OWNER OF THE EPD: Camfil AB, Sveavägen 56E, 111 34 Stockholm, Sweden

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ENVIRONMENTAL PRODUCT DECLARATION

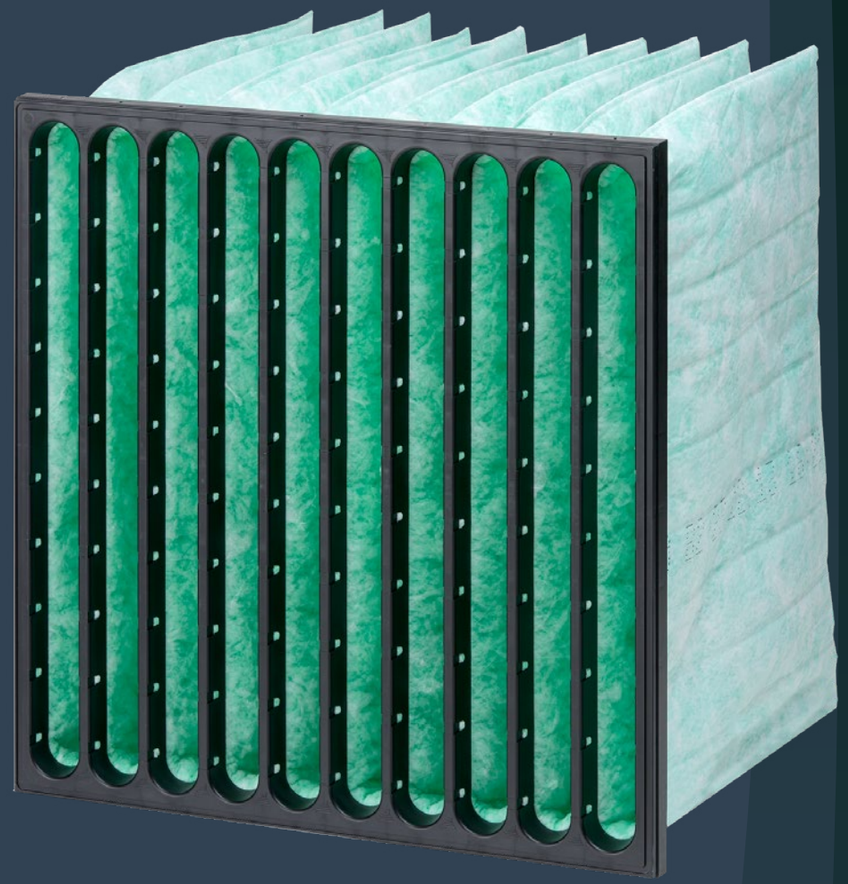
In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

HI-FLO XLT ePM1 60%

MADE IN SWEDEN

Product variants declared in the EPD:
Hi-Flo XLT 7/370 0160 | Hi-Flo XLT 7/520 0160 | Hi-Flo XLT 7/640 0160

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-03432
Publication date:	2021-10-25
Valid until:	2026-10-25
Revision date:	2022-11-04



**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.*

Programme information

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)

PRODUCT CATEGORY RULES (PCR): PCR 2019:14 Construction products; version 1.11 of 2021-02-05, valid until 2024-12-20

PCR REVIEW WAS CONDUCTED BY: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members.
Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

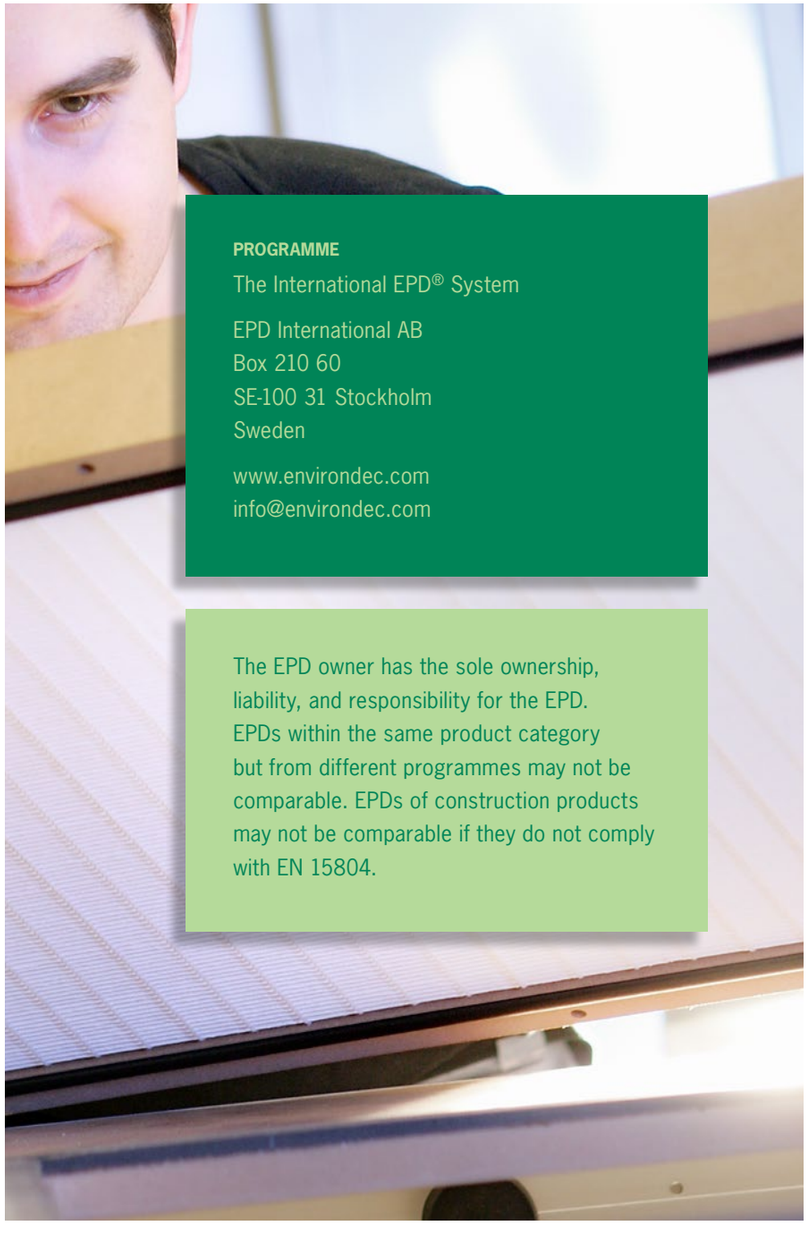
INDEPENDENT THIRD-PARTY VERIFICATION OF THE DECLARATION AND DATA, ACCORDING TO ISO 14025:2006:
☐ Internal ☑ External | ☐ EPD process certification ☑ EPD verification

