

DEDICATED TO HEALTHCARE

Insulation solutions

Healthcare facilities have strict requirements to ensure patients benefit from the best medical care possible. Armacell's flexible equipment insulation helps to increase energy efficiency and contributes towards a safer and more comfortable environment for patients and healthcare workers. Our solutions are used all over the world, to offer trusted operations where downtime is not an option. **A peace of mind today, a better bill of health tomorrow.**

www.armacell.com



 **armacell**[®]
MAKING A DIFFERENCE AROUND THE WORLD

ABOUT ARMACELL

We are the inventors of flexible foams for equipment insulation and a leading provider of engineered foams. Our lightweight thermal, acoustic and mechanical solutions create sustainable value for our customers. Day in day out, our products significantly contribute to global energy efficiency and make a difference around the world. Addressing global megatrends, such as energy efficiency, urbanisation, lightweighting, the globalisation of food supplies and acoustic comfort, our product solutions stand out in terms of functionality and ease of installation.

3,100

employees worldwide representing 70 different nationalities

24

production facilities in 16 countries on 4 continents

300+

active patents



// Passionate

Dedicated and professionally-minded employees with an entrepreneurial spirit are our greatest asset. They share a common set of core values: customer experience, commitment, empowerment and accountability, integrity and sustainability.

Armacell.
Making a difference around the world.

SOLUTIONS ENABLING ENERGY SAVINGS.

// Innovative

We innovate in new technologies and focus on products that deliver superior technical performance. Now in its seventh generation, ArmaFlex® Class 0 is the exclusive flexible elastomeric foam insulation material with built-in Microban® antimicrobial product protection in Asia. Our most recent product launches include ArmaGel, the next-generation aerogel technology offering up to five times superior thermal performance than conventional insulation materials.



// Customer-centric

We create genuine value for our customers, value them as partners, and are committed to developing solutions tailored to their requirements. The outcome is added value for our business partners and, most significantly, energy savings and a longer working life for their critical equipment.



5 MILLION m³
OF INSULATION
PRODUCED
PER YEAR



// Sustainable

We dedicate our business activities to advancing and optimising energy efficiency for equipment and to closing the loop to achieve a more sustainable use of resources. Our ArmaFlex insulation saves 140 times more energy than is required for its production and prevents the emission of several million tonnes of CO₂ per year.

140x MORE
ENERGY
SAVED



ArmaFlex Class 0

THE TRUSTED INSULATION FOR HEALTHCARE FACILITIES

Medical and healthcare facilities have strict requirements for temperature, humidity and air quality, ensuring that patients can benefit from the best medical care possible. The resources required to operate and maintain such buildings are high - facilities where the heating, ventilation and air-conditioning (HVAC) system is constantly switched on with little tolerance for down-time.

Air distribution systems that help to remove contaminants in the air could also spread unwanted noise and pollutants such as industrial fibres and dust particles. Hence, ArmaFlex is the internationally trusted thermal insulation material for air ducts and chilled water systems in healthcare facilities.



ArmaFlex Class 0
Flexible elastomeric foam insulation material with built-in antimicrobial product protection that lasts the lifetime of the product.



» Antimicrobial technologies minimise the presence of mould and fungi to offer a greater level of product protection. «



MICROBAN ANTIMICROBIAL PRODUCT PROTECTION

// How does it work?

Microban antimicrobial chemistries are continuously working within the molecular structure of ArmaFlex Class 0 products, creating an inhospitable environment for microbes to grow and multiply. Product protection begins to work as soon as a microorganism comes into contact with a product surface and the Microban antimicrobial protection penetrates the cell wall of the microorganism, disrupting the cell and making the microorganism unable to grow and reproduce. The antimicrobial protection then works continuously to maintain a consistently lower bio-burden than would be expected on a product without Microban protection.

Microban antimicrobial technologies have undergone extensive independent laboratory testing and have a long history of safe use. The biocidal active components of Microban antimicrobial additives are notified with the Biocidal Products Regulation and approved for use by the Environmental Protection Agency of the United States of America.

ArmaFlex Class 0 is infused with Microban antimicrobial product protection to inhibit the growth of stain and odour-causing mould and mildew from growing on any surface of the insulation. Unlike disinfectants which provide a limited residual activity once the treated surface dries, the integrated antimicrobial technology works to continuously reduce the growth of microbes throughout the entire lifecycle of a product. **Built into the insulation material, it will not wash off or wear away, making it the ideal option for specification into cleanliness-critical environments such as healthcare.**

// Microban in practice: simulated petri dish images

Under the right conditions, microbes on an untreated surface can double every 20 minutes. The image on the left shows an unprotected surface (figure 1) as compared to a surface protected with Microban antimicrobial additive 24 hours after exposure (figure 2).

