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# HT/ArmaFlex Industrial

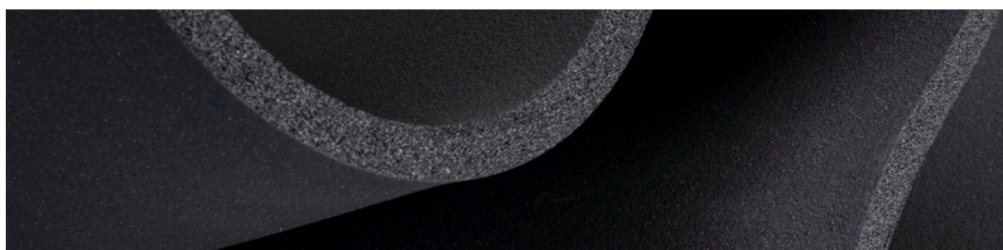
HT/ArmaFlex Industrial is a high density, industrial grade FEF insulation material designed for applications with elevated temperatures in oil and gas industry

- // High density and mechanically robust for superior stability and multi-layer application
- // Enhanced temperature capability
- // Built-in water vapour barrier reduces risk of corrosion under insulation (CUI)
- // Retains its physical characteristics throughout its service life
- // Low maintenance and repair costs
- // Low leachable chloride content (< 30 ppm) to minimise stress corrosion cracking (SCC)
- // Low thermal conductivity to minimise energy losses

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



 **armacell**<sup>®</sup>  
ArmaFlex<sup>®</sup>

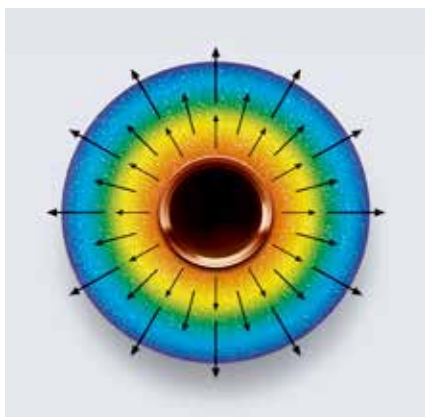
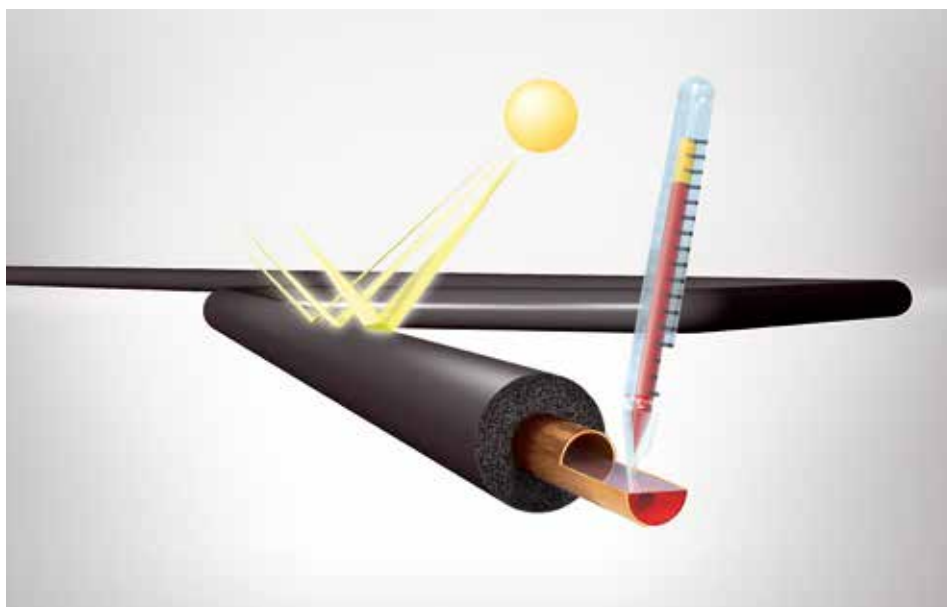


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# HT/ArmaFlex

## THE EXPERT FOR HIGH TEMPERATURE



HT/ArmaFlex® is a flexible elastomer insulation material with exceptional resistance to UV radiation and high temperatures. Its closed cell structure and low thermal conductivity keep water vapour from diffusing in and reduce energy losses, protecting and optimising the efficiency and life time expectancy of the installation. While remaining flexible at application temperatures of up to 150°C, HT/ArmaFlex® is dust and fibre free and easy to install without special tools. The product does not need additional jacketing, does not degrade in sunlight and withstands incidental oil contact.

Thanks to the thermal properties of the insulation, the heat flow from pipelines insulated with HT/ArmaFlex® is kept at its utmost minimum. The evenly spread, homogenous and longterm stable closed cell structure prevents heat flow on the way of convection, ensuring very low thermal conductivity of the insulation material. This to keep the outer surface temperature at a low level and prevents unnecessary heat losses. Because of the flexibility of HT/ArmaFlex®, the huge temperature gradient of the thickness of insulation does not result in any internal stress.