LCA STUDY CONDUCTED BY: Camfil R&D in collaboration with IVL Swedish Environmental Research Institute.

THIRD PARTY VERIFIER: Martyna Mikusinska, Sweco

IN CASE OF RECOGNISED INDIVIDUAL VERIFIERS:
APPROVED BY: The International EPD® System

PROCEDURE FOR FOLLOW-UP OF DATA DURING EPD VALIDITY INVOLVES THIRD PARTY VERIFIER: ☐ Yes ☑ No



PROGRAMME
The International EPD® System

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SE-100 31 Stockholm
Sweden

www.environdec.com
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The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Company information

As a leading manufacturer of premium clean air solutions, Camfil provides commercial and industrial solutions for air filtration and air pollution control that improves worker and equipment productivity, minimises energy use, benefits human health and the environment. More information about the organisation can be found on the website in the section About Camfil.

ISO 9001
ISO 14001

CERTIFIERAD RI. SE

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Hi-Flo XLT ePM1 60%

Hi-Flo XLT is a bag filter produced by Camfil Svenska AB (Trosa, Sweden) with dimensions according to EN 15805, and filtration class of ePM1 60% according to ISO 16890. It consists of an aerodynamic plastic frame and glass fibre media, for the particle filtration of air and other gases.

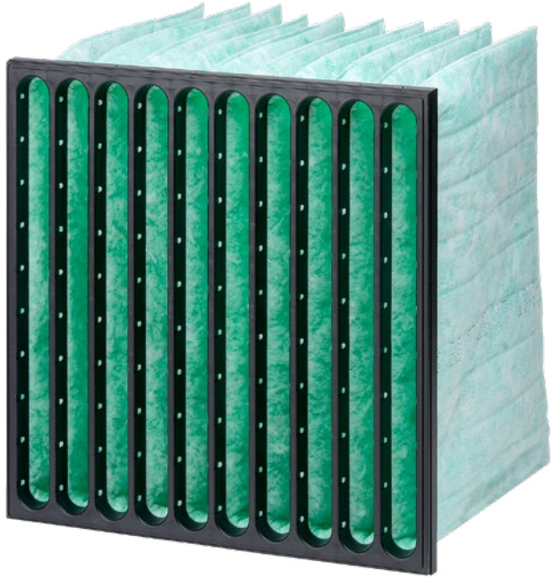
Bag filters, or pocket filters, are used in HVAC applications as final filters in industrial, commercial and residential applications, and also serves as prefilters in HEPA installations to improve indoor air quality and comfort.

The filters in the supply air are used in first and second filter stages, either as complete filtration solution for these applications or as prefilters for cleanroom process applications. The filters are also used in the exhaust air or in recirculation systems to protect the air handling units. Bag filters have a significantly higher dust holding capacity and longer lifetime than other filters.

The service life of bag filters is dependent on the end user preferences. It may vary also for different types of installation and geographical location of the site, where the filter is installed. However, 1 year is an average lifetime of the filter, based on dust loading and related to its pressure drop increase, which results in high energy consumption. In addition, VDI 6022 recommends filter change after 1 year for the first filter stage for hygienic reasons.

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.



HI-FLO XLT ePM1 60% ATTRIBUTES

- Full module standard size: 592x592 mm (WxH)
- Available in many different sizes, for more information see product information
- Number of bags for full module: 10
- Depth: 370–640 mm
- Frame material: Recycled plastic (PS)
- Media: Glass fibre

VARIATIONS OF BAG FILTERS INCLUDED IN THIS DECLARATION:

FILTER VARIANT	NO. OF BAGS	LENGTH OF BAGS (MM)	FILTER CLASS ACC. TO ISO16890
XLT 7/370	10	370	ePM1 60%
XLT 7/520	10	520	ePM1 60%
XLT 7/640	10	640	ePM1 60%

**The results present specific data for each included variant.*

Life Cycle Assessment

The life cycle stages included in the assessment are A1-A5, B1, B6, C1-C4, and D. The scope of the EPD generated corresponds to the so-called cradle-to-gate with options, modules C1-C4, module D and with optional modules, as described in the PCR for construction products (v 1.11) used. This means that additional life cycle stages except the mandatory stages A1-A3, C1-C4 and D are also included, which is A4 (Transport), A5 (Installation), B1 (Use), and B6 (Operational energy use).

