

## PRODUCT INFORMATION FOR THE BUILDING CERTIFICATION SCHEME LEED V4<sup>®</sup> (Leadership in Energy and Environmental Design)

The intention of this document is to support project teams pursuing LEED v4 certification by providing an overview of how your products contribute to LEED v4 credits. Basis of this information is Leed v4 credit library (2014 -07)<sup>1</sup>

# Armaflex

## General Information

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## Product information

### Product description

This fact sheets covers six product brands of the product family Armaflex:  
NH/Armaflex, SH/Armaflex, HT/Armaflex, Armaflex Ultima, AF/Armaflex, AF/Armaflex Class O

Armaflex products are 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.

### Application

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

<sup>1</sup> <http://www.usgbc.org/credits> (8/2014)

## Technical data

Product brand	Water vapour diffusion resistance	Thermal conductivity	Maximum service temperature	Minimum service temperature	Reaction to fire
Standard/Unit	EN 12088 [-]	[W/mK]	EN 14706/7 [°C]	EN 14706/7 [°C]	EN 135001-1 [-]
NH/Armaflex	≥ 2000	0,040 (0 °C)	+110	-50	Tubes: D <sub>L</sub> -s3, d0/ Sheets: E
SH/Armaflex		0,036/0,040 (40 °C)	+110	-50	Tubes: B <sub>L</sub> -s3, d0/ C <sub>L</sub> -s3, d0 Sheets: C-s3, d0/ D-s3, d0
HT/Armaflex	≥ 4000 / ≥ 3000	0,042 / 0,045 (40 °C)	+110	-50	Tubes: D <sub>L</sub> -s3, d0/ Sheets: D-s3, d0
Armaflex Ultima	7000	0,040 (0 °C)	+110	-50	Tubes: B <sub>L</sub> -s1, d0/ Sheets: B-s2, d0
AF/Armaflex	≥ 10000 / ≥ 7000	0,033 / 0036 (0 °C)	+110	-50	Tubes: B <sub>L</sub> -s3, d0/ Sheets: B-s3, d0
AF/Armaflex Class O	≥ 10000 / ≥ 7000	0,033 / 0,036 (0 °C)	+110	-50	Tubes: B <sub>L</sub> -s3, d0/ Sheets: B-s3, d0

## Product declarations

### Environmental product declaration

Number:

NH/Armaflex - EPD-ARM-20150106-IBB1-DE  
 SH/Armaflex – EPD-ARM-20150107-IBB1-DE  
 HT/Armaflex – EPD-ARM-20150108-IBB1-DE  
 Armaflex Ultima – EPD-ARM-20150109-IBB1-DE  
 AF/Armaflex – EPD-ARM-20150060-IBB1-DE  
 AF/Armaflex Class O – EPD-ARM-2015-0110-IBB1-DE  
 NH/Armaflex - EPD-ARM-20150106-IBB1-DE

Program operator:

Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany

Author of the LCA:

thinkstep AG, Leinfelden-Echterdingen, Germany

## Materials and Resources (MR)

### Summary

Materials and Resources credits encourage using sustainable building materials and reducing waste. Indoor environmental quality credits promote better indoor air quality and access to daylight and views.

### Building product disclosure and optimization - environmental product declarations

#### *Intent of this credit*

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Product information for the declared product within this credit:

Item	Value
Critically reviewed LCA acc. to ISO 14044?	yes
Reviewer	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany
Download link of the document/study	<a href="https://epd-online.com/">https://epd-online.com/</a>
Industry-wide (generic) EPD (Type III, including external verification)?	no
Product specific EPD (Type III, including external verification)?	yes
EPD program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany; <a href="http://www.construction-environment.com">www.construction-environment.com</a>
EPD program operator country	Germany
EPD number	See table product declaration
Declared unit	1 m <sup>3</sup>

## Results of the LCA – ENVIRONMENTAL IMPACTS:

### NH/Armaflex 1 m<sup>3</sup> / 62,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	307,494	4,628	57,503	0,286	159,851	-49,310
ODP [kg CFC11-Äq.]	9,137E-09	1,904E-11	1,807E-10	1,177E-12	1,319E-09	-1,689E-08
AP [kg SO <sub>2</sub> -Äq.]	5,928E-01	1,189E-02	1,060E-02	7,349E-04	2,171E-01	-1,314E-01
EP [kg PO <sub>43</sub> -- Äq.]	1,192E-01	2,935E-03	1,721E-03	1,814E-04	7,541E-03	-8,901E-03
POCP [kg Ethen Äq.]	1,379E-01	-3,219E-03	1,608E-03	-1,989E-04	4,860E-03	-1,078E-02
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					

