ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Armacell GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
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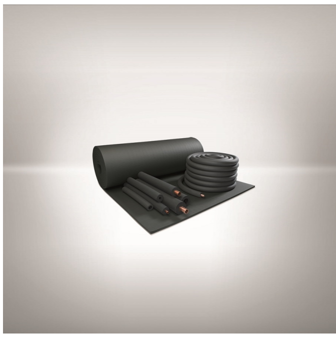
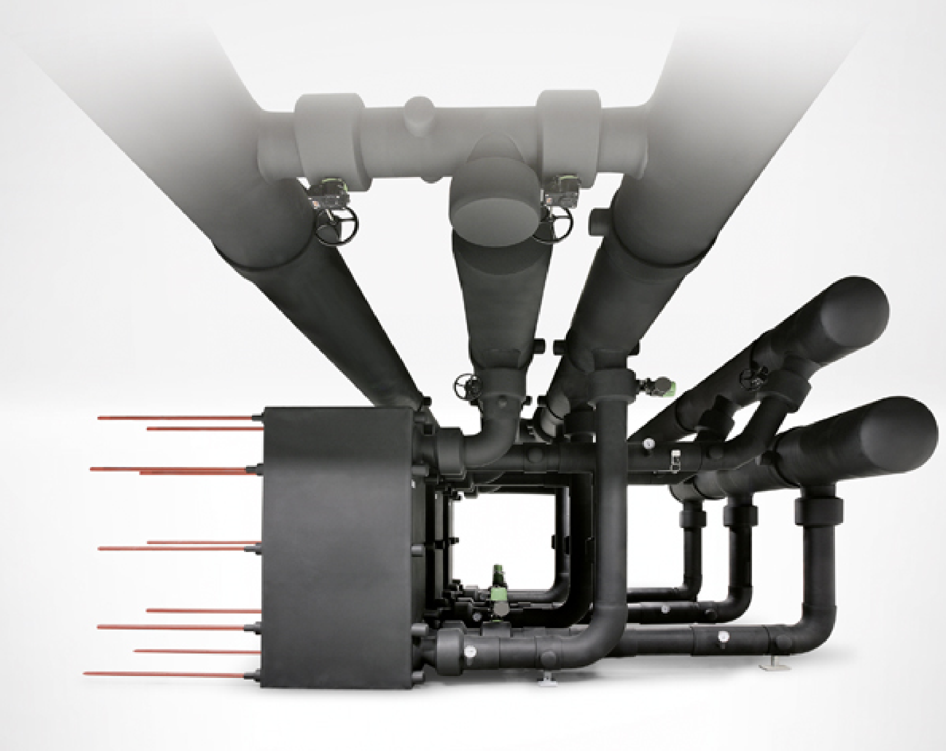
AF/Armaflex Class O insulation for building equipment and industrial installations

Armacell GmbH

Institut Bauen und Umwelt e.V.

www.bau-umwelt.com / https://epd-online.com





1. General Information

Armacell GmbH

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number
EPD-ARM-20150110-IBB1-DE

This Declaration is based on the Product Category Rules:
Insulating materials made of foam plastics, 07.2014
(PCR tested and approved by the SVR)

Issue date
21.05.2015

Valid to
20.05.2020

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Dr. Burkhart Lehmann
(Managing Director IBU)

AF/Armaflex class O

Owner of the Declaration
Armacell GmbH
Robert-Bosch-Str. 10
48153 Münster - Germany

Declared product / Declared unit
1m³ insulation material AF/Armaflex Class O

Scope:
Product line AF/Armaflex Class O

Insulation material for industrial and building installations vulcanized in tubes and sheets.

This declaration is an Environmental Product Declaration according to /ISO 14025/ describing the specific environmental performance of the product produced in Poland and Great Britain. 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.

