+00	NA	7,82E-09	1,51E-09	0.00E+00	-4,41E-08
Photochemical oxidant formation: human health	POCP	kg NMVOC-Eq	6,79E-02	1,28E-02	0.00E+00	NA	5,21E-03	7,52E-04	0.00E+00	-7,37E-03
Water use	WDP	m3 world Eq deprived	7,41E+00	1,63E-01	0.00E+00	NA	1,18E-02	6,99E-02	0.00E+00	-1,39E+00
Potential incidence of disease due to PM emissions	PM	Disease Incidence	1,33E-06	5,74E-08	0.00E+00	NA	6,75E-08	8,43E-09	0.00E+01	-8,12E-08

Additional environmental information

Use of the Product
HQ85A10-6-ES

Instructions and Support
Comprehensive instructions for the installation, use, and maintenance of our filters are readily available on our website. These resources include detailed guides, instructional videos, and troubleshooting tips to help you maximize the efficiency and longevity of your filter. Our website also features a dedicated customer support section, where you can access FAQs, contact our support team, or download product manuals. We encourage users to regularly consult these resources to ensure the optimal performance of their filtration systems.

Filter Lifetime and Efficiency
Our filters are built to last, with a typical operational life that exceeds industry standards. Depending on the environment and usage conditions, the filter can remain effective for up to 12 months before replacement is necessary. The extended lifetime of our filters reduces the frequency of replacements, contributing to lower overall costs and reduced environmental impact. To maximize the lifespan of the filter, we recommend regular inspections and adherence to the maintenance guidelines provided in our online resources.

End-of-Life Management
We are committed to ensuring that our products have a minimal environmental impact, even at the end of their useful life. Our filters are designed with end-of-life considerations in mind, making them easy to disassemble for recycling. The materials used in our filters, including the frame and filter media, are recyclable where facilities exist. We provide clear instructions on our website for the proper disposal and recycling of used filters, and we are continually working to expand our recycling program to make it even easier for our customers to participate in sustainable practices.

Sustainability Initiatives
Sustainability is at the core of our product design and manufacturing processes. We prioritize the use of environmentally friendly materials and have optimized our production processes to minimize waste and energy consumption. Our filters are produced using methods that reduce carbon emissions and water usage, and we are constantly exploring new ways to improve our sustainability performance. Additionally, by extending the lifetime of our filters, we help reduce the frequency of replacements, leading to less waste and a lower environmental footprint over time.

At AFPRO, we understand the significance of clean air. We are committed to protecting the safety and improving the well-being of students, employees, and patients in indoor environments such as schools, offices, factories, and hospitals. We strive to develop innovative air filtration solutions that extend lives, protect critical environments and production processes, and meet our customers' most demanding air purification requirements.

We are very proud of our commitment to Corporate Social Responsibility, which goes beyond our day-to-day activities and touches every facet of our business. We actively align our values and actions to contribute to a more sustainable future by incorporating sustainable practices, promoting social well-being, and making informed choices to minimize our environmental footprint.

Together, let's create a world that is safer, healthier and more productive, one breath at a time.