### SH/Armaflex 1 m<sup>3</sup> / 47,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	213,538	3,019	34,844	0,217	121,486	-36,722
ODP [kg CFC11-Äq.]	1,025E-08	1,242E-11	1,630E-10	8,942E-13	1,002E-09	-1,258E-08
AP [kg SO <sub>2</sub> -Äq.]	9,711E-01	7,755E-03	1,306E-02	5,585E-04	1,650E-01	-9,786E-02
EP [kg PO <sub>43</sub> -- Äq.]	9,684E-02	1,915E-03	1,326E-03	1,379E-04	5,731E-03	-6,629E-03
POCP [kg Ethen Äq.]	4,388E-01	-2,099E-03	4,579E-03	-1,512E-04	3,693E-03	-8,027E-03
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					

### HT/Armaflex 1 m<sup>3</sup> / 75 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	309,211	5,113	58,448	0,343	191,821	-57,798
ODP [kg CFC11-Äq.]	1,267E-08	2,103E-11	2,199E-10	1,412E-12	1,582E-09	-1,980E-08
AP [kg SO <sub>2</sub> -Äq.]	2,354E+00	1,314E-02	2,887E-02	8,819E-04	2,605E-01	-1,540E-01
EP [kg PO <sub>43</sub> -- Äq.]	1,455E-01	3,243E-03	2,010E-03	2,177E-04	9,049E-03	-1,043E-02
POCP [kg Ethen Äq.]	2,741E-01	-3,555E-03	2,992E-03	-2,387E-04	5,832E-03	-1,263E-02
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					

# factsheets

## Armaflex Ultima 1 m<sup>3</sup> / 57,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	232,710	3,792	41,888	0,263	147,063	-43,915
ODP [kg CFC11-Äq.]	7,966E-09	1,560E-11	1,468E-10	1,082E-12	1,213E-09	-1,504E-08
AP [kg SO <sub>2</sub> -Äq.]	5,688E-01	9,743E-03	9,518E-03	6,761E-04	1,997E-01	-1,170E-01
EP [kg PO <sub>43</sub> -- Äq.]	9,816E-02	2,405E-03	1,382E-03	1,669E-04	6,937E-03	-7,927E-03
POCP [kg Ethen Äq.]	1,528E-01	-2,637E-03	1,705E-03	-1,830E-04	4,471E-03	-9,599E-03
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					

## AF/Armaflex 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	264,092	3,661	43,639	0,240	134,274	-40,853
ODP [kg CFC11-Äq.]	1,061E-08	1,506E-11	1,727E-10	9,883E-13	1,108E-09	-1,400E-08
AP [kg SO <sub>2</sub> -Äq.]	1,307E+00	9,405E-03	1,702E-02	6,173E-04	1,823E-01	-1,089E-01
EP [kg PO <sub>43</sub> -- Äq.]	1,165E-01	2,322E-03	1,548E-03	1,524E-04	6,334E-03	-7,374E-03
POCP [kg Ethen Äq.]	2,481E-01	-2,546E-03	2,673E-03	-1,671E-04	4,082E-03	-8,930E-03
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					

## AF/Armaflex Class O 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard EN 15804)	A1-A3	A4	A5	C2	C4	D
GWP [kg CO <sub>2</sub> -Äquiv.]	230,364	1,057	36,981	0,240	134,274	-41,176
ODP [kg CFC11-Äq.]	1,007E-08	4,349E-12	1,688E-10	9,883E-13	1,108E-09	-1,411E-08
AP [kg SO <sub>2</sub> -Äq.]	1,275E+00	2,716E-03	1,678E-02	6,173E-04	1,823E-01	-1,097E-01
EP [kg PO <sub>43</sub> -- Äq.]	1,082E-01	6,706E-04	1,457E-03	1,524E-04	6,334E-03	-7,433E-03
POCP [kg Ethen Äq.]	1,313E+00	-7,352E-04	1,345E-02	-1,671E-04	4,082E-03	-9,001E-03
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 – RESOURCE USE:

### NH/Armaflex 1 m<sup>3</sup> / 62,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	7388,568	67,607	83,720	4,178	350,416	-928,036
PERE [MJ]	1627,093	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	1627,093	3,574	17,270	0,221	36,469	-85,211
PENRE [MJ]	4736,475	-	-	-	-	-
PENRM [MJ]	1025,000	-	-	-	-	-
<b>PENRT [MJ]</b>	5761,475	64,033	66,450	3,957	313,947	-842,826
SM [kg]	45,026	0	0,455	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1654,506	6,273	67,878	0,388	330,871	-172,017

Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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

### SH/Armaflex 1 m<sup>3</sup> / 47,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	5199,792	44,093	58,847	3,175	266,316	-691,107
PERE [MJ]	1016,805	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	1016,805	2,331	10,856	0,168	27,717	-63,449
PENRE [MJ]	3313,737	-	-	-	-	-
PENRM [MJ]	869,250	-	-	-	-	-
<b>PENRT [MJ]</b>	4182,987	41,762	47,991	3,008	238,599	-627,658
SM [kg]	25,188	0	0,254	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1746,481	4,091	51,614	0,295	251,462	-128,086

Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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

# factsheets

## HT/Armaflex 1 m<sup>3</sup> / 75 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	7643,700	74,682	87,126	5,014	420,499	-1087,772
PERE [MJ]	1628,272	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	1628,272	3,948	17,364	0,265	43,763	-99,864
PENRE [MJ]	4650,428	-	-	-	-	-
PENRM [MJ]	1365,000	-	-	-	-	-
<b>PENRT [MJ]</b>	6015,428	70,734	69,762	4,749	376,736	-987,907
SM [kg]	45,541	0	0,460	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1945,354	6,929	72,030	0,465	397,045	-201,599

Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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

## Armaflex Ultima 1 m<sup>3</sup> / 57,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	5316,377	55,392	61,018	3,844	322,383	-826,477
PERE [MJ]	1228,254	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	1228,254	2,928	13,085	0,203	33,552	-75,872
PENRE [MJ]	2236,623	-	-	-	-	-
PENRM [MJ]	1851,500	-	-	-	-	-
<b>PENRT [MJ]</b>	4088,123	52,464	47,933	3,641	288,831	-750,605
SM [kg]	32,459	0	0,328	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1859,118	5,140	56,330	0,357	304,401	-153,165

Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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

# factsheets

## AF/Armaflex 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	6186,695	53,475	68,476	3,510	294,349	-768,861
PERE [MJ]	1268,847	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	1268,847	2,827	13,380	0,186	30,634	-70,590
PENRE [MJ]	4020,098	-	-	-	-	-
PENRM [MJ]	897,750	-	-	-	-	-
<b>PENRT [MJ]</b>	4917,848	50,648	55,096	3,324	263,715	-698,271
SM [kg]	33,613	0	0,340	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1959,900	4,962	58,482	0,326	277,932	-142,502

### Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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

## AF/Armaflex Class O 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
<b>PE total [MJ]</b>	5616,149	15,444	62,675	3,510	294,349	-774,953
PERE [MJ]	975,119	-	-	-	-	-
PERM [MJ]	0	-	-	-	-	-
<b>PERT [MJ]</b>	975,119	0,816	10,428	0,186	30,634	-71,157
PENRE [MJ]	3743,281	-	-	-	-	-
PENRM [MJ]	897,750	-	-	-	-	-
<b>PENRT [MJ]</b>	4641,031	14,627	52,247	3,324	263,715	-703,796
SM [kg]	24,423	0	0,247	0	0	0
RSF [MJ]	-	-	-	-	-	-
NRSF [MJ]	-	-	-	-	-	-
FW [kg]	1772,929	1,433	57,712	0,326	277,932	-143,645

### Caption

PE total = Total use of primary energy resources (=PERT+PENRT); 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 – OUTPUT FLOWS AND WASTE CATEGORIES:

### NH/Armaflex 1 m<sup>3</sup> / 62,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	1,741E-03	3,038E-05	2,057E-05	1,878E-06	1,371E-04	-2,429E-04
NHWD [kg]	3,391E+01	9,116E-03	1,426E+00	5,634E-04	9,887E+01	-2,520E-01
RWD [kg]	1,432E-01	8,749E-05	1,867E-03	5,407E-06	1,340E-02	-6,058E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	1,689	0	53,815	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	26,389	0	141,550	-
EET [MJ]	0	0	61,429	0	333,925	-
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; EE = Exported energy per energy carrier					

### SH/Armaflex 1 m<sup>3</sup> / 47,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	1,115E-02	1,981E-05	1,147E-04	1,427E-06	1,042E-04	-1,809E-04
NHWD [kg]	1,599E+01	5,945E-03	9,721E-01	4,282E-04	7,514E+01	-1,877E-01
RWD [kg]	1,136E-01	5,706E-05	1,438E-03	4,109E-06	1,018E-02	-4,511E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	0,659	0	30,102	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	17,471	0	107,578	-
EET [MJ]	0	0	40,674	0	253,783	-
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; EE = Exported energy per energy carrier					

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## HT/Armaflex 1 m<sup>3</sup> / 75 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	2,969E-02	3,356E-05	3,032E-04	2,253E-06	1,646E-04	-2,847E-04
NHWD [kg]	2,945E+01	1,007E-02	1,580E+00	6,761E-04	1,186E+02	-2,954E-01
RWD [kg]	1,447E-01	9,665E-05	1,912E-03	6,489E-06	1,608E-02	-7,100E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	1,314	0	54,426	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	26,958	0	169,859	-
EET [MJ]	0	0	62,760	0	400,710	-
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; EE = Exported energy per energy carrier					