Verification

The CEN Norm /EN 15804/ serves as the core PCR

Independent verification of the declaration according to /ISO 14025/

☐ internally ☒ externally

Matthias Schulz
(Independent verifier appointed by SVR)

2. Product

2.1 Product description

AF/Armaflex Class O is the professional, highly-flexible, closed-cell elastomeric foam insulation (FEF) for continuous energy saving and condensation control purposes. The combination of very low thermal conductivity and extremely high resistance to water vapour transmission prevents long-term energy losses and water vapour ingress and reduces the risk of corrosion under insulation.

2.2 Application

AF/Armaflex Class O is used to insulate pipes, air ducts and vessels including fittings and flanges of industrial installations and building equipment.

- Condensation control, energy saving and noise control in refrigeration and air conditioning equipment and process plants.
- Energy saving according to local energy-saving laws, prevention of heat loss and noise reduction of heating and plumbing systems.
- Condensation control and noise reduction in service-water and waste-water systems.
- Condensation control, energy saving and noise control in refrigeration and air-conditioning equipment in the ship-building sector.

2.3 Technical Data

Constructional data

Name	Value	Unit
Gross density	52.5	kg/m³
Water vapour diffusion resistance factor acc. to /EN 12086/, /EN 13469/	≥ 10000/ ≥ 7000	-
Thermal conductivity	0,033/0,036 (0°C)	W/(mK)
Maximum service temperature acc. to /EN 14706/, /EN 14707/	+110	°C
Minimum service temperature	-50	°C
Reaction to fire acc. to /EN 13501-1/	Tubes: BL-s3, d0/ Sheets: B-s3, d0	-
Structure-borne sound transmission acc. to /EN ISO 3822-1/	not relevant	
Weighted sound absorption coefficient αw acc. to /EN ISO 11654/	not relevant	

Insulation materials on the basis of synthetic rubber do not absorb moisture from the air. For this reason the normal building moisture does not lead to an increase in thermal conductivity.

2.4 Placing on the market / Application rules

For the placing on the market in the area of the EU/EFTA (with the exception of Switzerland), /Regulation (EU) No. 305/2011/ applies. The products need a Declaration of Performance (DoP) taking into consideration the /EN 14304:2009+A1:2013/ Thermal insulation products for building equipment and industrial installations — Factory made flexible elastomeric foam (FEF) products — Specification/ and the CE-marking.

For the application and use the respective national provisions apply.

2.5 Delivery status

FEF made of cross-linked elastomer is supplied as sheets, tubes and shaped pieces. Products with self-adhesive backings/closures are available; these variations are not included in the calculations. Insulation thicknesses are available for all common pipe diameters up to an outer diameter of 114 mm (tubes).

2.6 Base materials / Ancillary materials

Armaflex is a highly flexible insulation material based on synthetic rubber, which consists of around 20 basic components. The following table displays the composition split into functional substance groups.

Name	Value	Unit
Rubber and polymers	24	%
Fillers and pigments	3	%
Blowing agent	13	%
Vulcanisation system, additives, plasticisers	37	%
Flame retardant	23	%

Synthetic rubber determines the flexibility;
Fillers determine the fire properties and firmness;
Blowing agent causes the expansion process during manufacturing;
Accelerator and sulphur enable the vulcanisation;
Plasticizers determine the flexibility;
Flame retardants ensure fire resistance.

According to the European Chemicals Regulation /REACH/ manufacturer, importers and downstream users must register their chemicals and are responsible for their safe use on their own. For its production Armacell uses exclusively verifiably registered and approved substances / mixtures. Products manufactured and marketed by Armacell do not have to be registered. The products may contain traces of azodicarbonamide (ACDA). Possible minimal residual amounts are included in the polymer matrix. A health impairment can be excluded. For the production of insulation material based on synthetic rubber, there is presently no alternative to ADCA available. Armaflex class O is treated with the antimicrobial biocide pyrithione zinc.