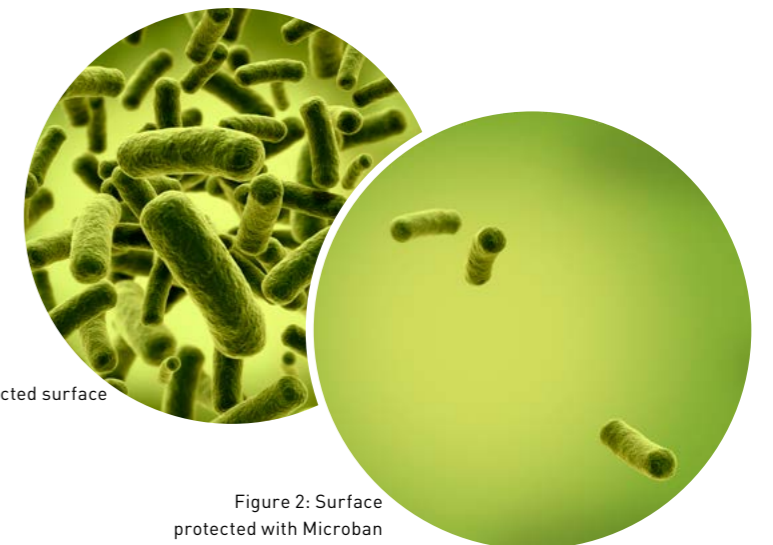


Figure 1: Unprotected surface

Figure 2: Surface protected with Microban

Microban antimicrobial product protection is limited to the product itself and is not designed to protect the users of these products from disease causing microorganisms, or as a substitute for normal cleaning and hygiene practices.

YOUR BENEFITS

Hospitals are one of the most resource-intensive buildings and they must operate continuously, supporting items as simple as lights or as complex as surgical robots. **For every 1% of moisture gained in the insulation material, there is an estimated loss of 7.5% in thermal efficiency. A reliable and energy-efficient HVAC system is absolutely necessary for hospitals.**



COST-EFFECTIVE WAY TO SAVE ENERGY

EXCELLENT FIRE PERFORMANCE

Stringent fire safety test standards by leading international agencies certify that ArmaFlex offers excellent fire safety performance. It is a self-extinguishing insulation material that does not drip nor spread fire. It is FM-approved and classified to British Standards BS 476 Parts 6 and 7. The product also complies to safety, reliability and performance standards of various local fire safety bodies, such as the Fire Services Department of Hong Kong and the Fire Safety and Shelter Department of Singapore.



CONDENSATION CONTROL

Wherever energy is transported, part of the valuable resource gets lost when the equipment is not, or poorly, insulated. With HVAC equipment being the second largest energy consumer, insulation with our dedicated ArmaFlex products offers enormous energy-saving potential. Our closed-cell material protects mechanical equipment against heat loss and condensation, and supports its long-term function.

ArmaFlex has low thermal conductivity and high resistance to water vapour transmission to provide installations with reliable, long-term protection against energy loss and condensation. Unlike conventional insulation materials which have to be protected against moisture penetration with a separate vapour barrier, ArmaFlex has a 'built-in water vapour barrier' to offer reliable resistance to water vapour transmission throughout its entire insulation thickness.

BETTER INDOOR AIR QUALITY

// No risk of fibre leakage

The homogenous, three-dimensionally linked structure of ArmaFlex allows the insulation material to be cut neatly without the release of fibres which could pose a health threat if breathed in. In comparison, fibres of conventional fibre-based materials can loosen over time and get caught in the air stream of ductwork, potentially exposing occupants in the building to air-borne particulates and affect the indoor air quality.

// GREENGUARD Gold certification

ArmaFlex Class 0 has achieved GREENGUARD Gold certification for its low emissions of volatile organic compounds and total aldehyde, as well as being free of formaldehyde.



NO FIBRE LEAKAGE

GREEN BUILDING ASSESSMENT

ArmaFlex has zero ozone depleting potential and zero global warming potential, meets the requirements for sustainable construction, and contributes to the positive assessment of leading green building standards such as the US Leadership in Energy & Environmental Design (LEED®). It is also a certified product under the Singapore Green Building Product (SGBP) labelling scheme by the Singapore Green Building Council.



