ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A1*

Owner of the Declaration	**Peter Seppele Gesellschaft m.b.H.**
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-PSG-20210030-IBA1-EN
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Valid to	31.03.2026

THERMOFLOC F cellulose insulation (borate-free)

Peter Seppele Gesellschaft m.b.H.

Institut Bauen und Umwelt e.V.

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THERMOFLOC®
Intelligent Insulation System

1. General Information

Peter Seppele Gesellschaft m.b.H.	THERMOFLOC F
Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** Peter Seppele Gesellschaft m.b.H. Bahnhofstraße 79 9710 Feistritz/Drau Austria
Declaration number EPD-PSG-20210030-IBA1-EN	**Declared product / declared unit** 1 kg THERMOFLOC F cellulose insulation (borate-free). Life cycle phases A1–A3, A4–A5, C1–C4 and D were calculated ("from cradle to the factory gate with options")
This declaration is based on the product category rules: Blow-in insulation materials made from cellulose and wood fibres, 12.2017 (PCR checked and approved by the SVR)	**Scope:** The document applies to the THERMOFLOC F cellulose insulation (borate-free) from the Freistritz/Drau production facility of Peter Seppele Gesellschaft m.b.H.
Issue date 01.04.2021	The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.
Valid to 31.03.2026	The EPD was created according to the specifications of *EN 15804+A1*. In the following, the standard will be simplified as *EN 15804*.
Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)	**Verification** The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010* ☐ internally ☒ externally
Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))	Matthias Klingler (Independent verifier)

2. Product

2.1 Product description/Product definition

The THERMOFLOC F cellulose insulation (borate-free) is manufactured from mono-fraction paper from newspapers with the addition of additives to protect against fire and mould.

The cellulose insulation is installed by certified processors with blowing machines specifically equipped for this purpose.

Regulation (EU) No. 305/2011 (CPR) applies to placing of the product on the market in the EU/EFTA (with the exception of Switzerland). The product has a declaration of performance in compliance with *ETA-05/0186*, 25.05.2018. THERMOFLOC F and a CE marking.

2.2 Application

THERMOFLOC F (borate-free) can be used for applications where the non-load-bearing insulation is blown predominantly into vertical or horizontal cavities to fill the space, or blown as loose fill onto horizontal slightly curved or slightly inclined (≤ 10°) surfaces.

Area of application - wall and façade:
- Blown-in insulation for exterior wall cavities in timber frame construction
- Blown-in insulation for partition wall cavities in timber frame construction

Area of application - roof:
- Blown-in insulation for sloping, non-ventilated cavities under the roof waterproofing (full rafter insulation)
- Blown-in insulation for flat roofs with top covering and non-ventilated cavity under the roof waterproofing

Area of application - ceiling/floor:
- Blown on insulation, not suitable for walking on, for ceilings/floors under undeveloped attics (insulation between or above the supporting structure)
- Blown-in insulation between the supporting timbers of floor structures as cavity insulation or soundproofing

2.3 Technical Data

The following table declares technical data of the product under consideration.

Name	Value	Unit
Slump EN 15101-1, Anhang B und EAD 040138-00-1201 : November 2015	4.4	%
Water absorption in accordance with EN 1609 at a thickness of 10 cm and a density of 30 or 60 kg/m³	8 or 28 respectively	kg
Water vapour diffusion resistance factor µ (based on specified density)	1.4	-
flow resistance EN 29053 at 30 kg/m³	6.1	kPa/m²
Thermal conductivity nominal value Blow-in method (28–47 kg/m³)	0.037	W/(mK)
Thermal conductivity nominal value Blow-in method (48–60 kg/m³)	0.038	W/(mK)
Thermal conductivity nominal value Spray method (based on specified density)	0,038	W/(mK)
Reaction to fire classification in accordance with EN 13501-1 (installation density 30–60 kg/m³ and d ≥ 100 mm)	B-s2,d0	-
Resistance to biological influence in accordance with Annex C of the CUAP	0	class
Metal corrosion in accordance with Annex E of the CUAP	CR	-
Moisture conversion factor Fm thermal conductivity (23 °C/50% relative humidity – 23 °C/80% relative humidity)	1.0103	-
Density range depending on the area of application	28 - 60	-
Vertical - external wall and partition wall cavities	48 - 60	kg/m³
Inclined - blown-in insulation in cavities under the roof waterproofing > 10° slope	48 - 60	kg/m³
Horizontal - blown-in insulation in flat roof ceiling cavities	48 - 60	kg/m³
Horizontal - blown as loose fill, not suitable for walking on, for ceiling structures	28 - 47	kg/m³