2.7 Manufacture

Armaflex products are manufactured in a pressureless, continuous and discontinuous production process.
In the first step, a homogenous compound is produced with rubber, additives, ancillary materials, blowing and vulcanization agents. This is done on the rolling mill or in the internal mixer followed by the rolling mill.
Rubber extruders are used to process the compounds to produce raw profiles with defined dimensions. Here exact compliance with the dimensions for the raw profile is crucial for the dimensional accuracy of the foamed product.
In the case of the discontinuous, pressureless production process, the raw profiles are cut to length and then foamed in a hot-air oven. In the case of the continuous, pressureless process, the extruded profile is fed directly onto a vulcanization line whose energy source may be hot air, for example.
In foam production, vulcanization and blowing processes run alongside each other. Both reactions are regulated by temperature control. Recipe and temperature control determine the properties of the foam.

Quality assurance:
EC Certificate of conformity no. 0543 of the Gütegemeinschaft Hartschaum e.V. Celle.
Quality management system in accordance with /EN ISO 9001/.

2.8 Environment and health during manufacturing

During all manufacturing steps and at all production sites of Armacell, the production follows the national guidelines and regulations. A regenerative thermal oxidizer is installed to treat exhaust air.
Certification of the environmental management system is in accordance with /ISO 14001/.

2.9 Product processing/Installation

The product is installed by using knives. No special tools, nor specific protection is necessary.
When applying adhesives the information given in the relevant safety data sheets is to be heeded.
The recommendations for installing the product depend on the product and system and are described in the respective documents (e.g. application manuals) and on the data sheets. More details under www.armacell.com.

2.10 Packaging

As a rule, Armaflex products are packaged in cardboard boxes and transported on reusable pallets. Over-sized rolls of sheet material are packaged in PE foil. The cardboard boxes can be recycled through Interseroh’s dual system.

2.11 Condition of use

When the products are used for the purpose for which they are intended, there are no changes in the material composition during use, except in the event of extraordinary impacts (see 2.14).

2.12 Environment and health during use

Ingredients: There are no particular aspects of the material composition during use.
/Eurofins Product Testing A/S/ has tested a wide range and varieties of typical FEF (Flexible Elastomeric Foam) products marketed in the EU from CEFEP (European Group of FEF manufacturers). Sampling, testing and evaluation were performed according to /CEN TS 16516/, /AgBB/, /ISO 16000-3/, /ISO 16000-6/, /ISO 16000-9/, /ISO 16000-11/ in the latest versions. Based on the loading factor 0.05 m²/m³,

which was determined after consideration of real life applications with FEF products (in living rooms) and recommendation of experts of the test institute, all results were clearly below the limit values. For example, the determined TVOC after 28 days was for all samples below 100 mg/m³. Certificates are available on request.

2.13 Reference service life

Armaflex products are long-lasting products. Findings show that when used and installed properly they can have a service life of more than 50 years. It is practically only restricted by the service life of the equipment or whole building. The insulation performance is almost completely maintained over the entire service life. The insulation performance is only compromised by extraordinary impacts and damage during construction.

2.14 Extraordinary effects

Fire

According to /EN 13501/, Armaflex is classified as a combustible insulation material. Due to its material structure Armaflex does not contribute to an uncontrollable spread of fire under installation conditions typical on a building site. Armaflex does not drip under practical fire conditions, this means that fire spread is ruled out. The product is self-extinguishing and therefore only makes a minor contribution to the actual fire event. There is no possibility of the material self-igniting. Armaflex does not propagate the fire either horizontally or vertically.

Fire protection

Name	Value
Euro class	Tubes: BL / Sheets: B
Burning droplets	Tubes/Sheets: d0
Smoke development	Tubes/Sheets: s3

Water

Armacell insulation materials have a high resistance to water vapour transmission which keeps possible water vapour transmission processes to a minimum permanently. Therefore, a significant reduction in the insulation effect can be ruled out permanently.
If the insulation material is exposed to water over a long period of time (e.g. flooding) it should be replaced.

