

# BREEAM COMPLIANCE PRODUCT CARD

## Technical insulation



TECHNICAL  
INSULATION



COOLING



AIR  
CONDITIONING

## Armaflex Ultima

Armaflex Ultima is a flexible elastomeric foam on the basis of patented synthetic rubber composition for use in HVAC, refrigeration and process equipment applications<sup>1</sup>.

## BREEAM International New Construction 2013

BREEAM is a multi-criteria scheme to assess and certify buildings. Established in UK, it emphasises sustainable development by promoting green, healthy and eco-friendly buildings. Features of the buildings which may be assessed are: materials, quality of indoor environments and energy efficiency etc. Nowadays it has become a standard in real estates markets.

BREEAM compliance product card for **Armaflex Ultima** was prepared to assist designers, architects, engineers, consultants and developers to provide clear information and to facilitate choosing proper product. Appropriate BREEAM categories related to Armaflex Ultima features were chosen and checked. Armaflex Ultima compliance and contribution to BREEAM categories are presented below.



Product compliant



Product contributes to a better rating

BREEAM Category	Issue	BREEAM Requirements	Credits	Product compliance
Life cycle cost and service life planning	Man 05	A life cycle cost and service life planning analysis of the building components should be carried out in order to obtain their full information through all the life cycle.	3**	Armaflex Ultima life cycle information may be a part of the building analysis. The following data may be useful: - life cycle durability: as the service life of the equipment or the whole building (> 50 years), - restrictions: insulation thicknesses are available for all common pipe diameters up to an outer diameter of 89 mm for tubes; temperature range: -50°C to +110°C, - recycling: non-recyclable, - costs: during installation and utilization (no costs while in use), - comparison to natural rubber: better temperature resistance - less heat/cold losses and extremely constant quality. More information may be found in Environmental Product Declaration <sup>2</sup> .
Life cycle impacts	Mat 01	An environmental impact of construction materials over the building life cycle should be specified by using an appropriate life cycle assessment (LCA) tool.	7**	Data useful for life cycle assessment (LCA) may be found in Environmental Product Declaration (EPD) <sup>2</sup> . Life cycle assessment in EPD has been carried out in GaBi Software (LCA tool), which is based on ISO 14025 standard and addresses the whole life cycle of product, including disposal.
Insulation	Mat 04	Construction materials should be responsibly sourced. A responsibly sourced confirmation of „supply chain process“ and „key process“ should be provided.	1 <sup>1</sup>	Armaflex Ultima is responsibly sourced which may be confirmed with ISO14001 <sup>3</sup> certificates for: - supply chain process (polymer) - key process (insulation production).
Thermal comfort	Hea 03	A thermal comfort analysis should be carried out to assess if the indoor environment maintains comfortable conditions for building users in terms of appropriate thermal comfort level according to ISO 7730:2005.	2**	Armaflex Ultima is a part of building's systems. Adjusting proper design parameters will enable to improve energy efficiency and its supply to the system appliances. For energy efficiency the main parameter of Armaflex Ultima is thermal conductivity $\lambda_{0°C} < 0,040 \text{ W/mK}^1$ .
Reduction of energy use and carbon emissions	Ene 01	An energy performance should be carried out to assess building energy consumption during operation in comparison with the notional building (parameters defined by national standards).	15**	
Energy efficient cold storage	Ene 05	Greenhouse gas emissions from cold storage systems should be reduced by improving their energy efficiency.	3**	

For detailed information please refer to the documents provided by manufacturer:

<sup>1</sup> Armaflex Ultima product card

<sup>2</sup> Environmental Product Declaration: EPD-ARM-20150109-IBB1-DE

<sup>3</sup> ISO 14001 certificates are available for the factories in Muenster (Germany), Begur (Spain) as well as for main polymers production.

[www.armacell.com](http://www.armacell.com)

\* Armaflex Ultima has a direct impact on the following categories. While using Armaflex Ultima with another appropriate products - credits stated above may be awarded. Maximum number of credits influenced by the product for each category was stated above.

\*\* Armaflex Ultima has an indirect impact on the following categories. Using Armaflex Ultima with another appropriate products may contribute to achieve credits. Maximum number of credits influenced by the product for each category was stated above.