Performance values of the product according to the declaration of performance in relation to its essential features in accordance with *ETA-05/0186* of 25.05.2018.

2.4 Delivery status

The insulation is delivered in polyethylene (PE) bags of 12.5 or 14 kg each on pallets of 21 or 24 pieces per pallet or in big bales of 340 up to 370 kg per pallet. The pallets are delivered to the customer by truck.

2.5 Base materials/Ancillary materials

THERMOFLOC products are manufactured exclusively from newspaper in the form of recovered paper of class 2.01 and/or 2.02 in accordance with *Austrian Standard EN 643* as the basic raw material. Around 92% by weight of this is contained in the product and is supplied by various disposal companies. Mineral-based additives (hereinafter referred to as "mineral fire retardant") are added as a stabilising mould and fire retardant. The fire retardant is present in the product at about 8% by weight. The functional chemical group of the fire retardant is sulphate.

1) The product contains substances on the ECHA list of Substances of Very High Concern (SVHC) (retrieved on 11.11.2020) above 0.1% by mass: no.

2) The product contains other CMR substances of category 1A or 1B, not on the candidate list, above 0.1% by mass in at least one subproduct: no.

3) Biocidal products have been added to the present construction product or it has been treated with biocidal products (it is thus a treated product as defined by the Biocidal Products Regulation (EU) No. 528/2012): no.

2.6 Manufacture

The THERMOFLOC F cellulose insulation (borate-free) is manufactured at the production facility in Feistritz an der Drau (Austria). The production process is described in the following points. The basic and auxiliary materials for THERMOFLOC F (borate-free) are delivered to the plant by truck and stored there until production.

1) Mono-fraction newspaper of class 2.01 and/or 2.02 in accordance with *Austrian Standard EN 643* is brought into the plant using a forklift truck.
2) A conveyor belt takes the newspapers to the shredder, where the paper is shredded.
3) The pre-shredded newspaper is transported via bucket conveyors, magnetic separators and non-ferrous separators into the pre-container where it is fed to the refiners via weighing belts.
4) In the refiners, the paper is defibred and impregnated with mineral additives to protect the cellulose insulation from fire, mould and vermin.
5) The cellulose insulation is blown through pipes by fans into a filter pre-container, and from there it is transported further by means of screws to one of the two bagging plants:
a.) The cellulose insulation is pressed into shape in the pressing chamber of the bagging plant by means of a ram and packed in airtight bags. A robot stacks the bags on non-returnable pallets and wraps them for export with a PowerStretch film. Four edge protector brackets ensure increased pallet stability.
b.) The cellulose insulation is pressed into a big bale in the pressing chamber of the big bale plant using a ram. Afterwards PowerStretch film is used for airtight packaging of the big bale and two strapping bands are used to fasten it to non-returnable pallets for safe export. Each non-returnable pallet is weighed before being used in production and the pallet weight is identified by a label on the pallet. After production, the net weight (without packaging) of each big bale is determined using calibrated scales and the exact weight is confirmed by a label on the big bale.

The production facility is certified in accordance with *ISO 9001*.

2.7 Environment and health during manufacturing
Only dust emissions <1 mg/m³, no waste gas emissions and no waste water are generated during production. No constituents that are potentially environmentally hazardous are used. Health and environmental protection measures in the manufacturing process that go beyond national regulations or plant-specific requirements are implemented as part of the environmental management system in accordance with *ISO 14001*.