Mechanical destruction

Armaflex insulation materials are flexible foams and thus display limited mechanical stability. Therefore, if the material will be subject to greater mechanical impact it should be protected appropriately, e.g. by a metal jacket or Arma-Chek covering.
Armaflex products (with the exception of HT/Armaflex) are not UV resistant. If the material is subject to UV-rays it should be protected accordingly.

2.15 Re-use phase

If removed properly the product can be re-used. Correctly sorted material can be ground and used to manufacture new products (e.g. ArmaSound).

2.16 Disposal

Dispose of the materials according to local regulations. Regulated by the /European Waste Catalogue/: Waste code 07 02 13 (waste plastic).
Note: Please observe /Commission Decision 2001/118/EC/.

2.17 Further information

Further information on **Armaflex®** can be found on the manufacturer's website www.armacell.com. Detailed specification clauses for the products are provided at www.armaflex.de.

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to 1 m³ insulation product.
For the LCA calculations the average density per product brand is used.
As additional information and support for installers the thermal conductivity coefficient (lambda-value) and R-value per 20 cm thickness per product brand is given.

Declared unit

Name	Value	Unit
Declared unit	1	m³
Gross density	52.5	kg/m³
Conversion factor to 1 kg	0.019	-

Thermal conductivity λ : 0.033 W/(mK (0°C)
R-value – thickness: 20 cm: 6.1 (m²K)/W

3.2 System boundary

The data collection refers to the yearly production in 2013. The following life cycle stages are considered:
Production A1-A3:
The LCA calculation covers the production of the raw materials (supply chain – A1), the mixing of raw materials according to the respective recipes (MasterBatch) exclusively done in Münster, Germany, the transport (A2) of the MasterBatches to the production facility for foaming and the foaming process (A3) in Germany, Spain, Poland or Great Britain, including the packaging material.
Transport A4:
Average values for the transport from factory gate to construction site are assumed.
Installation A5:
The installation considers the production of off-cuts, incineration of these off-cuts and the disposal scenario for the packaging material. Auxiliaries like adhesives or tapes or energy for installation are not considered.
End-of-life C2, C4:
An incineration scenario for the used and demolished product, including an assumption for the transport to disposal, is covered.
Benefits for the next product system D:
Credits for electrical and thermal energy resulting from the waste incineration process of the off-cut material and packaging (A5) and the product (C4) are declared in module D.

3.3 Estimates and assumptions

Scenario assumptions:
Installation (A5):
The additional demand of material for installation depends on the specific frame conditions of the building and pipe system to be insulated. Parts of

product can be joined; thus installation off-cut is very small. A loss of 1% is assumed.
Transport to customer (A4):
Armacell's data collectors reported average figures for the distribution of their material. Depending on the country, the transport distance varies from 500 km to 800 km
End-of-life (C2, C4):
The transport from place of usage to a waste incineration plant is assumed as 100 km.
After the demolition of the product a current realistic End-of-life scenario is the incineration of the material. According to the reported net calorific value of the materials and the elementary composition, a partial stream consideration for the incineration process of PVC-products is applied as approximation for all declared products.
Inventory estimations and approximations:
The reported recipes for the rubber mixes contain specific substances of the rubber industry. For these materials only partly life cycle inventories are available. Approximations are used with the consideration of similar supply chain effort or similar elementary composition. Partly an estimation is modelled using pre-products of the specific material and adding an energy effort as well as considering the treatment of production residues for this step in the supply chain.

3.4 Cut-off criteria

In the assessment, all reported data from the production process are considered, utilised thermal energy, and electric power consumption using best available LCI datasets. Thus material and energy flows contributing less than 1% of mass or energy are considered.
No cut-off criteria are applied in the foreground data in this study.
For cut-off criteria in the background system, see information provided in the modelling principles and specific documentations (documentation.gabi-software.com).