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## BREEAM International New Construction 2016

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Product compliant



Product contributes to a better rating

BREEAM Category	Issue	BREEAM Requirements	Credits	Product compliance	
Life cycle cost and service life planning	Man 02	A life cycle cost and service life planning analysis of the building components and elements should be carried out in order to obtain their full information through all the life cycle.	3**	Armaflex Ultima life cycle information may be a part of the building analysis. The following data may be useful: - life cycle durability: as the service life of the equipment or the whole building (> 50 years), - restrictions: insulation thicknesses are available for all common pipe diameters up to an outer diameter of 89 mm for tubes; temperature range: -50°C to +110°C, - recycling: non-recyclable, - costs: during installation and utilization (no costs while in use), - comparison to natural rubber: better temperature resistance - less heat/cold losses and extremely constant quality. More information may be found in Environmental Product Declaration <sup>2</sup> .	
Life cycle impacts	Mat 01	An environmental impact of construction materials over the building life cycle should be specified by using an appropriate life cycle assessment (LCA) tool.	5**	Data useful for life cycle assessment (LCA) may be found in EPD <sup>2</sup> . Life cycle assessment in EPD has been carried out in GaBi Software (LCA tool), which is based on ISO 14025 standard and addresses the whole life cycle of product, including disposal.	
		At least five products out of ten material categories, including insulation products, should have Environmental Products Declarations (EPD). In one material category maximum two products' EPDs may be counted. The EPD must be compliant with ISO 14025, ISO 21930 or EN 15804.	2:	Using Armaflex Ultima with other products having EPD will help to score a credit. Armaflex Ultima EPD <sup>2</sup> is compliant with ISO 14025 and ISO 15804.	
Responsible sourcing of construction	Mat 03	Construction materials should be responsibly sourced. A responsibly sourced confirmation of „supply chain process“ and „key process“ should be provided.	4:	Armaflex Ultima is responsibly sourced which may be confirmed with ISO14001 <sup>4</sup> certificates for: - supply chain process (polymer) - key process (insulation production).	
Material efficiency	Mat 06	In order to minimise materials' environmental impact more efficient materials should be used during building design, procurement, construction, maintenance and end of life.	1**	Armaflex Ultima as a part of building energy system has the following efficiency features: - a service life is more than 50 years, - it may be damaged only by extraordinary impacts or during installation, - varied packaging: appropriate size and package type (tubes, tapes and sheets). Packaging waste is reduced.	
Thermal comfort	Hea 04	A thermal comfort analysis should be carried out to assess if the indoor environment maintains comfortable conditions for building users in terms of appropriate thermal comfort level according to ISO 7730:2005.	3**	Armaflex Ultima is a part of building's systems. Adjusting proper design parameters will enable to improve energy efficiency and its supply to the system appliances. For energy efficiency the main parameter of Armaflex Ultima is thermal conductivity $\lambda_{0°C} < 0,040 \text{ W/mK}^1$ .	
Reduction of energy use and carbon emissions	Ene 01	An energy performance should be carried out to assess building energy consumption during operation in comparison with the following requirements: notional building (parameters defined by national standards) and BREEAM best practice building (BREEAM defined parameters).	15**		
Energy efficient cold storage	Ene 05	Greenhouse gas emissions from cold storage systems should be reduced by improving their energy efficiency.	3**		

For detailed information please refer to the documents provided by manufacturer:

<sup>1</sup> Armaflex Ultima product card

<sup>2</sup> Environmental Product Declaration: EPD-ARM-20150109-IBB1-DE

<sup>3</sup> Eurofins Product Testing A/S attestation and test report data

<sup>4</sup> ISO 14001 certificates are available for the factories in Muenster (Germany), Begur (Spain) as well as for main polymers production.

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## LEED 2009

### for Green Building Design and Construction

LEED is a multi-criteria scheme to assess and certify buildings. Established in USA, it emphasises sustainable development by promoting green, healthy and eco-friendly buildings. Features of the buildings which may be assessed are: materials, quality of indoor environments and energy efficiency etc. Nowadays it has become a standard in real estates markets.



LEED compliance product card for **Armaflex Ultima** was prepared to assist designers, architects, engineers, consultants and developers to provide clear information and to facilitate choosing proper product. Appropriate LEED categories related to Armaflex Ultima features were chosen and checked. Armaflex Ultima compliance and contribution to LEED categories are presented below.



