

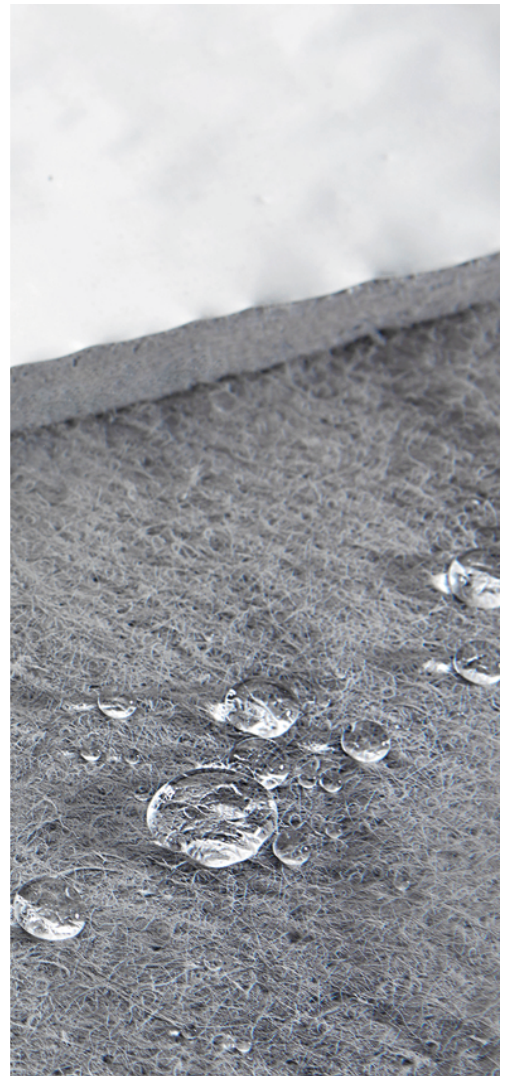


INSULATION JUST GOT COOLER

# 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



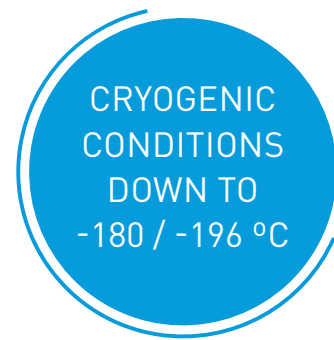
 **armacell**<sup>®</sup>  
MAKING A DIFFERENCE AROUND THE WORLD

INSULATION JUST GOT COOLER

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# 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.**

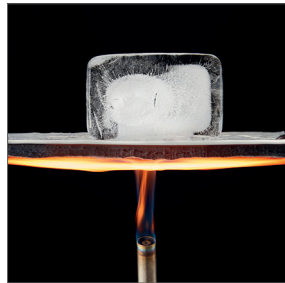


**Welcome to the next generation of aerogel insulation technology.**

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  $-196^{\circ}\text{C}$ . For operating temperatures below  $-180^{\circ}\text{C}$ , 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.

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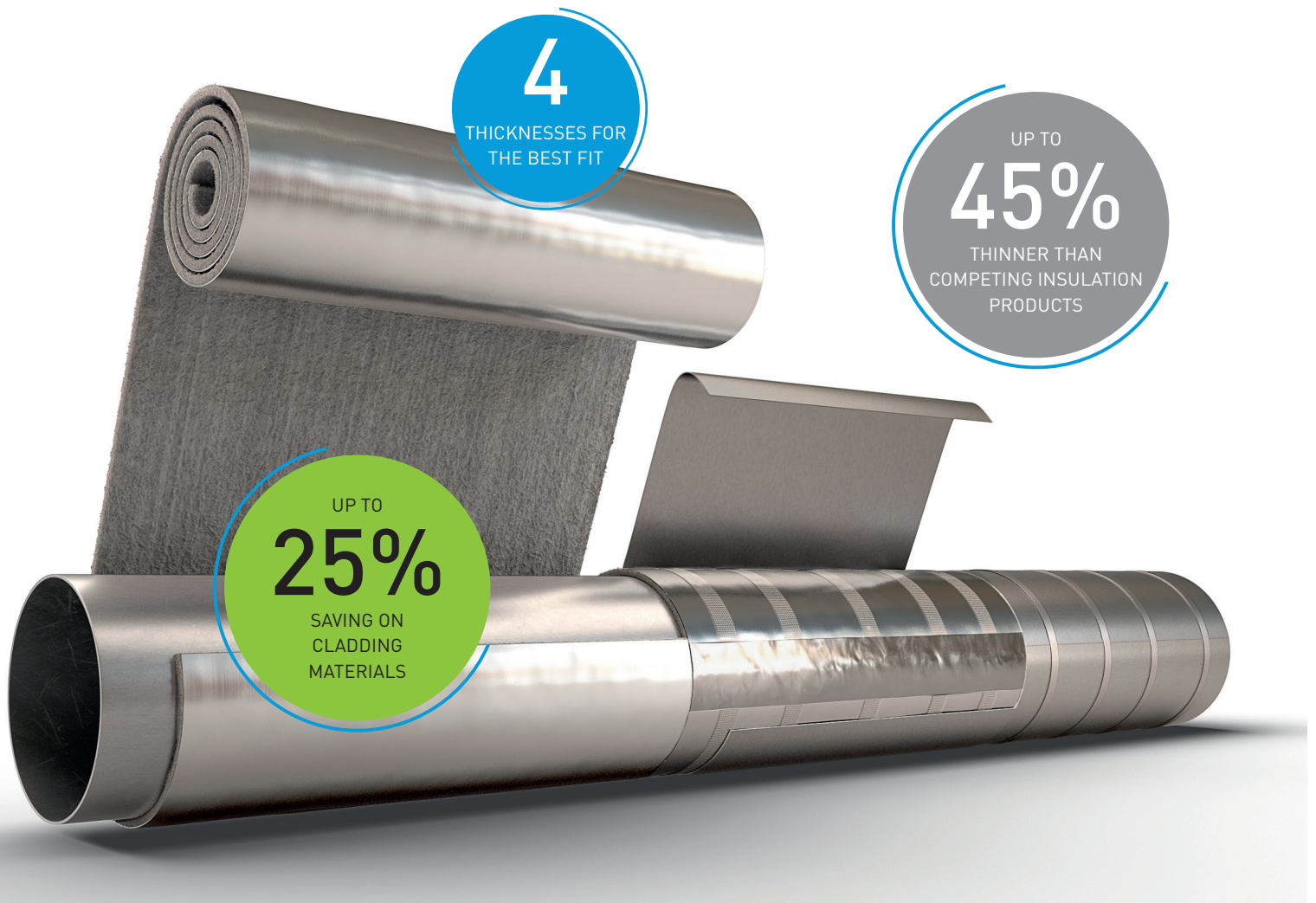
THICKNESSES FOR  
THE BEST FIT

