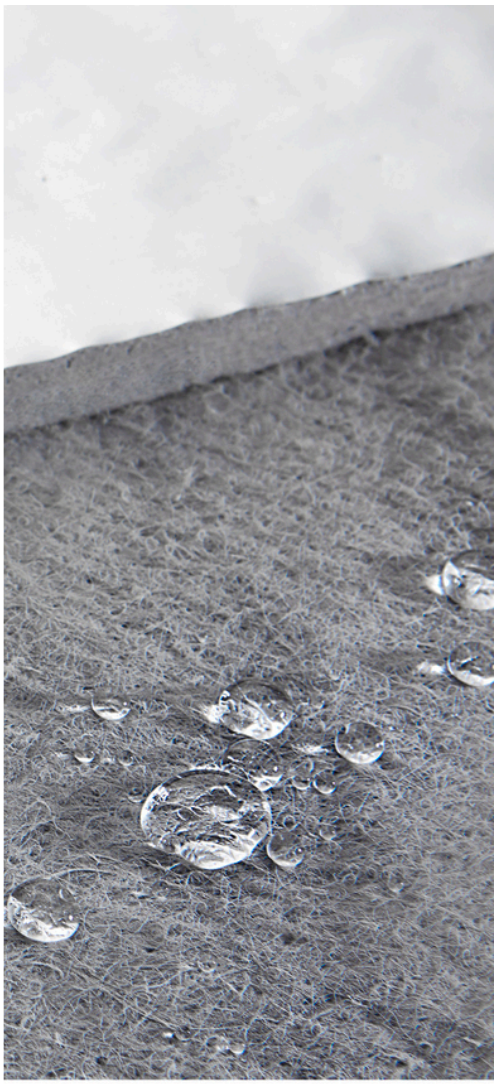
INSULATION JUST GOT COOLER

ArmaGel DT

Flexible aerogel insulation blanket for cryogenic and dual-temperature applications

// ASTM C1728 Compliant
// More choice: 5, 10, 15 and 20 mm thicknesses
// Integrated zero-perm vapour barrier
// Flexible at cryogenic temperatures



armacell®
MAKING A DIFFERENCE AROUND THE WORLD

INSULATION JUST GOT COOLER

ArmaGel DT

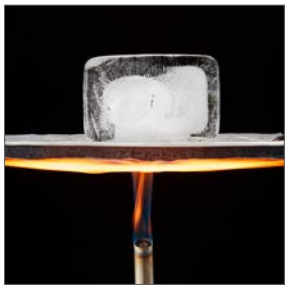
Aerogel is a remarkable material. Although it is the world's lightest solid material, it is strong enough to stop a bullet in its track, and NASA used it to bring home a piece of comet. Armacell for its part is utilising aerogel technology to produce its ArmaGel blanket product range.

CRYOGENIC CONDITIONS DOWN TO -180 / -196 °C

Welcome to the next generation of aerogel insulation technology.

ASTM C1728 compliant. Flexible and bendable. Superior thermal performance. Protection against corrosion under insulation. ArmaGel DT is the reliable solution for cryogenic and dual-temperature applications and is compatible with the Armacell Energy existing product range, giving you the best of both worlds.


Cryogenic


Dual-Temperature


Hydrophobic

Note:
ArmaGel DT is compliant with ASTM C1728 Type IV, Grade 1A with minimum use temperature of -196 °C. For operating temperatures below -180 °C, special attention must be given to the system design and craftsmanship during installation to ensure that the material does not come in contact with liquid oxygen. For further information and support, please contact Technical Services.

YOUR BENEFITS

// Increase coverage
New sizes and more choice. 5, 10, 15, and 20 mm thicknesses available today. A thicker layer gives more insulation coverage per man hour than conventional aerogel insulation.

// Faster installation rates
Cuts easily and conforms to preferred shapes, with less wastage, making it the right fit for installers.

// Increase labour productivity
Product removal is made simple, reducing both downtime and the need to purchase replacement insulation during regular maintenance cycles.

// Superior thermal performance
Offering up to 2 times superior thermal performance versus like-for-like competing insulation products.

// Hydrophobic & CUI mitigation
Repels liquid water helping to keep equipment drier for longer and mitigate corrosion under insulation (CUI).