Product compliant



Product contributes to a better rating

LEED Issue	Credit	LEED Requirements	Points	Product compliance
EA Prerequisite 2	Minimum Energy Performance	Building's energy performance calculated using computer simulation model should demonstrate a 10% improvement for new buildings, or a 5% for major renovations in comparison to the baseline as a compulsory achievement by using energy efficient measures.	-	Armaflex Ultima is a part of building's systems. Adjusting proper design parameters will enable to improve energy efficiency and its supply to the system appliances. For energy efficiency the main parameter of the Armaflex Ultima is thermal conductivity $\lambda_{0^{\circ}\text{C}} < 0,040 \text{ W/mK}^1$ . 
EA Credit 1	Optimize Energy Performance	Building's energy performance calculated using computer simulation model should demonstrate an improvement in comparison to the baseline. Number of points awarded depends on percentage improvement and building type.	21**	
IEQ Credit 7.1	Thermal Comfort	An appropriate level of thermal comfort within the building should be provided by designing HVAC systems in accordance with ASHRAE 55-2004 Thermal Environmental Conditions for Human Occupancy.	1**	Armaflex Ultima has got an indirect impact on achieving acceptable range of operative temperature and humidity by providing protection for pipes or air ducts. Therefore it prevents condensation of the humidified air. Water vapour diffusion resistance of Armaflex Ultima is : $\mu > 7\ 000^1$ . 
IEQ Credit 7.2	Thermal Comfort – Verification	A measurements of relevant environmental variables in potential problem areas indicated by building's occupants should be conducted. Measurements should be carried out in accordance with ASHRAE standard 55-2004.	1**	

For detailed information please refer to the documents provided by manufacturer:  
<sup>1</sup>Armaflex Ultima product card

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## LEED v4

### for Building Design and Construction

LEED is a multi-criteria scheme to assess and certify buildings. Established in USA, it emphasises sustainable development by promoting green, healthy and eco-friendly buildings. Features of the buildings which may be assessed are: materials, quality of indoor environments and energy efficiency etc. Nowadays it has become a standard in real estates markets.





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LEED Issue	Credit	LEED Requirements	Points	Product compliance
EA Prerequisite Minimum Energy Performance	Option 1. Whole-building energy simulation	An energy calculation should be carried out based on a simulation model in accordance to the ANSI/ASHRAE/IESNA Standard 90.1-2010, Appendix G with errata. An improvement of 5% (new construction projects), 3% (major renovations projects), 2% (core and shell projects) over a baseline should be demonstrated.	-	Armaflex Ultima is a part of building's systems. Adjusting proper design parameters will enable to improve energy efficiency and its supply to the system appliances. For energy efficiency the main parameter of the Armaflex Ultima is thermal conductivity $\lambda_{0°C} < 0,040 \text{ W/mK}^1$ .
EA Optimize Energy Performance	Option 1. Whole-building energy simulation	Building's energy performance calculated using computer simulation model should demonstrate an improvement in comparison to the baseline. Number of points awarded depends on percentage improvement.	18**	
EQ Thermal Comfort	Thermal Comfort Design Option 2. ISO and CEN Standards	A thermal comfort analysis should be carried out in accordance to the standards: ISO 7730:2005 and EN 15251:2007.	1**	
MR Building Product Disclosure and Optimization – Environmental Product Declarations	Option 1. Environmental Product Declarations (EPD)	At least 20 materials sourced from 5 different manufacturers should have product specific Type III EPD. EPD should conform standards: ISO 14025, ISO 14040, ISO 14044 and EN 15804, at least cradle to gate scope and include an external verification.	1*	Armaflex Ultima has got an EPD <sup>2</sup> with a third party certification (Type III) in accordance to ISO 14025 and EN 15804 and includes an external verification. A cradle to grave scope has been provided. 
EQ Low-Emitting Materials	Option 1. Product category calculations	Up to 7 product categories of finishing materials should be compliant with relevant volatile organic compounds (VOC) emission levels and testing standards: - CDPH Standard Method (2010) or - German AgBB Testing and Evaluation Scheme (2010) or - ISO 16000-3/6/9/11:2010 in conjunction with AgBB or French legislation on VOC emission class labeling or the DIBt testing method (2010).	3*	Armaflex Ultima has been tested <sup>3</sup> in accordance to: German AgBB Testing and Evaluation Scheme (2010). Product complies with limit values of the AgBB. 
EQ Thermal Comfort	Thermal Comfort Design Option 1. ASHRAE Standard 55-2010	An appropriate level of thermal comfort within the building should be provided by designing HVAC systems in accordance with ASHRAE 55-2010 Thermal Environmental Conditions for Human Occupancy with errata or a local equivalent.	1**	Armaflex Ultima has got an indirect impact on achieving acceptable range of operative temperature and humidity by providing protection for pipes or air ducts. Therefore it prevents condensation of the humidified air. Water vapour diffusion resistance of Armaflex Ultima is: $\mu > 7 \text{ 000}^1$ . 

For detailed information please refer to the documents provided by manufacturer:

<sup>1</sup> Armaflex Ultima product card

<sup>2</sup> Environmental Product Declaration: EPD-ARM-20150109-IBB1-DE

<sup>3</sup> Fraunhofer Institute for Wood Research, Test report No. MAIC-2012-2101

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