## TECHNICAL DATA - HT/ARMAFLEX INDUSTRIAL

Brief description	HT/ArmaFlex Industrial is a flexible, high density and mechanically robust, closed-cell thermal insulation material based on extruded elastomeric foam. The product has been specially developed to provide enhanced thermal resistance of the insulation systems with its low thermal conductivity.
Material type	Factory-made flexible elastomeric foam based on ethylene propylene diene methylene (EPDM), according to EN 14304.
Product colour range	Black
Special features	HT/ArmaFlex Industrial is resistant to elevated operating temperatures. The product is suitable for use in multi-layer applications including ArmaSound Industrial Systems.
Product range	Tubes, 13, 19 and 25 mm thickness, for pipe outer diameters ranging from 18 to 89 mm (¾" to 3" NB). Sheets in rolls, 10, 13, 19 and 25 mm thickness.
Applications	Thermal insulation/protection of pipes, vessels and ducts (including elbows, fittings, flanges, etc.) in offshore, industrial (typically oil and gas) and process equipment facilities. HT/ArmaFlex Industrial is also used as a component of ArmaSound Industrial Systems to provide acoustic insulation on industrial pipework and vessels ensuring reduction of sound transmission.
Installation	For industrial applications it is recommended to consult the relevant Armacell application manual(s). For further information please contact our Technical Services.

### Approvals and compliance

Specification compliance	<ul style="list-style-type: none"> <li>EN 14304 (harmonised construction product standard for FEF)</li> <li>Certificate of Fire Approval by Lloyd's Register (Class 1, BS 476 part 7)</li> </ul>
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Property	Value / Assessment						Standard / Test method
<b>Temperature range</b>							
Service temperature <sup>1</sup>	Min. °C	Min. °F	Max. °C	Max. °F	EN 14706, EN 14707, EN 14304		
	-50	-58	125	257			
<b>Thermal conductivity</b>							
Declared thermal conductivity	θm	-50 °C [-58 °F]	0 °C [+32 °F]	+50 °C [+122 °F]	+100 °C [+212 °F]	+125 °C [+257 °F]	EN ISO 13787, EN 12667, EN ISO 8497
	λd ≤ [W/(m·K)]	0.039	0.041	0.047	0.057	0.063	
	λd ≤ [Btu-in/(h-ft <sup>2</sup> -°F)]	0.271	0.284	0.325	0.393	0.438	
	Formula	Equation of declared thermal conductivity as a function of temperature: λd (θm) = 0.04028 + 1.25 x 10 <sup>-4</sup> x θm + 8 x 10 <sup>-7</sup> x (θm - 30) <sup>2</sup> W/(m·K), where θm is mean temperature in °C.					
<b>Fire Performance and Approvals</b>							
Reaction to fire	D-s3,d0 / D(L)-s3,d0						EN 13501-1, EN 13823, EN ISO 11925-2
Surface burning characteristics	Class A, <25 Flame Spread Index						ASTM E84
Surface flammability <sup>2,3</sup>	IMO Part 5						IMO 2010 FTP Code, Part 5
<b>Fire performance</b>							
Practical fire behaviour	Self-extinguishing, does not drip, does not spread flames.						
<b>Resistance to water</b>							
Water absorption <sup>2</sup>	≤ 0.1% by volume (total submersion for 2 hours)						ASTM C209
Water absorption by vacuum	≤ 4% by mass (total submersion for 2 x 180 seconds, vacuum pressure 17.2 kPa or 2.5 psi)						ASTM D1056
<b>Corrosion mitigation</b>							
Leachable (water-soluble) chlorides	≤ 30 ppm (mg/kg or µg/g)						EN 13468, ASTM C871 <sup>5</sup>
pH-value <sup>2</sup>	7 to 9						ISO 10523
Stress corrosion cracking <sup>2,6</sup>	No cracks under magnifying glass on test coupons after evening, cleaning and rebending.						ASTM C692

Property	Value / Assessment	Standard / Test method
<b>Physical attributes</b>		
Density	Sheets: 70 to 85 kg/m <sup>3</sup> (4.4 to 5.3 lb/ft <sup>3</sup> ) Tubes: 60 to 75 kg/m <sup>3</sup> (3.7 to 4.7 lb/ft <sup>3</sup> )	ISO 845, ASTM D1622
Dimensions and tolerances	According to EN 14304, for detailed values, please refer to product range tables.	EN 822, EN 823, EN 13467
<b>Compression deflection</b>		
Compression deflection 25%	≥ 15kPa (≥ 2.2 psi) at 25% deflection	ISO 6916-1 <sup>7</sup>
<b>Acoustic performance</b>		
System acoustic insertion loss	When used as part of a system: HT/ArmaFlex Industrial complies to ISO 15665 Classes A to C and Shell DEP 31.46.00.31-Gen Class D. Minimum acoustic service temperature (interface temperature to pipework or underlying thermal insulation layers) is -40 °C (-40 °F).	ISO 3741, ISO 15665 <sup>8</sup>
<b>Weather and UV resistance</b>		
Weather resistance	In all industrial applications, the outer layer of the material must be protected with an adequate covering like Arma-Chek R, metal jacketing or preformed UV-cured Glass-Reinforced Plastic (GRP) cladding. For further information, please contact Technical Services.	
<b>Other technical features</b>		
Adhesion and sealing <sup>9,10</sup>	ArmaFlex HT625 adhesive should be used for reliable adhesion of joints and seams. HT/ArmaFlex tape can be used for application.	
Application conditions <sup>11,12</sup>	Application temperature should be maintained at +5°C to +35 °C (+41°F to +95°F) and at a maximum relative humidity of 80%.	
Closed-cell content	≥ 90% (declared on the basis of the water absorption test.)	
Shelf life <sup>13</sup>	Maximum of 3 years.	
Storage	Material shall be stored indoors, in clean and dry conditions, away from direct sunlight.	