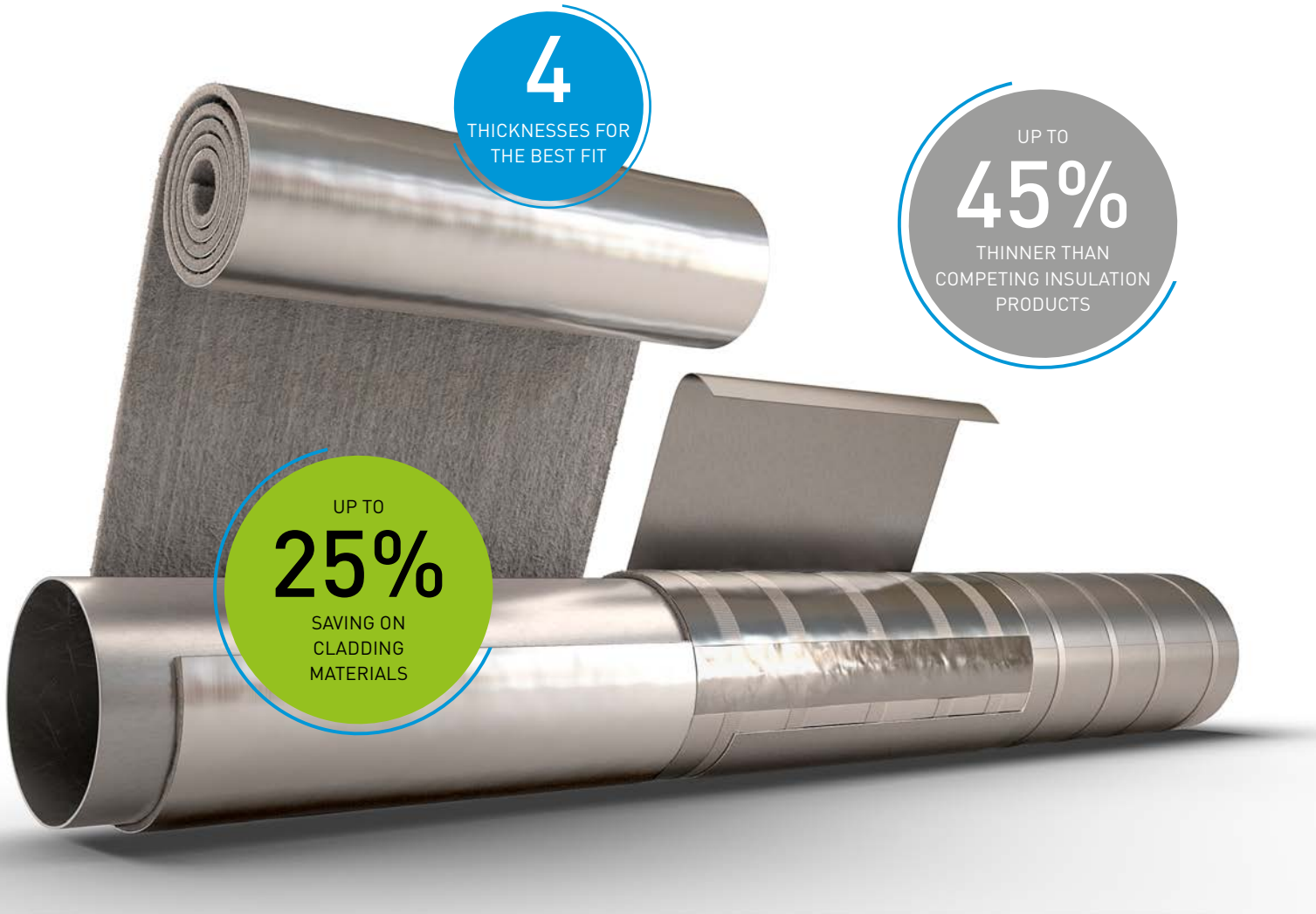
// Ultra-thin
Equal thermal performance at a fraction of the thickness. Improved handling and easier transportation.

// Versatile
More flexibility than conventional aerogel insulation materials.

// Environmentally safe
Dispose of in accordance with local regulations.

// Less waste
ArmGel DT comes in sheet form. It is flexible and more forgiving. It does not crack and can be fabricated to fit any pipe size with minimum waste.

// Acoustic performance
ArmaGel DT offers superior acoustic insertion loss at reduced thickness and weight compared to conventional acoustic insulation systems.