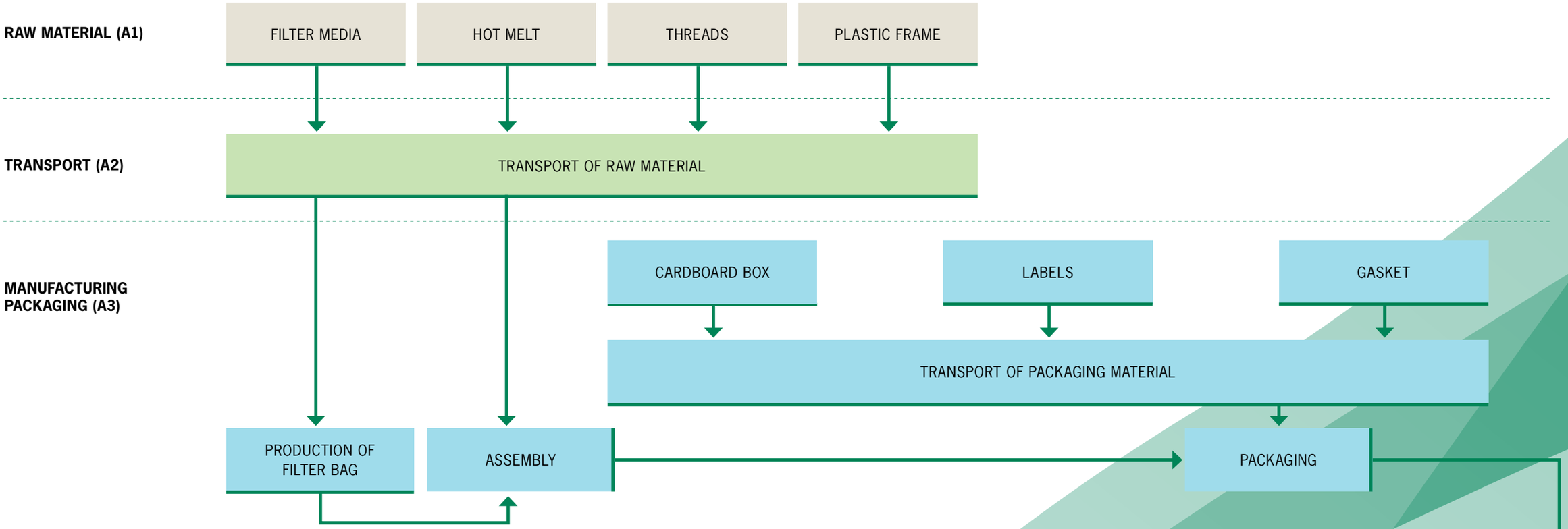
FUNCTIONAL UNIT / DECLARED UNIT: 1 bag filter.
REFERENCE SERVICE LIFE: One year - derived from hygienic concerns acc. to the guideline VDI 6022.
TIME REPRESENTATIVENESS: Data collection was performed during 2019 and 2022. Data for the processes in A3 represent values for the years 2021 and 2022. Age of background data range between year 2014 and 2022.
LCA SOFTWARE USED: GaBi ts professional version 10.5.0.78, Service Pack 40.
DATABASE USED: Thinkstep Database SP 40, Ecoinvent v. 3.5.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USAGE STAGE							END OF LIFE STAGE				RESOURCE RECOVERY STAGE
Raw materials	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
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	ND	ND	ND	ND	X	ND	X	X	X	X	X

GEOGRAPHICAL SCOPE: Europe and Sweden: A1, A2
Sweden: A3, A4, A5, B1, B6, C1, C2, C3, C4, D

SPECIFIC DATA USED: More than 90% for modules: A1, A2, A3, A4, A5, B1
100% for modules: B6
Modules: C1, C2, C3, C4, D modelled by generic or proxy data.

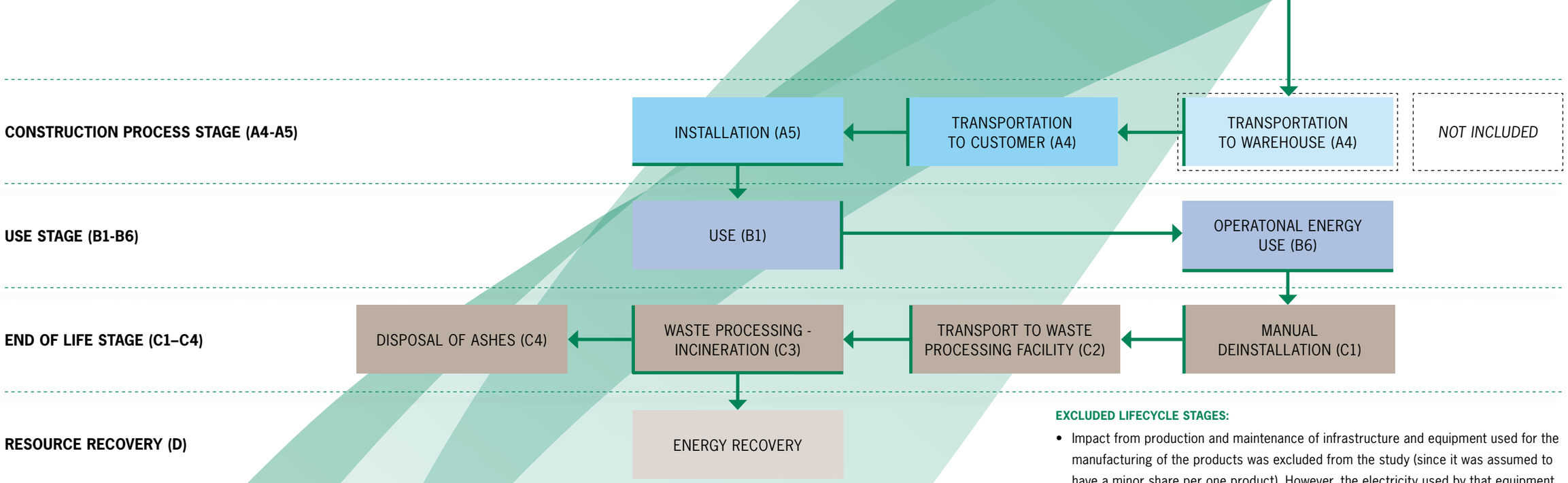
Description of system boundaries:



MODULE A1 covers extraction and processing of raw materials, as well as production of the materials and components used for production of bag filters: filter media, plastic frame, hot melt and threads.

MODULE A2 covers transportation of the materials and components to the production site in Trosa (Sweden).