2.8 Product processing/Installation
The cellulose insulation is installed by certified processors with blowing machines specifically equipped for this purpose.

2.9 Packaging
The products are packaged in PE bags, palletised, reinforced at the corners with four edge protector brackets and wrapped with PowerStretch film.

2.10 Condition of use
If used as intended, no material changes in composition are to be expected during the use phase.

2.11 Environment and health during use
According to current knowledge, no hazards to water, air and soil are to be expected if the product is used as intended.

2.12 Reference service life
The reference useful life was not calculated.
A conservative estimate of the useful life of cellulose fibre flakes is 50 years under the following conditions: perfect product, design, execution and maintenance quality, no extreme internal or external environmental conditions, Central European climate.

There are no known influences on aging according to approved technical practice.

2.13 Extraordinary effects

Fire

Fire protection
The following table declares classifications relevant for fire protection.

Name	Value
Building material class	B
Burning droplets	d0
Smoke gas development	s2

Water
The product's behaviour in the event of unforeseen exposure to water was not declared. There are no expected consequences for the environment due to the non-classified constituents according to REACH.

Mechanical destruction
The manufacturer has no knowledge of the product's behaviour in the event of unforeseen mechanical destruction and any possible consequences for the environment.

2.14 Re-use phase
Uncontaminated cellulose insulation can be reprocessed. If this is not the case or if the insulation material is contaminated, it is disposed of as residual waste and thermally recycled in a waste incineration plant.

2.15 Disposal
The possible disposal routes are reuse or thermal recycling. Depending on the degree of contamination and the disposal concept, the waste code numbers according to *EAK* are 17 06 04 or 19 12 01 respectively.

2.16 Further information
https://www.thermofloc.com

3. LCA: Calculation rules

3.1 Declared Unit
In accordance with *PCR: Blown-in insulation materials made of cellulose and wood fibres,* the declared unit is 1 kg of insulation produced.

Deklarierte Einheit

Name	Value	Unit
Declared unit	1	kg
Density	28 - 60	kg/m³

3.2 System boundary
This declaration is a cradle-to-factory gate EPD with options. The life-cycle assessment relates to the provision (module A1), transport (module A2), production (module A3), delivery (module A4), installation (module A5) and disposal phase (module C1–C4). In addition, credits and debits outside the product system are declared. The production phase includes all steps in the plant, from raw material acceptance, shredding and grinding to the packaging line. The installation phase includes delivery to the customer as well as the expenses for blowing in the product. In the disposal phase, the flakes are removed again, transported to the waste incineration plant and thermally recycled in module C3. Due to thermal recycling with an R1 value of > 0.6, no loads are declared in module C4.

3.3 Estimates and assumptions
An average transport distance for thermal waste recycling was assumed to be 150 km in both module A5 and module C2.

3.4 Cut-off criteria
Auxiliary materials such as lubricating oils were not declared. Based on a sensitivity analysis, it can be assumed that the auxiliary materials not considered contribute significantly less overall than 5% to each individual impact category.

The machinery, equipment and other infrastructure required for production of the insulation material under consideration were not included in the life-cycle assessment.

3.5 Background data

The background data used comes from *GaBi 2016*.

3.6 Data quality

The data quality requirements specified in *PCR Part A* (v.1.8 of July 2019) were met. The data used was submitted in August 2020 and refers to the 2019 operating year.
The background database used is from 2016.

3.7 Period under review

The foreground data refers to the 2019 operating year.

3.8 Allocation

The recovered paper is a secondary raw material. The collection and sorting of the recovered paper is attributed as complete waste treatment to the previous product system and not to the product of Peter Seppele Ges. m.b.H. Only the transport to the plant is attributed to the latter. Secondary fuels are not used.

No by-products are generated during the manufacturing process, so no allocation calculation was made in module A1–A3.