TECHNICAL DATA - ARMAGEL DT

Brief description	ArmaGel DT is a flexible aerogel insulation blanket with factory-applied aluminium foil, suitable for applications in cryogenic and dual-temperature range. ArmaGel DT is compliant with ASTM C1728 Type IV, Grade 1A.
Product colour range	Grey
Special features	ArmaGel DT is intended for use in dual temperatures and cyclic operating conditions between -180 °C (-292 °F) and +250 °C (+482 °F). The product is suitable for use in multi-layer applications including ArmaSound Industrial Systems.
Product range	Sheets in rolls, 5, 10, 15 and 20 mm (0.2, 0.4, 0.6, 0.8 in) thickness and width of 1.5 m (59 in). For further details, please refer to the product range tables at the end of this document.
Applications	Thermal insulation/protection of pipes, vessels and ducts (including elbows, fittings, flanges etc.) in cryogenic, onshore, offshore, industrial and process equipment facilities. ArmaGel DT 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

Approvals, certifications and compliances	• Compliant with Module B of Directive 2014/90/EU. Certified by Bureau Veritas.

Property	Value / Assessment									Standard / Test method
Temperature range										
Service temperature[1]	Min. °C		Min. °F		Max. °C		Max. °F			ASTM C411
	-180		-292		250		482			
Thermal conductivity										
Declared thermal conductivity[2]	θm	-129°C (-200°F)	-73.3°C (-100°F)	-17.8°C (0°F)	23.9°C (75°F)	37.8°C (100°F)	93.3°C (200°F)	149°C (300°F)	204°C (400°F)	ASTM C177
	λd ≤ [W/(m·K)]	0.015	0.017	0.020	0.021	0.022	0.023	0.025	0.029	
	k ≤ [Btu-in/(h-ft²-°F)]	0.10	0.12	0.14	0.14	0.15	0.16	0.17	0.20	
Temperature resistance										
Linear shrinkage under soaking heat	< 2% in width and length									ASTM C356
Fire Performance and Approvals										
Surface burning characteristics	≤ 25 Flame Spread Index ≤ 50 Smoke Developed Index									ASTM E84
Surface flammability	Compliant to IMO Part 5									IMO 2010 FTP Code, Part 5
Smoke generation and toxicity test	Compliant to IMO Part 2									IMO 2010 FTP Code, Part 2
Resistance to water vapour										
Water vapour sorption	≤ 5% by weight									ASTM C1104
Water vapour permeance of integrated vapour barrier	0.00 perm									ASTM E96
Resistance to water										
Hydrophobic	Yes									
Water absorption	≤ 8% by weight									ASTM C1763
Corrosion mitigation										
Corrosiveness to steel	Passed, Mass Loss Corrosion Rate (MLCR) not exceeding that of 5 ppm chloride solution on carbon steel coupon									ASTM C1617, Procedure A

Property	Value / Assessment	Standard / Test method
Stress corrosion cracking	Passed	ASTM C692, ASTM C795
Physical attributes		
Nominal density	185 kg/m³ (11.5 lb/ft³)	ASTM C303
Mechanical properties		
Compressive strength[3]	≥ 5 psi/ 34.5 kPa at 10% compression	ASTM C165
Flexibility of insulation blankets	Flexible	ASTM C1101
Weather and UV resistance		
Weather resistance	In all industrial applications the outer layer of the material must be protected with an adequate covering like metal jacketing or preformed UV-cured GRP (Glass-Reinforced Plastic) cladding. Please contact Technical Services for guidance on the temperature limitations and specific construction considerations which need to be made for each jacketing system.	
Health and environment		
Fungal growth	No growth	ASTM C1338
Health aspects	Neutral	
Other technical features		
Shelf life[4]	Max. 3 years	
Storage	Material shall be stored indoors, in clean and dry conditions, away from direct sunlight.	

[1] For operating temperatures below -180°C, special attention must be given to the system design and craftsmanship during installation to ensure that the material does not come in contact with liquid oxygen. For further information and support, please contact Technical Services.

[2] Measured under a load of 1.5 kPa (0.22 psi).

[3] Test performed with a preload of 13.8 kPa (2 psi).

[4] 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.

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ABOUT ARMACELL

As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal 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 3,300 employees and 25 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 acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.

For more information, please visit:
www.armacell.com

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