NEAT AND SIMPLE INSTALLATION

No other insulation material can be installed as reliably, neatly, simply and as fast as ArmaFlex. ArmaFlex can be quickly and easily cut on-site to match the pipe runs and contours, without releasing any dust or fibres. Application times can be further reduced by using self-adhesive sheets. We also offer a complete range of accessories, such as adhesives and cleaners, which have been developed especially for our products and tested as a system.



Fast installation in tight spaces

The high flexibility of our material is a key advantage in tight-fitting conditions.

ArmaPhonic®

THINNER
ACOUSTIC
INSULATION
MATERIAL

ArmaPhonic is a unique open-cell sound absorber that offers additional barrier (transmission loss) performance and both vibration control and de-coupling (isolation) properties. Like ArmaFlex, ArmaPhonic is fibre-free insulation material.

Engineered to design peak absorption frequency, ArmaPhonic targets specific frequencies and delivers optimal performance at lower thicknesses than conventional materials. Hence, it is the preferred acoustic insulation material for areas such as HVAC fancoil units, duct and cabinet linings and chiller systems.

ArmaPhonic S

Octave band centre frequency (Hz)						
Thickness	125	250	500	1000	2000	4000
[mm]	Octave band absorption coefficient acc. to EN ISO 354					
6	0.01	0.02	0.08	0.23	0.61	1.04
10	0.01	0.04	0.16	0.50	1.04	0.84
15	0.03	0.07	0.29	0.84	0.95	0.82
20	0.05	0.14	0.60	0.96	0.72	0.84
25	0.09	0.24	0.83	0.78	0.79	0.85
50	0.21	0.69	0.87	0.82	0.85	0.93

ArmaPhonic H

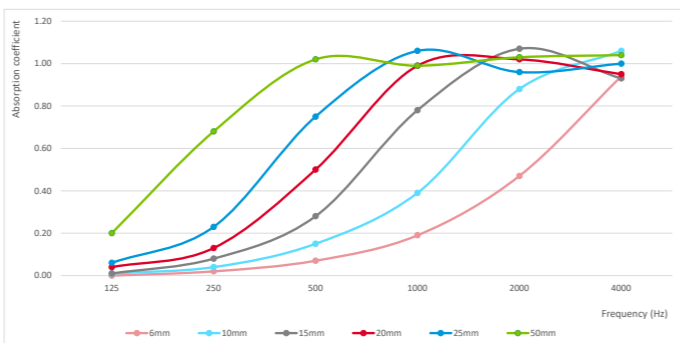
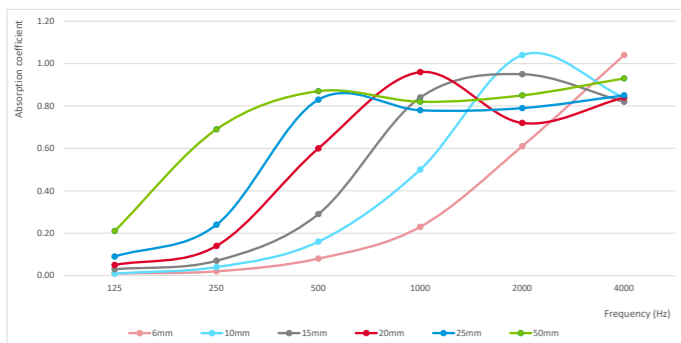
Octave band centre frequency (Hz)						
Thickness	125	250	500	1000	2000	4000
[mm]	Octave band absorption coefficient acc. to EN ISO 354					
6	0.00	0.02	0.07	0.19	0.47	0.94
10	0.01	0.04	0.15	0.39	0.88	1.06
15	0.01	0.08	0.28	0.78	1.07	0.93
20	0.04	0.13	0.50	0.99	1.02	0.95
25	0.06	0.23	0.75	1.06	0.96	1.00
50	0.20	0.68	1.02	0.99	1.03	1.04

Noise reduction coefficient (NRC) according to ASTM C423

Thickness (mm)	6	10	15	20	25	50
NRC	0.25	0.45	0.55	0.60	0.65	0.80

Noise reduction coefficient (NRC) according to ASTM C423

Thickness (mm)	6	10	15	20	25	50
NRC	0.20	0.35	0.55	0.65	0.75	0.95



AT YOUR
SERVICE

At Armacell, we are committed to creating an exceptional customer experience. We understand today's healthcare industry challenges and share know-how based on our extensive experience to help you implement your project successfully. We do all we can to give you a peace of mind while managing your projects.