The data sets for thermal recovery in waste incineration plants represent multi-input processes. Specific information on the allocation in the background data is provided by the GaBi documentation of the respective data sets.

The "thermal waste treatment" scenario was selected for the disposal phase. In this case, the "end of waste properties" status is not reached before incineration. It is assumed that the plant has an R1 value > 0.6. The environmental impact of waste processing and incineration processes is therefore declared as thermal recovery in module C3. The useful energy produced during waste treatment is declared as exported energy in C3 and the credits produced with the energy generated are declared in module D. In the data set used, 27% of the energy output is exported as electrical energy and 73% as thermal energy.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

GaBi Professional database 2016 *(GaBi 2016, A)* as well as GaBi Extension database XIII b (*GaBi 2016, C*) and GaBi Extension database XIV (GaBi 2016, B) were used as the background databases.

4. LCA: Scenarios and additional technical information

Biogenic carbon per kg THERMOFLOC F

Biogenic carbon in the product: 0.369 kg
Biogenic carbon in the packaging: 0.031 kg

The carbon content in the recovered paper used and in the packaging results in 1.468 kg of stored CO2 per kg of THERMOFLOC F.

The following technical information is the basis for the modules declared.

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel	0.0026	l/100km
Transport distance Average distance at home or abroad	662,5	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	130	kg/m^3
Capacity utilisation volume factor	2.66	-

Installation in the building (A5)

Name	Value	Unit
Electricity consumption	0.004	kWh

End of life (C1–C4)

Name	Value	Unit
Collected separately Abfalltyp	1	kg
Collected as mixed construction waste	-	kg
Reuse	-	kg
Recycling	-	kg
Energy recovery	1	kg
Landfilling	-	kg

Reuse, recovery and recycling potential (D), relevant scenario information

Name	Value	Unit
Wiederverwendung	0	kg
Energierückgewinnung	0,916	kg
Recycling	0	kg

The quantity of material for energy recovery corresponds to the proportion of recovered paper in the product. The remaining constituents do not contribute anything to energy recovery.

5. LCA: Results

The following tables summarise the results of all declared life cycle stages for the THERMOFLOC F product.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED; MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	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	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A1: 1 kg THERMOFLOC F

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	[kg CO_2-Eq.]	-1.33E+0	5.19E-2	-8.89E-2	1.87E-3	1.17E-2	1.62E+0	0.00E+0	-4.75E-1
ODP	[kg CFC11-Eq.]	1.08E-8	3.69E-13	1.86E-12	1.32E-12	8.36E-14	6.01E-12	0.00E+0	-1.21E-10
AP	[kg SO_2-Eq.]	1.13E-3	2.12E-4	2.47E-5	5.17E-6	4.79E-5	2.82E-4	0.00E+0	-7.79E-4
EP	[kg $(PO_4)^{3-}$-Eq.]	1.41E-3	5.17E-5	4.60E-6	4.63E-7	1.17E-5	5.25E-5	0.00E+0	-7.28E-5
POCP	[kg ethene-Eq.]	5.93E-5	-7.01E-5	5.38E-7	3.56E-7	-1.59E-5	2.03E-5	0.00E+0	-8.24E-5
ADPE	[kg Sb-Eq.]	7.08E-7	3.82E-9	2.02E-9	6.00E-10	8.64E-10	2.33E-8	0.00E+0	-7.94E-8
ADPF	[MJ]	2.23E+0	7.02E-1	6.05E-2	2.01E-2	1.59E-1	3.73E-1	0.00E+0	-6.80E+0

Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 kg THERMOFLOC F

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.45E+1	4.05E-2	1.31E+0	9.06E-3	9.18E-3	5.41E-2	0.00E+0	-1.38E+0
PERM	[MJ]	1.29E+0	0.00E+0	-1.29E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	[MJ]	1.57E+1	4.05E-2	1.39E-2	9.06E-3	9.18E-3	5.41E-2	0.00E+0	-1.38E+0
PENRE	[MJ]	2.20E+0	7.06E-1	3.70E-1	3.24E-2	1.60E-1	4.35E-1	0.00E+0	-8.02E+0
PENRM	[MJ]	2.92E-1	0.00E+0	-2.92E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	[MJ]	2.50E+0	7.06E-1	7.80E-2	3.24E-2	1.60E-1	4.35E-1	0.00E+0	-8.02E+0
SM	[kg]	9.16E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m^3]	2.46E+0	1.00E-1	3.94E-1	1.40E-2	2.27E-2	3.79E+0	0.00E+0	-3.26E+0

Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 kg THERMOFLOC F

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	3.01E-8	5.29E-8	1.04E-9	2.05E-11	1.20E-8	1.92E-9	0.00E+0	-2.79E-9
NHWD	[kg]	1.58E-3	6.08E-5	4.70E-4	1.95E-5	1.38E-5	1.17E-1	0.00E+0	-2.15E-3
RWD	[kg]	1.52E-6	1.51E-6	6.98E-6	4.88E-6	3.42E-7	2.46E-5	0.00E+0	-4.90E-4
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	2.10E-1	0.00E+0	0.00E+0	1.70E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	4.87E-1	0.00E+0	0.00E+0	4.01E+0	0.00E+0	0.00E+0

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

The results of the environmental impact indicators ADPE and ADPF must be used with caution, as the uncertainties in these results are high or because there is limited experience with the indicator.

6. LCA: Interpretation

It should be noted that the impact assessment results are only relative statements that do not include statements about "endpoints" of the impact categories, exceedance of thresholds, margins of safety, or risks.

Life-cycle inventory indicators

Use of freshwater resources (FW)
The main share of net freshwater consumption results from the production of the mineral fire retardant. No water is used in the production and blowing-in of the cellulose insulation.

Waste (HWD, NHWD, RWD)
Most of the waste produced is non-hazardous waste. The production of THERMOFLOC F does not generate any hazardous and radioactive waste. The results in the HWD and RWD categories come from the production of the fire retardant and packaging.

Primary energy requirement renewable and non-renewable (PENRT/PERT)
The primary energy requirement for non-renewable resources (PENRT) is caused by the fire retardant and the packaging accounting for about 25% each. In addition, delivery of the products to the construction site contributes around 20% to the result.
The remaining expenses play a minor role.
The renewable primary energy input as a constituent (PERM) is caused entirely by the packaging material.