<sup>1</sup>For use in temperatures beyond the published value, please contact Technical Services.

<sup>2</sup>Based on single test results. Can be used for information / reference only.

<sup>3</sup>Meets the criteria of floor coverings and primary deck coverings.

<sup>4</sup>For further information regarding water vapour transmission resistance, please contact Technical Services.

<sup>5</sup>Specimen prepared according to EN 13486: neither cut, ground nor blended. Test temperature +100°C, leaching time 0.5 hours as specified in the standard for product maximum service temperature.

<sup>6</sup>The coupons from type 304 stainless steel, 1.5 mm thick. 28 days drip test using deionized or distilled water at around +100°C.

<sup>7</sup>Equivalent method to ASTM D1056.

<sup>8</sup>Equivalent method to ASTM E1222.

<sup>9</sup>During storage of the product, blooming on the surfaces may occur. This blooming does not affect the technical properties of the material, but can affect the adhesion properties. Therefore, the surface needs to be cleaned (wiped off) before adhesives can be applied.

<sup>10</sup>For further information, please contact our Customer Service.

<sup>11</sup>For environmental conditions outside the given range, please contact Technical Services.

<sup>12</sup>Application temperature (temperature of installation) refers to the ambient temperature during application and the surface temperature of the substrate to which the product is installed.

<sup>13</sup>Shelf life (maximum storage time) is limited to ensure that only currently manufactured products are installed on projects. This limitation is restricted solely to storage of the product and does not affect the lifetime of product after it has been installed.

# OUR CUSTOMERS EXPECT THE BEST. WE WORK HARD TO GO BEYOND THAT AND EXCEED THEIR EXPECTATIONS.

At Armacell we want to create a unique customer experience. We understand the challenges of today's construction industry and support you in the successful delivery of your projects. From planning to delivery, our 360° service supports you throughout the entire process.



## **SERVICE AND TECHNICAL INFORMATION AVAILABLE 24/7**

At Armacell, we do everything we can to ensure your project runs smoothly. This is why the information about the Armacell services you benefit from is available 24/7 from Armacell.com website as well as from our planning tools (BIM, specification documents, ArmaWin, as well as our sustainable building policy)

## **DEDICATED LOCAL CONTACTS**

We aim to create open lines of communication with our customers. From on-site trainings and webinars by our Armacell technical experts advising on project planning and safety instructions to our local dedicated sales and customer services, your local Armacell dedicated team is working in partnership with you to achieve more together.

## **DIGITAL INFORMATION FLOWS**

From order to delivery, we also provide you with digital information flows such as EDI and other well-known data formats that are widely used in the construction sector worldwide.



## OUR STANDARD LOGISTICS SERVICES INCLUDE

- // Material ordered will be shipped from our facilities within 48 hours after order confirmation
- // Full truck loads and full pallets (not mixed – 1 SKU per pallet)
- // List prices in this document are based on Ex Works
- // Container loading with standard goods
- // Customs clearance (including documentation) for standard deliveries outside EU
- // Dangerous goods process for road freight

## WE GO BEYOND STANDARD SERVICES AND ALSO PROPOSE YOU ADDITIONAL SERVICES\*

### OPIMISED PACKAGING

- Edge protection
- Strapping
- Doubled stretching
- Reinforced cardboard with extra layer
- Additional warning tape

### LABELLING

- Extra label for transport instructions

### EXTRA DELIVERY SERVICES

- Just in time delivery
- Delivery with lifting platform for partial or complete load
- Express and direct shipments
- Booking a delivery time slot via your EDP system
- Forklift truck for unloading at construction site
- Air and sea freight deliveries
- Dangerous goods shipment process for air and sea freight



To mitigate cost increases and reduce waste generation, we also propose a pallet return service\* by which pallets can be handed at Armacell collection points.

\* Please contact your local Customer Service Centre to see which of these services apply to your country.

All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. Despite taking every precaution to ensure that said data and technical information are up to date, Armacell does not make any representation or warranty, express or implied, as to the accuracy, content or completeness of said data and technical information. Armacell also does not assume any liability towards any person resulting from the use of said data or technical information. Armacell reserves the right to revoke, modify or amend this document at any moment. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. This document does not constitute nor is part of a legal offer to sell or to contract.

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## ABOUT ARMACELL

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As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency, making a difference around the world every day. With more than 3200 employees and 27 production plants in 19 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more information, please visit:  
[www.armacell.com](http://www.armacell.com)