ARMAFLEX APPLICATION TRAININGS

To ensure that our insulation materials are installed properly, Armacell has trained thousands of installers around the world. Special training centres have been set up at many locations and we also provide valuable support on site. Several thousand insulators attend courses on installing Armacell products every year and are awarded the ArmaFlex application certificate.

Valuable tips and tricks

Learn to install ArmaFlex more reliably and faster than you do today.

ARMAWIN – PROFESSIONAL INSULATION CALCULATIONS

With our powerful ArmaWin software, you can carry out all common technical calculations in HVAC applications. You can easily determine the minimum insulation thickness required for condensation control, as well as surface temperature, heat flow, temperature changes in flowing and stationary media, freezing times for water pipes and the most economical insulation thickness.



ArmaWin

All technical insulation calculations in one tool.


 A large, modern hospital building with a distinctive facade of vertical slats. The Sengkang General Hospital logo is visible on the left side of the building. Two circular inset images are overlaid on the right side of the building: one showing two men in a lab coat and a suit looking at an X-ray, and another showing a healthcare professional in a mask and cap holding a baby.

OUR TRACK RECORD

HEALTHCARE INSTITUTIONS AROUND THE WORLD ARE RELYING ON OUR PROVEN SOLUTIONS

TO NAME JUST A FEW OF THE SUCCESSFUL PROJECTS REALISED:

- All India Institute of Medical Sciences (AIIMS) - Gunture, India
- Altersheim Trotte (senior citizen centre), Switzerland
- AMRI Hospitals - Mukundapur, India
- Christian Medical College (CMC) and Hospital, India
- Klinik Barmelweid (rehabilitation centre), Switzerland
- Catholic University Eunpyeong St. Mary's Hospital, South Korea
- Eulji University Uijeongbu Campus and Hospital, South Korea
- First Hospital of Zhejiang, China
- Foshan Maternity and Child Health Care Hospital, China
- Govt Kidney Hospital, Ahmedabad, India
- Göztepe Training and Research Hospital, Turkey
- Hospital E Pronto Socorro Municipal De Cuiabá, Brazil
- Hospital of Cery, Switzerland
- Hospital Particular - Oncostar, Brazil
- Hospital Universitario de Guadalajara, Spain
- Huoshenshan Hospital, China
- İKİTELLİ Integrated Health Campus, Turkey
- Kantonsspital Graubünden (Children's clinic and ward), Switzerland
- Keimyung University Dongsan Medical Center, South Korea
- Leishenshan Hospital, China
- Maharaja Agrasen Hospital, India
- Muni Seva Ashram (Cancer treatment centre) - Baroda, India
- National Cancer Centre, Singapore
- Queen Mary Hospital, Hong Kong
- Royal Oman Police's New General Hospital, Oman
- Saudi German Hospital - Makkah, Saudi Arabia
- Shenzhen Hyzen Hospital, China
- Spital Grabs (Spitalregion Rheintal Werdenberg Sarganserland), Switzerland
- St. Francis Medical Center, United States of America
- Symbiosis Hospital Nagpur, India
- Tata Memorial Centre Advanced Centre for Treatment, Research and Education in Cancer, India
- The Third Xiangya Hospital of Central South University, China
- U. N. Mehta Institute of Cardiology & Research Centre, Ahmedabad, India
- UM Prince George's Hospital Center, United States of America
- Yongin Severance Hospital, South Korea

SMART SOLUTIONS FOR YOUR BUSINESS

Enjoy the benefits of our excellent customer service

All over the world, our customers rely on sales representatives, technical consultants and applications engineers.

Your project demands more. You deserve the best solution.

Get the original closed-cell thermal and acoustic solutions from Armacell.

SENGKANG HOSPITAL, SINGAPORE

Sengkang General and Community Hospitals was awarded the BCA Green Mark Platinum Award, the highest accolade for green building certification in Singapore. ArmaFlex and ArmaPhonic were specified for insulating the central ducting and VRV/VRF systems to optimise energy efficiency and acoustic comfort of the hospital environment.

All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. 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. Armacell takes every precaution to ensure the accuracy of the data provided in this document and all statements, technical information and recommendations contained within are believed to be correct at the time of publication. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these.

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ABOUT ARMACELL

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 3,135 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, highperformance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

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