3.5 Background data

The LCA model is created using the GaBi 6 Software system for life cycle engineering, developed by PE INTERNATIONAL AG (now "thinkstep AG"). The GaBi LCI database /GaBi 6/ provides the life cycle inventory data for several of the raw and process materials obtained from the background system. The most recent update of the database was 2014.

3.6 Data quality

The foreground data collected by the manufacturer are based on yearly production amounts and extrapolations of measurements on specific machines and plants.
Most of the necessary life cycle inventories for the basic materials are available in the GaBi database. The last update of the database was in 2014.
Further LCIs for materials of the supply chain of the basic materials are approximated with LCIs of similar materials or estimated by the combination of available LCIs.
For electrical and thermal energy regional specific grid mixes and regional specific supply for natural gas are considered.

3.7 Period under review

The production data refer to an average of the year 2013.

3.8 Allocation

Allocation of upstream data:
For all refinery products, allocation by mass and net calorific value is applied. The specific manufacturing route of every refinery product is modelled and so the impacts associated with the production of these products are calculated individually.
Materials and chemicals used in the manufacturing process are modelled using the allocation rule most suitable for the respective product. For further information on a specific product see documentation.gabi-software.com.
Allocation in the foreground data:
Part of the production residues (ca. 2%) are used for the manufacturing of a non-declared product (ArmaSound). These materials leave the process without further consideration of any treatment and without credit (cut-off-approach).
No further allocation is applied in the software model. The overall production of the Armacell production facilities comprises further products beside the products considered in this study. Data for thermal and electrical energy, as well as auxiliary material, refer to the declared products only. During data collection the allocation is done via mass, area, pieces or time spent in the machine, depending on the process step and reasonable split. The thinkstep AG did not visit the production sites. The data collectors at Armacell decided on the distribution basis.
Allocation for waste materials:
Production waste is sent to a waste incineration plant and to landfill (Spain). Resulting electrical and thermal energy from the incineration process is looped inside module A1-A3. The quality of the recovered energy is assumed to the same as that of the input energy.
Landfilling of plastic material is assumed not to deliver any landfill gas.
All applied incineration processes are displayed via a partial stream consideration for the combustion process, according to the specific composition of the incinerated material. For the waste incineration plant an R1-value of 0.6 is assumed.
Environmental burden of the incineration of installation residues (off-cuts), packaging and the product in the end-of-life scenario are assigned to the system (A5 or C4); resulting credits for thermal and electrical energy are declared in module D.
The credits for thermal and electrical energy are calculated via inversion of the life cycle inventory of European average data.
Allocation for waste paper:
Paper/corrugated board is used as packaging material and this usually includes a mix of recycled and virgin fibres. When modelling the production of paper, the scrap paper that is used in this process has been assumed to be burden free. Similarly, waste paper arising in the product life cycle is assumed to be recycled. Robust data on paper and cardboard recycling are not promptly available and refer to a very complex system. Hence, to apply this methodology consistently throughout the model, a cut-off approach has been applied, i.e., input of waste paper is considered without environmental burden, resulting waste paper is not credited. The recycling process and the production process of paper are merged in the production process. The C-balance referring to fresh fibre is corrected via CO2 emissions (biotic) (assumption of final rotting or incineration in the time frame of 100 years).

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.

4. LCA: Scenarios and additional technical information

The following technical information serves as basis for the declared modules. The values refer to the declared unit of 1 m³.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.14	l/100km
Transport distance	253 - 500	km
Capacity utilisation (including empty runs)	85	%

Installation into the building (A5)

Name	Value	Unit
Material loss	1	%

End of life (C1-C4)

Name	Value	Unit
Energy recovery in WIP	52,5	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Module D includes the credits of the incineration processes from A5 (off-cut of product installation, packaging waste) and C4 (incineration of the product). A waste incineration plant with an R1-value < 0.6 is assumed.