MODULE A3 covers production of the bag filters at the production site in Trosa. This stage includes electricity consumption for bag assembly and filter assembly, as well as the electricity consumption for general processes, such as heating and lighting. Bag assembly includes trimming and stitching the rolled media into a pocket shape including thread and hot melt. Filter assembly includes snapping the finished bags into a 2-elements plastic frame. Both processes are conducted in specially designed machines - respective sewing machine and automatic assembly station. Module A3 also includes production and transport of packaging materials as cardboard box, labels and gasket.



MODULE A4 covers transportation of the bag filter to the customer. An average transport distance to the customer is assumed to be 350 km and it is representative for year 2021.

MODULE A5 covers transport of cardbord box to waste management and it's incineration

MODULE B1 covers accumulation of dust in the filter and hence the reduction or particulate matter in the air.

MODULE B6 covers electricity consumption during use phase of the bag filter during one year. Calculation of electricity consumption was performed according to Eurovent 4/21-2019.

MODULE C1 covers manual operation of filter removal from the installation.

MODULE C2 covers transport from the user site to the waste processing facility. An average transport distance has been estimated to 100 km.

MODULE C3 covers incineration of the filter and the collected dust. The incineration process is conducted with recovery of energy.

MODULE C4 covers deposition of the filter ashes.

MODULE D includes energy recovery potential from incineration.

CUT-OFF CRITERIA:

Close to 100% of all raw material used in the production has been included in the model calculations. In other words, the study applies a cut-off criterion of maximum 5% energy and mass, which complies with the maximum cut-off criteria established by the standard.

Recycled material enters the system boundaries without any burden from previous life cycles. Recycling processes and transports of the material to the production site are included.

EXCLUDED LIFECYCLE STAGES:

- Impact from production and maintenance of infrastructure and equipment used for the manufacturing of the products was excluded from the study (since it was assumed to have a minor share per one product). However, the electricity used by that equipment was included.
- Business travel and travel to and from work of personnel.
- In the manufacturing stage (A3) loads of incineration of the media waste have been excluded. However, the media waste is included.
- Allocation of energy has been excluded as it generates very low contribution to the overall revenue.
- The study does not fully cover a cradle-to-grave perspective as only selected optional modules from stages A and B are included (A4 - Transport to customer, A5 - Installation, B1 - Use, B6 - Operational energy use).
- During Use (B1) only carbon content in the collected dust has been considered in estimating the total calorific value of the dust.
- In module C4 landfill of the ashes from filter incineration has been excluded as it generates negligible impact on the environment, assuming high efficiency of the process.

Content declaration

PRODUCT COMPONENTS	SUBSTANCES	WEIGHT, KG	POST-CONSUMER MATERIAL, WEIGHT-%	RENEWABLE MATERIAL, WEIGHT-%
XL-frame		**1,49**	0%	0%
	Polystyrene Styron 485	(≤94%)		
	71 Nature	(≤6%)		
	HIPS (Carbon black)	(≤0,1%)		
Filter media Hi-Flo ePM1 60%		**0,23 - 0,41**	0%	0%
	Glass type 902 non biospersistent microfiber	(60-70%)		
	Glass woven fabrice	(0-20%)		
	Polyester backing	(0-20%)		
	Phenol based resin	(8-10%)		
Hot melt		**0,089 - 0,154**	0%	0%
	Wax	(<20%)		
	Polymer	(<40%)		
	Ester with glycerol	(<0.5%)		
	Antioxinant	(<50%)		
Thread		**0,011 - 0,019**	0%	0%
	Polyester	(100%)		

PACKAGING MATERIALS	SUBSTANCES	WEIGHT, KG	WEIGHT-% (VERSUS THE PRODUCT)
Frame label		**0,0002**	0,01%
	PET	(100%)	
Gasket		**0,007**	0,34-0,38%
	Polyethylene	(100%)	
Cardboard box		**0,33-0,37**	17,9-18,9%
	Cardboard	(100%)	
Box label		**0,0007**	0,03-0,04%
	PET	(100%)	

**No substances included in the product or in the packaging have been listed as Substance of Very High Concern (SVHC)*

RECYCLED MATERIAL

The plastic frames contain 100% of pre-consumer regrinded polystyrene (PS).

The box contains 12% of recycled cardboard.

BIOGENIC CARBON CONTENT	KG C PER ONE FILTER
In product	0
In accompanying packaging	0,099-0,111