## Armaflex Ultima 1 m<sup>3</sup> / 57,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	1,321E-03	2,489E-05	1,580E-05	1,727E-06	1,262E-04	-2,163E-04
NHWD [kg]	2,917E+01	7,469E-03	1,272E+00	5,183E-04	9,096E+01	-2,244E-01
RWD [kg]	1,209E-01	7,168E-05	1,551E-03	4,975E-06	1,233E-02	-5,394E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	0,000	0	38,783	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	19,306	0	130,226	-
EET [MJ]	0	0	44,949	0	307,211	-
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; EE = Exported energy per energy carrier					

### AF/Armaflex 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	1,822E-02	2,403E-05	1,902E-04	1,577E-06	1,152E-04	-2,012E-04
NHWD [kg]	2,456E+01	7,210E-03	1,154E+00	4,732E-04	8,305E+01	-2,088E-01
RWD [kg]	1,342E-01	6,920E-05	1,651E-03	4,542E-06	1,126E-02	-5,018E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	0,892	0	40,171	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	20,221	0	118,902	-
EET [MJ]	0	0	47,073	0	280,497	-
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; EE = Exported energy per energy carrier					

### AF/Armaflex Class O 1 m<sup>3</sup> / 52,5 kg/m<sup>3</sup>

Life cycle stages	A 1-A3	A 4-5		C1-4		D
	Product stage	Construction process stage		End-of-life stage		Benefits and loads beyond the system boundary
Declared life cycle stages (standard DIN EN 15804)	A1-A3	A4	A5	C2	C4	D
HWD [kg]	1,702E-02	6,940E-06	1,778E-04	1,577E-06	1,152E-04	-2,028E-04
NHWD [kg]	1,182E+01	2,082E-03	1,100E+00	4,732E-04	8,305E+01	-2,105E-01
RWD [kg]	1,378E-01	1,999E-05	1,700E-03	4,542E-06	1,126E-02	-5,059E-02
CRU [kg]	-	-	-	-	-	-
MFR [kg]	2,768	0	29,210	0	0	-
MER [kg]	-	-	-	-	-	-
EEE [MJ]	0	0	21,339	0	118,902	-
EET [MJ]	0	0	49,632	0	280,497	-
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; EE = Exported energy per energy carrier					

# factsheets

## Building product disclosure and optimization – sourcing of raw materials

*Intent of this credit*

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Product information for the declared product within this credit:

<b>Option 1. raw material source and extraction reporting</b>	
Third-party verified corporate sustainability report (CSR)?	no
Link to download the report	-
<b>Option 2. leadership extraction practices (1 point)</b>	
Description / Unit	
Participation in an extended producer responsibility program?	Yes: Global compact - <a href="http://www.unglobalcompact.org">www.unglobalcompact.org</a>
Bio-based products meet the Sustainable Agriculture Network's Sustainable Agriculture Standard?	not applicable
Wood products certified by the Forest Stewardship Council or USGBC-approved equivalent?	not applicable
Materials reuse	Production residues are partly used for the production of ArmaSound. ArmaSound is a high performance sound absorption product of Armacell for a quieter environment.
Postconsumer recycled content	0 %
Preconsumer recycled content	0 %

## Building product disclosure and optimization – material ingredients

*Intent of this credit*

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

Product information for the declared product within this credit:

Type of reporting	Certification program (e.g. Green screen, cradle to cradle version/level, REACH)	Value/Comment
Material ingredient optimization	International Alternative Compliance Path – REACH Optimization	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.
	USGBC approved program	Yes: Armacell LEED Scorecard

## Indoor Environmental Quality (IEQ)

### Summary

Indoor environmental quality credits promote better indoor air quality and access to daylight and views.

### Low-emitting materials

#### Intent of this credit

To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Product information for the declared product within this credit:

*Interior paints and coatings, interior adhesives and sealants, flooring products:*

Item	Value
Test institute / organization (Name)	Eurofins Product Testing A/S
Test method applied	ISO 16000-3/6/9/11 – loading factor 0.5 m <sup>2</sup> /m <sup>3</sup>
Applicable regulation/Criteria	AgBB
Regulation requirements met	yes
IEQ Credit 3.2 (NC, Schools / 1 Point) Construction IAQ Management Plan - Before Occupancy	Armaflex is fiber-free, non-eroding, formaldehyde-free and low-VOC

### Acoustic performance

#### Intent of this credit

To provide workspaces and classrooms that promote occupants' well-being, productivity, and communications through effective acoustic design.

Product information for the declared product within this credit:

Product	Structure-borne sound transmission	Test Standard
AF/Armaflex	≤ 28 dB (A)	ISO 3822-1
	Weighted sound absorption coefficient	
	≤ 0,45	ISO 11654

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