Name	Value	Unit

5. LCA: Results

The following information on environmental impacts is expressed with the impact category parameters of LCIA using characterisation factors. The chosen characterisation factors (CML 2001 – April 2013) fulfil the requirements of /EN 15804/.

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

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[1)]	Refurbishment[1)]	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	MND	MND	MND	MND	MND	MND	X	MND	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1m³

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Global warming potential	[kg CO_2-Eq.]	230.36	1.06	36.98	0.24	134.27	-41.18
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.01E-8	4.35E-12	1.69E-10	9.88E-13	1.11E-9	-1.41E-8
Acidification potential of land and water	[kg SO_2-Eq.]	1.27E+0	2.72E-3	1.68E-2	6.17E-4	1.82E-1	-1.10E-1
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	1.08E-1	6.71E-4	1.46E-3	1.52E-4	6.33E-3	-7.43E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	1.31E+0	-7.35E-4	1.35E-2	-1.67E-4	4.08E-3	-9.00E-3
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.44E-3	4.15E-8	1.53E-5	9.43E-9	5.72E-5	-4.16E-6
Abiotic depletion potential for fossil resources	[MJ]	4298.30	14.58	48.01	3.31	235.37	-576.80

RESULTS OF THE LCA - RESOURCE USE: 1m³

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Renewable primary energy as energy carrier	[MJ]	975.12	-	-	-	-	-
Renewable primary energy resources as material utilization	[MJ]	0.00	-	-	-	-	-
Total use of renewable primary energy resources	[MJ]	975.12	0.82	10.43	0.19	30.63	-71.16
Non-renewable primary energy as energy carrier	[MJ]	3743.28	-	-	-	-	-
Non-renewable primary energy as material utilization	[MJ]	897.75	-	-	-	-	-
Total use of non-renewable primary energy resources	[MJ]	4641.03	14.63	52.25	3.32	263.72	-703.80
Use of secondary material	[kg]	24.42	0.00	0.25	0.00	0.00	0.00
Use of renewable secondary fuels	[MJ]	-	-	-	-	-	-
Use of non-renewable secondary fuels	[MJ]	-	-	-	-	-	-
Use of net fresh water	[m³]	1.77E+0	1.43E-3	5.77E-2	3.26E-4	2.78E-1	-1.44E-1

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1m³

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Hazardous waste disposed	[kg]	1.70E-2	6.94E-6	1.78E-4	1.58E-6	1.15E-4	-2.03E-4
Non-hazardous waste disposed	[kg]	1.18E+1	2.08E-3	1.10E+0	4.73E-4	8.30E+1	-2.10E-1
Radioactive waste disposed	[kg]	1.38E-1	2.00E-5	1.70E-3	4.54E-6	1.13E-2	-5.06E-2
Components for re-use	[kg]	-	-	-	-	-	-
Materials for recycling	[kg]	2.77	0.00	29.21	0.00	0.00	-
Materials for energy recovery	[kg]	-	-	-	-	-	-
Exported electrical energy	[MJ]	0.00	0.00	21.34	0.00	118.90	-
Exported thermal energy	[MJ]	0.00	0.00	49.63	0.00	280.50	-

6. LCA: Interpretation

The supply chain, i.e. the production of the purchased materials, causes the highest influence on all impact categories and the primary energy.

Global Warming Potential
Looking at the **GWP** for the overall declared life cycle phases, including production (A1-A3), transport (A4, C2), installation (losses) (A5) and end-of-life (C4, D), the production (A1-A3) contributes to 64%.
The production in the supply chain (A1) already contributes with 52% to the total GWP value. Thus, every increase of the production yield directly improves the environmental performance of the products.
The foaming process (A3), which includes the electrical and thermal energy for the mixing, the vulcanisation and blowing step as well as the production of the packaging materials, shows a significant influence on GWP of the life cycle with 10%.
Module A5 covers the production and disposal (=incineration) of the off-cut material assumed as 1% loss in respect to the required insulation material. Additionally, the emissions of the incineration of packaging material (plastic, wood) in a waste incineration plant are considered. The installation step contributes with 10% to the overall GWP.
As end-of-life scenario an incineration is considered. The emissions of the product (C4) contribute to 37% to the overall green house gas emissions. At the same time a credit (D) of 11% is given to the next system, due to the use of electrical and thermal energy, gained

in the incineration processes for the product and the off-cut material.