NOTE: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2

Environmental performance

Potential environmental impact

XLT 7/370 0160

HI-FLO XLT 7/370 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Global Warming Potential total (GWP-total) [kg CO_2 eq.]	3.98E+00	4.53E-02	3.68E-01	0.00E+00	6.17E+01	0.00E+00	1.44E-02	5.85E+00	0.00E+00	7.20E+01	-2.73E-01
Global Warming Potential fossil fuels (GWP-fossil) [kg CO_2 eq.]	4.43E+00	4.51E-02	1.99E-02	0.00E+00	6.13E+01	0.00E+00	1.43E-02	5.65E+00	0.00E+00	7.14E+01	-2.64E-01
Global Warming Potential biogenic (GWP-biogenic) [kg CO_2 eq.]	-4.57E-01	-6.24E-05	3.48E-01	0.00E+00	4.01E-01	0.00E+00	-1.98E-05	2.04E-01	0.00E+00	4.97E-01	-8.16E-03
Global Warming Potential land use and land use change (GWP-luluc) [kg CO_2 eq.]	4.48E-03	2.52E-04	1.42E-05	0.00E+00	3.41E-02	0.00E+00	7.99E-05	5.60E-06	0.00E+00	3.90E-02	-8.76E-04
Ozone Depletion Potential (ODP) [kg CFC 11 eq.]	9.12E-08	2.71E-15	3.13E-14	0.00E+00	6.57E-10	0.00E+00	8.58E-16	9.35E-10	0.00E+00	9.28E-08	-1.50E-12
Acidification Potential (AP) [mol H^+ eq.]	1.33E-02	4.26E-05	1.21E-04	0.00E+00	1.86E-01	0.00E+00	1.35E-05	5.97E-04	0.00E+00	2.00E-01	-3.70E-03
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg PO_4 eq.]	2.99E-04	4.14E-07	9.74E-08	0.00E+00	3.54E-03	0.00E+00	1.31E-07	1.70E-07	0.00E+00	3.83E-03	-1.13E-04
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg P eq.]	9.73E-05	1.35E-07	3.17E-08	0.00E+00	1.15E-03	0.00E+00	4.28E-08	5.52E-08	0.00E+00	1.25E-03	-3.67E-05
Eutrophication Potential reaching marine end compartment (EP-marine) [kg N eq.]	3.27E-03	1.32E-05	4.25E-05	0.00E+00	6.79E-02	0.00E+00	4.19E-06	1.31E-04	0.00E+00	7.13E-02	-1.46E-03
Eutrophication Potential terrestrial (EP-terrestrial) [mol N eq.]	5.44E-02	1.59E-04	5.66E-04	0.00E+00	5.92E-01	0.00E+00	5.05E-05	2.58E-03	0.00E+00	6.50E-01	-1.14E-02
Photochemical Ozone Formation Potential (POCP) [kg NMVOC eq.]	1.20E-02	3.71E-05	1.11E-04	0.00E+00	1.49E-01	0.00E+00	1.18E-05	3.82E-04	0.00E+00	1.62E-01	-2.97E-03
Abiotic Depletion for non-fossil resources (ADP-minerals&metals) [kg Sb eq.]	1.31E-06	3.78E-09	1.19E-09	0.00E+00	5.06E-05	0.00E+00	1.20E-09	5.36E-09	0.00E+00	5.19E-05	-2.81E-07
Abiotic Depletion for fossil resources (ADP-fossil) [MJ, net calorific value]	7.64E+01	6.04E-01	1.66E-01	0.00E+00	5.67E+03	0.00E+00	1.91E-01	8.42E-01	0.00E+00	5.75E+03	-1.42E+01
Water Use Deprivation Potential (WDP) [m^3 world eq. deprived]	7.06E-01	4.05E-04	5.25E-02	0.00E+00	4.61E+01	0.00E+00	1.28E-04	4.72E-01	0.00E+00	4.73E+01	-3.12E-01

**D is reported as total energy recovery potential expressed as heat and electricity.*

Only potential incidence of disease due to PM emissions in stage B1 from the additional environmental indicators is included in this study.

Potential environmental impact

XLT 7/520 0160

HI-FLO XLT 7/520 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Global Warming Potential total (GWP-total) [kg CO_2 eq.]	5.38E+00	4.90E-02	5.26E-01	0.00E+00	4.19E+01	0.00E+00	1.82E-02	6.33E+00	0.00E+00	5.42E+01	-3.04E-01
Global Warming Potential fossil fuels (GWP-fossil) [kg CO_2 eq.]	5.87E+00	4.88E-02	1.49E-02	0.00E+00	4.16E+01	0.00E+00	1.81E-02	5.94E+00	0.00E+00	5.35E+01	-2.94E-01
Global Warming Potential biogenic (GWP-biogenic) [kg CO_2 eq.]	-4.99E-01	-6.75E-05	5.11E-01	0.00E+00	2.72E-01	0.00E+00	-2.50E-05	3.84E-01	0.00E+00	6.69E-01	-9.18E-03
Global Warming Potential land use and land use change (GWP-luluc) [kg CO_2 eq.]	5.80E-03	2.72E-04	1.46E-05	0.00E+00	2.32E-02	0.00E+00	1.01E-04	5.89E-06	0.00E+00	2.94E-02	-9.85E-04
Ozone Depletion Potential (ODP) [kg CFC 11 eq.]	9.24E-08	2.93E-15	5.83E-14	0.00E+00	4.46E-10	0.00E+00	1.08E-15	1.31E-09	0.00E+00	9.41E-08	-1.67E-12
Acidification Potential (AP) [mol H^+ eq.]	1.73E-02	4.60E-05	1.47E-04	0.00E+00	1.26E-01	0.00E+00	1.71E-05	6.60E-04	0.00E+00	1.45E-01	-4.16E-03
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg PO_4 eq.]	3.10E-04	4.48E-07	7.61E-08	0.00E+00	2.40E-03	0.00E+00	1.66E-07	1.80E-07	0.00E+00	2.71E-03	-1.27E-04
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg P eq.]	1.01E-04	1.46E-07	2.48E-08	0.00E+00	7.82E-04	0.00E+00	5.41E-08	5.87E-08	0.00E+00	8.83E-04	-4.13E-05
Eutrophication Potential reaching marine end compartment (EP-marine) [kg N eq.]	4.13E-03	1.43E-05	5.32E-05	0.00E+00	4.61E-02	0.00E+00	5.30E-06	1.46E-04	0.00E+00	5.04E-02	-1.65E-03
Eutrophication Potential terrestrial (EP-terrestrial) [mol N eq.]	7.07E-02	1.72E-04	6.65E-04	0.00E+00	4.02E-01	0.00E+00	6.38E-05	2.79E-03	0.00E+00	4.77E-01	-1.28E-02
Photochemical Ozone Formation Potential (POCP) [kg NMVOC eq.]	1.55E-02	4.01E-05	1.41E-04	0.00E+00	1.01E-01	0.00E+00	1.49E-05	4.22E-04	0.00E+00	1.17E-01	-3.14E-03
Abiotic Depletion for non-fossil resources (ADP-minerals&metals) [kg Sb eq.]	1.54E-06	4.08E-09	1.62E-09	0.00E+00	3.43E-05	0.00E+00	1.51E-09	5.57E-09	0.00E+00	3.59E-05	-2.95E-07
Abiotic Depletion for fossil resources (ADP-fossil) [MJ, net calorific value]	1.00E+02	6.53E-01	1.89E-01	0.00E+00	3.85E+03	0.00E+00	2.42E-01	9.63E-01	0.00E+00	3.95E+03	-1.47E+01
Water Use Deprivation Potential (WDP) [m^3 world eq. deprived]	8.87E-01	4.38E-04	6.50E-02	0.00E+00	3.13E+01	0.00E+00	1.62E-04	4.97E-01	0.00E+00	3.27E+01	-3.28E-01

**D is reported as total energy recovery potential expressed as heat and electricity.*

Only potential incidence of disease due to PM emissions in stage B1 from the additional environmental indicators is included in this study.