Indicators of the impact assessment

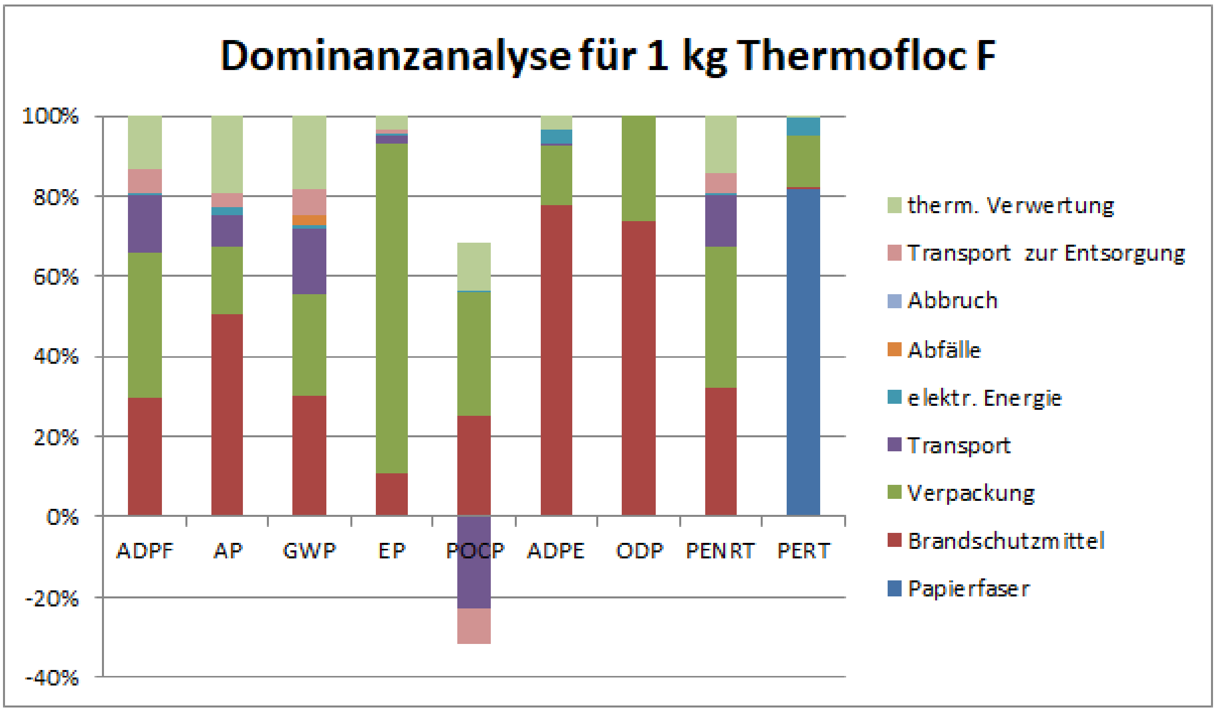

Fig. 1: Dominance analysis for 1 kg THERMOFLOC F across all life cycle phases considered

Global warming potential (GWP)
The global warming potential is determined by production of the fire retardant and packaging, by transport when the products are delivered, and by incineration in the waste incineration plant. The biogenic CO2 contained in the recovered paper is not taken into account in the illustration.

Eutrophication potential (EP)
The eutrophication potential is almost exclusively caused by the packaging. The remaining inputs play a minor role.

Photochemical ozone creation potential (POCP)
The transports result in negative values for the POCP which is due to the method prescribed in *EN 15804* where certain nitrogen oxides have negative POCP. It should not be concluded from this that the emission of exhaust gases fundamentally improves the photochemical oxidation potential. Among the adverse impacts, the mineral fire retardant and disposal of the product in the waste incineration plant have the largest share.

Acidification potential (AP)
The mineral fire retardant is the main contributor to the acidification potential, accounting for about 50%, followed by packaging and disposal of the product in the waste incineration plant. Expenses in the remaining life cycle phases add up to a total of only about 10%.

Consumption of abiotic resources, primary (ADPE)
More than three quarters of the resource consumption is caused by production of the fire retardant. Packaging contributes another almost 20%. The remaining 5% is divided among the other life cycle phases considered.

Consumption of abiotic resources, fossil (ADPF)
The breakdown for resource consumption of abiotic fossil fuels is similar to that for GWP. About 80% is caused in the production phase. The remaining 20% is divided between delivery of the products and thermal

recycling.

Ozone depletion potential (ODP)

About 75% of ozone-depleting emissions are caused by production of the fire retardant and about 25% by production of the packaging.

7. Requisite evidence

Within the scope of the natureplus quality label, a test chamber investigation was carried out for formaldehyde and VOC emissions in accordance with *AgBB 2015* (test report no. K 8236 FM; Bremer Umweltinstitut GmbH, dated 05.12.2018). Emission testing was performed in accordance with natureplus RL 0107 of January 2016, and the values for the lowest concentrations of interest were taken from the 2015 LCI list.

AgBB evaluation scheme results overview (28 days)

Name	Value	Unit
TVOC (C6 - C16)	320	µg/m³
Sum SVOC (C16 - C22)	10	µg/m³
R (dimensionless)	0.222	-
VOC without NIK	20	µg/m³
Carcinogenic Substances 1A + 1B	n.n.	µg/m³

8. References

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EAK
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