UP TO  
45%

THINNER THAN  
COMPETING INSULATION  
PRODUCTS

UP TO  
25%

SAVING ON  
CLADDING  
MATERIALS



## 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 | <ul style="list-style-type: none"> <li>Compliant with Module B of Directive 2014/90/EU.</li> <li>Certified by Bureau Veritas.</li> </ul> |
|---|--|

| Property  | Value / Assessment   |                    |                     |                  |                  |                   |                   |                  |                  | Standard / Test method    |
|---|--|--------------------|---------------------|------------------|------------------|-------------------|-------------------|------------------|------------------|---------------------------|
| <b>Temperature range</b>                            |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Service temperature <sup>1</sup>                    | Min. °C  | Min. °F            |                     | Max. °C          |                  | Max. °F           |                   |                  | ASTM C411        |                           |
|   | -180   | -292               |                     | 250              |                  | 482               |                   |                  |                  |                           |
| <b>Thermal conductivity</b>                         |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Declared thermal conductivity <sup>2</sup>          | Øm   | -129°C<br>(-200°F) | -73.3°C<br>(-100°F) | -17.8°C<br>(0°F) | 23.9°C<br>(75°F) | 37.8°C<br>(100°F) | 93.3°C<br>(200°F) | 149°C<br>(300°F) | 204°C<br>(400°F) | ASTM C177                 |
|   | λd ≤ [W/<br>(m·K)]   | 0.015              | 0.017               | 0.020            | 0.021            | 0.022             | 0.023             | 0.025            | 0.029            |                           |
|   | k ≤ [Btu-in/<br>(h·ft <sup>2</sup> ·°F)]   | 0.10               | 0.12                | 0.14             | 0.14             | 0.15              | 0.16              | 0.17             | 0.20             |                           |
| <b>Temperature resistance</b>                       |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Linear shrinkage under soaking heat                 | < 2% in width and length   |                    |                     |                  |                  |                   |                   |                  |                  | ASTM C356                 |
| <b>Fire Performance and Approvals</b>               |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Surface burning characteristics                     | ≤ 25 Flame Spread Index<br>≤ 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 |
| <b>Resistance to water vapour</b>                   |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Water vapour sorption                               | ≤ 5% by weight   |                    |                     |                  |                  |                   |                   |                  |                  | ASTM C1104                |
| Water vapour permeance of integrated vapour barrier | 0.00 perm  |                    |                     |                  |                  |                   |                   |                  |                  | ASTM E96                  |
| <b>Resistance to water</b>                          |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Hydrophobic   | Yes  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| Water absorption                                    | ≤ 8% by weight   |                    |                     |                  |                  |                   |                   |                  |                  | ASTM C1763                |
| <b>Corrosion mitigation</b>                         |  |                    |                     |                  |                  |                   |                   |                  |                  |                           |
| 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   |
| <b>Physical attributes</b>         |  |                        |
| Nominal density                    | 185 kg/m <sup>3</sup> (11.5 lb/ft <sup>3</sup> )   | ASTM C303              |
| <b>Mechanical properties</b>       |  |                        |
| Compressive strength <sup>3</sup>  | ≥ 5 psi/ 34.5 kPa at 10% compression   | ASTM C165              |
| Flexibility of insulation blankets | Flexible   | ASTM C1101             |
| <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 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. |                        |
| <b>Health and environment</b>      |  |                        |
| Fungal growth                      | No growth  | ASTM C1338             |
| Health aspects                     | Neutral  |                        |
| <b>Other technical features</b>    |  |                        |
| Shelf life <sup>4</sup>            | Max. 3 years   |                        |
| Storage                            | Material shall be stored indoors, in clean and dry conditions, away from direct sunlight.  |                        |

<sup>1</sup>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.

<sup>2</sup>Measured under a load of 1.5 kPa (0.22 psi).

<sup>3</sup>Test performed with a preload of 13.8 kPa (2 psi).

<sup>4</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.



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## ABOUT ARMACELL

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

  
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