Potential environmental impact

XLT 7/640 0160

HI-FLO XLT 7/640 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Global Warming Potential total (GWP-total) [kg CO_2 eq.]	6.52E+00	5.13E-02	5.26E-01	0.00E+00	3.60E+01	0.00E+00	2.21E-02	6.78E+00	0.00E+00	4.99E+01	-3.34E-01
Global Warming Potential fossil fuels (GWP-fossil) [kg CO_2 eq.]	7.00E+00	5.10E-02	1.49E-02	0.00E+00	3.58E+01	0.00E+00	2.20E-02	6.20E+00	0.00E+00	4.91E+01	-3.22E-01
Global Warming Potential biogenic (GWP-biogenic) [kg CO_2 eq.]	-4.82E-01	-7.06E-05	5.11E-01	0.00E+00	2.34E-01	0.00E+00	-3.04E-05	5.79E-01	0.00E+00	8.42E-01	-1.01E-02
Global Warming Potential land use and land use change (GWP-luluc) [kg CO_2 eq.]	6.75E-03	2.85E-04	1.46E-05	0.00E+00	1.99E-02	0.00E+00	1.23E-04	6.12E-06	0.00E+00	2.71E-02	-1.09E-03
Ozone Depletion Potential (ODP) [kg CFC 11 eq.]	9.33E-08	3.06E-15	5.83E-14	0.00E+00	3.84E-10	0.00E+00	1.32E-15	1.62E-09	0.00E+00	9.53E-08	-1.81E-12
Acidification Potential (AP) [mol H^+ eq.]	2.04E-02	4.82E-05	1.47E-04	0.00E+00	1.09E-01	0.00E+00	2.07E-05	7.11E-04	0.00E+00	1.30E-01	-4.58E-03
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg PO_4 eq.]	3.17E-04	4.68E-07	7.61E-08	0.00E+00	2.06E-03	0.00E+00	2.02E-07	1.89E-07	0.00E+00	2.38E-03	-1.40E-04
Eutrophication Potential reaching freshwater end compartment (EP-freshwater) [kg P eq.]	1.03E-04	1.53E-07	2.48E-08	0.00E+00	6.72E-04	0.00E+00	6.56E-08	6.16E-08	0.00E+00	7.76E-04	-4.55E-05
Eutrophication Potential reaching marine end compartment (EP-marine) [kg N eq.]	4.78E-03	1.50E-05	5.33E-05	0.00E+00	3.96E-02	0.00E+00	6.44E-06	1.57E-04	0.00E+00	4.46E-02	-1.82E-03
Eutrophication Potential terrestrial (EP-terrestrial) [mol N eq.]	8.34E-02	1.80E-04	6.65E-04	0.00E+00	3.46E-01	0.00E+00	7.75E-05	2.96E-03	0.00E+00	4.33E-01	-1.41E-02
Photochemical Ozone Formation Potential (POCP) [kg NMVOC eq.]	1.83E-02	4.20E-05	1.41E-04	0.00E+00	8.72E-02	0.00E+00	1.81E-05	4.54E-04	0.00E+00	1.06E-01	-3.68E-03
Abiotic Depletion for non-fossil resources (ADP-minerals&metals) [kg Sb eq.]	1.71E-06	4.27E-09	1.62E-09	0.00E+00	2.95E-05	0.00E+00	1.84E-09	5.75E-09	0.00E+00	3.12E-05	-3.45E-07
Abiotic Depletion for fossil resources (ADP-fossil) [MJ, net calorific value]	1.19E+02	6.83E-01	1.89E-01	0.00E+00	3.31E+03	0.00E+00	2.94E-01	1.06E+00	0.00E+00	3.43E+03	-1.71E+01
Water Use Deprivation Potential (WDP) [m^3 world eq. deprived]	1.03E+00	4.59E-04	6.50E-02	0.00E+00	2.69E+01	0.00E+00	1.97E-04	5.18E-01	0.00E+00	2.85E+01	-3.83E-01

**D is reported as total energy recovery potential expressed as heat and electricity.*

Only potential incidence of disease due to PM emissions in stage B1 from the additional environmental indicators is included in this study.

Additional environmental impact indicators

Potential incidence of disease due to PM emissions (Disease incident)	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Hi-Flo XLT 7/370 0160	6.29E-07	2.58E-10	8.28E-10	-2.59E-05	1.67E-06	0.00E+00	8.18E-11	3.81E-09	0.00E+00	-2.36E-05	-3.41E-08
Hi-Flo XLT 7/520 0160	8.68E-07	2.79E-10	8.03E-10	-2.59E-05	1.13E-06	0.00E+00	1.03E-10	4.32E-09	0.00E+00	-2.39E-05	-3.61E-08
Hi-Flo XLT 7/640 0160	1.06E-06	2.92E-10	8.03E-10	-2.59E-05	9.76E-07	0.00E+00	1.26E-10	4.74E-09	0.00E+00	-2.39E-05	-4.22E-08

Global Warming Potential excl. biogenic carbon (GWP-GHG) [kg CO_2 eq.]	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Hi-Flo XLT 7/370 0160	4.44E+00	4.54E-02	1.99E-02	0.00E+00	6.13E+01	0.00E+00	1.44E-02	5.65E+00	0.00E+00	7.15E+01	-2.65E-01
Hi-Flo XLT 7/520 0160	5.88E+00	4.90E-02	1.49E-02	0.00E+00	4.16E+01	0.00E+00	1.82E-02	5.94E+00	0.00E+00	5.35E+01	-2.95E-01
Hi-Flo XLT 7/640 0160	7.01E+00	5.13E-02	1.49E-02	0.00E+00	3.58E+01	0.00E+00	2.21E-02	6.20E+00	0.00E+00	4.91E+01	-3.24E-01

**D is reported as total energy recovery potential expressed as heat and electricity.*

Only potential incidence of disease due to PM emissions in stage B1 from the additional environmental indicators is included in this study.