Further impact categories
The end-of-life scenarios have less influence on the other considered impact categories than on GWP. The main contribution of the considered life cycle phases is concentrated on module A1-A3.
The energy consumption in the foaming step influences all impact categories; variations depend on the national grid mixes for electricity.

Note on the values for the ozone depletion potential (ODP) and photochemical ozone creation potential (POCP)
The impact category ODP is mainly influenced by emissions resulting from the generation of electricity via nuclear power. The end-of-life scenario credits the energy gain with the environmental burden of the European grid mix. The European grid mix (2011) contains 28% nuclear power, but the national grid mixes of Germany (18%), Poland (0%), Spain (20%) and Great Britain (19%) comprise much less nuclear power. In the present study this results in a negative value for the overall value of ODP.
The summer smog potential (POCP) is influenced by emissions from the energy generation, as well as from direct emissions reported by the production sites.
The negative values for POCP in modules A4 and C2 result from the assessment of NO as emissions of transport processes. Currently the CML methodology characterizes these elementary flows with a negative value, i.e. a positive effect on the summer smog potential.

7. Requisite evidence

7.1 VOC emissions
Eurofins Product Testing A/S has tested a wide range and varieties of typical FEF (Flexible Elastomeric Foam) products marketed in the EU from CEFEP (European Group of FEF manufacturers). Sampling, testing and evaluation were performed according to /CEN TS 16516/, /AgBB/, /ISO 16000-3/, /ISO 16000-6/, /ISO 16000-9/, /ISO 16000-11/ in the latest versions. Based on the loading factor 0.05 m²/m³, which were determined after consideration of real life applications with FEF products (in living rooms) and recommendation of the experts of the test institute, all results were clearly below the limit values. For example the determined TVOC after 28 days was for all samples below 100 mg/m³. Certificates are available on request.

7.2 Leaching performance
According to /EN 13468/ is the content of water-soluble chloride ions for AF/Armaflex Class O ≤ 300 ppm.

8. References

Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V., Berlin(pub.): Generation of Environmental Product Declarations (EPDs);

General principles
for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013/04
www.bau-umwelt.de

ISO 14025
DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804
EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

AgBB
Umweltbundesamt Germany, Health-related Evaluation of Emissions of Volatile Organic Compounds (VVOC, VOC and SVOC) from Building Products

CEN TS 16516
CEN TS 16516:2013-12: Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air

Comission Decision 2001/118/EC
Amendment to European Waste Catalogue

CPR
Regulation (EC) No 305/2011, *Construction Products Regulation*

DIN EN 1606
DIN EN 1606: 2013-05: Thermal insulating products for building applications - Determination of compressive creep

DIN EN 12091
DIN EN 12091: 2013-06: Thermal insulating products for building applications - Determination of freeze-thaw resistance

DIN EN 15801
DIN EN 15801: 2010-04: Conservation of cultural property - Test methods - Determination of water absorption by capillarity

DIN EN 29052
DIN EN 29052: 1992-08: Acoustics; determination of dynamic stiffness; part 1: materials used under floating floors in dwellings

EN 826
EN 826: 2013-05: Thermal insulating products for building applications - Determination of compression behaviour

EN 12086
EN 12086:2013-06: Thermal insulating products for building applications - Determination of water vapour transmission properties

EN 13501-1
EN 13501-1: 2010-01: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

EN 13468
EN 13468: 2001-12: Thermal insulating products for building equipment and industrial installations - Determination of trace quantities of water soluble chloride, fluoride, silicate, and sodium ions and pH

EN 13469
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