Use of resources

XLT 7/370 0160

HI-FLO XLT 7/370 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Use of renewable primary energy (PERE) [MJ]	1.53E+01	3.43E-02	3.99E-02	0.00E+00	5.17E+03	0.00E+00	1.09E-02	1.56E-01	0.00E+00	5.18E+03	-3.66E+01
Primary energy resources used as raw materials (PERM) [MJ]	4.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.73E+00	0.00E+00
Total use of renewable primary energy resources (PERT) [MJ]	2.01E+01	3.43E-02	3.99E-02	0.00E+00	5.17E+03	0.00E+00	1.09E-02	1.56E-01	0.00E+00	5.19E+03	-3.66E+01
Use of non-renewable primary energy (PENRE) [MJ]	1.14E+01	6.05E-01	1.66E-01	0.00E+00	5.67E+03	0.00E+00	1.92E-01	8.43E-01	0.00E+00	5.69E+03	-1.42E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	6.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E+01	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	7.64E+01	6.05E-01	1.66E-01	0.00E+00	5.67E+03	0.00E+00	1.92E-01	8.43E-01	0.00E+00	5.75E+03	-1.42E+01
Input of secondary material (SM) [kg]	1.53E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	2.92E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-24	0.00E+00
Use of non-renewable secondary fuels (NRSF) [MJ]	3.43E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-23	0.00E+00
Use of net fresh water (FW) [m^3]	2.95E-02	3.88E-05	1.25E-03	0.00E+00	7.98E+00	0.00E+00	1.23E-05	1.11E-02	0.00E+00	8.02E+00	-2.46E-02

**D is reported as total energy recovery potential expressed as heat and electricity.*

Use of resources

XLT 7/520 0160

HI-FLO XLT 7/520 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Use of renewable primary energy (PERE) [MJ]	1.86E+01	3.71E-02	3.78E-02	0.00E+00	3.51E+03	0.00E+00	1.38E-02	1.67E-01	0.00E+00	3.53E+03	-3.86E+01
Primary energy resources used as raw materials (PERM) [MJ]	5.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.31E+00	0.00E+00
Total use of renewable primary energy resources (PERT) [MJ]	2.39E+01	3.71E-02	3.78E-02	0.00E+00	3.51E+03	0.00E+00	1.38E-02	1.67E-01	0.00E+00	3.53E+03	-3.86E+01
Use of non-renewable primary energy (PENRE) [MJ]	3.32E+01	6.54E-01	1.89E-01	0.00E+00	3.85E+03	0.00E+00	2.43E-01	9.63E-01	0.00E+00	3.89E+03	-1.47E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	6.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.68E+01	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	1.00E+02	6.54E-01	1.89E-01	0.00E+00	3.85E+03	0.00E+00	2.43E-01	9.63E-01	0.00E+00	3.95E+03	-1.47E+01
Input of secondary material (SM) [kg]	1.53E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	4.10E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-24	0.00E+00
Use of non-renewable secondary fuels (NRSF) [MJ]	4.81E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.81E-23	0.00E+00
Use of net fresh water (FW) [m^3]	3.60E-02	4.20E-05	1.53E-03	0.00E+00	5.42E+00	0.00E+00	1.56E-05	1.17E-02	0.00E+00	5.47E+00	-2.57E-02

**D is reported as total energy recovery potential expressed as heat and electricity.*

Use of resources

XLT 7/640 0160

HI-FLO XLT 7/640 0160 Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
Use of renewable primary energy (PERE) [MJ]	2.09E+01	3.88E-02	3.78E-02	0.00E+00	3.02E+03	0.00E+00	1.67E-02	1.76E-01	0.00E+00	3.04E+03	-4.51E+01
Primary energy resources used as raw materials (PERM) [MJ]	5.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.31E+00	0.00E+00
Total use of renewable primary energy resources (PERT) [MJ]	2.62E+01	3.88E-02	3.78E-02	0.00E+00	3.02E+03	0.00E+00	1.67E-02	1.76E-01	0.00E+00	3.04E+03	-4.51E+01
Use of non-renewable primary energy (PENRE) [MJ]	5.04E+01	6.85E-01	1.89E-01	0.00E+00	3.31E+03	0.00E+00	2.95E-01	1.06E+00	0.00E+00	3.37E+03	-1.71E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	6.82E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.82E+01	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	1.19E+02	6.85E-01	1.89E-01	0.00E+00	3.31E+03	0.00E+00	2.95E-01	1.06E+00	0.00E+00	3.43E+03	-1.71E+01
Input of secondary material (SM) [kg]	1.53E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	5.04E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.04E-24	0.00E+00
Use of non-renewable secondary fuels (NRSF) [MJ]	5.92E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-23	0.00E+00
Use of net fresh water (FW) [m^3]	4.09E-02	4.39E-05	1.53E-03	0.00E+00	4.66E+00	0.00E+00	1.89E-05	1.22E-02	0.00E+00	4.72E+00	-2.99E-02

**D is reported as total energy recovery potential expressed as heat and electricity.*

Waste production and output flows

XLT 7/370 0160 XLT 7/520 0160

HI-FLO	Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
XLT 7/370 0160	Hazardous waste disposed (HWD) [kg]	4.47E-06	2.90E-12	8.99E-12	0.00E+00	1.51E-07	0.00E+00	9.19E-13	5.66E-11	0.00E+00	4.62E-06	-3.45E-09
	Non-hazardous waste disposed (NHWD) [kg]	5.50E-02	8.67E-05	1.24E-02	0.00E+00	6.84E+00	0.00E+00	2.75E-05	2.13E-02	0.00E+00	6.93E+00	-3.88E-02
	Radioactive waste disposed (RWD) [kg]	2.63E-03	7.46E-07	1.20E-05	0.00E+00	2.20E+00	0.00E+00	2.36E-07	5.36E-05	0.00E+00	2.20E+00	-5.06E-03
	Components for reuse [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for recycling [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for energy recovery [kg]	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E+00	0.00E+00	2.17E+00	0.00E+00
	Exported energy [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XLT 7/520 0160	Hazardous waste disposed (HWD) [kg]	6.24E-06	3.13E-12	1.60E-11	0.00E+00	1.02E-07	0.00E+00	1.16E-12	5.88E-11	0.00E+00	6.35E-06	-3.66E-09
	Non-hazardous waste disposed (NHWD) [kg]	7.22E-02	9.38E-05	1.64E-02	0.00E+00	4.64E+00	0.00E+00	3.48E-05	2.26E-02	0.00E+00	4.75E+00	-4.07E-02
	Radioactive waste disposed (RWD) [kg]	3.15E-03	8.06E-07	8.66E-06	0.00E+00	1.49E+00	0.00E+00	2.99E-07	6.21E-05	0.00E+00	1.50E+00	-5.25E-03
	Components for reuse [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for recycling [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for energy recovery [kg]	1.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34E+00	0.00E+00	2.35E+00	0.00E+00
	Exported energy [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**D is reported as total energy recovery potential expressed as heat and electricity.*

Waste production and output flows

XLT 7/640 0160

HI-FLO	Filter class ePM1 60%	A1-A3	A4	A5	B1	B6	C1	C2	C3	C4	TOTAL	D*
XLT 7/640 0160	Hazardous waste disposed (HWD) [kg]	7.65E-06	3.28E-12	1.61E-11	0.00E+00	8.81E-08	0.00E+00	1.41E-12	6.05E-11	0.00E+00	7.74E-06	-4.28E-09
	Non-hazardous waste disposed (NHWD) [kg]	8.49E-02	9.81E-05	1.64E-02	0.00E+00	3.99E+00	0.00E+00	4.22E-05	2.36E-02	0.00E+00	4.12E+00	-4.76E-02
	Radioactive waste disposed (RWD) [kg]	3.55E-03	8.43E-07	8.66E-06	0.00E+00	1.28E+00	0.00E+00	3.63E-07	6.87E-05	0.00E+00	1.29E+00	-6.09E-03
	Components for reuse [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for recycling [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Materials for energy recovery [kg]	1.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E+00	0.00E+00	2.46E+00	0.00E+00
	Exported energy [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**D is reported as total energy recovery potential expressed as heat and electricity.*

USE OF THE PRODUCT

To ensure the efficient and sustainable performance of the filter, the end user is obliged to guarantee specific operational conditions. Detailed information about the use of Hi-Flo XLT is included in product data sheet for Hi-Flo XLT.

INSTRUCTIONS FOR STORAGE, HANDLING AND MAINTENANCE

Construction of the bag filter requires a certain method for storing, handling and maintaining the product. Our recommendations are described in Handling and maintenance instruction for bag filters.

FILTER LIFETIME

Bag filters are designed to serve efficiently during a certain period, which depends on several factors. An unambiguous way to define the adequate filter lifetime is described in standard EN 13053.
This method is dependent on the filter resistance and is determined by the final pressure drop. According to EN 13053, the final pressure drop is reached when the initial pressure drop has increased by 100 Pa (initial dP + 100 Pa), or initial pressure drop x3 (whichever is lower). Another way to specify the lifetime of the filter is described in the guideline VDI 6022. This method is derived from hygienic concerns and recommends filter change after 1 year for the first filter stage.

END OF LIFE

Construction of the Hi-Flo XLT makes the filter suitable for one-time use only. Moreover, filter fixed assembly is a limiting factor to dismount specific parts of the product. The recommended method of disposal of the filter with a plastic frame is incineration, which takes place in certified facilities.

SUSTAINABILITY

The mission of Camfil is to protect the health of people, processes & the environment, hence the organization has been sustainable from day one of its inception. Camfil is committed to sustainability from design to delivery and across the complete product life cycle. Complex information about how Camfil addresses environmental concerns are described on the website and can be found in the section Sustainability.

References

Eurovent 4/21-2019, 2019. Energy efficiency evaluation of air filters for general ventilation purposes, Fourth edition.

Camfil R&D, 2022. Life cycle assessment of Hi-Flo filters with XL and steel frame, ISO ePM1 60%, produced in Trosa, Sweden: to be used for EPD, August 2022.

Thinkstep AG, 2019. GaBi Database & Modelling Principles, February 2019.

Thinkstep AG, 2020. Leinfelden-Echterdingen GaBi Software-System and Database for Life Cycle Engineering, Thinkstep Database: SP 40, DB version 10.5.0.78.

The International EPD® System 2020. Construction products, Product Category Rules (PCR), date 2021-02-05, version 1.11 valid until 2024-12-20.

Wernet, G. et al., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, 21(9), p. 1218–1230.

EPD International, 2019. General Programme Instructions for the International EPD® System. Version 3.01. www.environdec.com

Differences versus previous versions

Revision date: 2022-11-04

- Variant XLT 7/670 0160 removed
- Energy consumption of filters during use phase reduced
- LCA performed acc. to EN 15804:2012+A2:2019/AC:2021
- Plastic bag removed

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