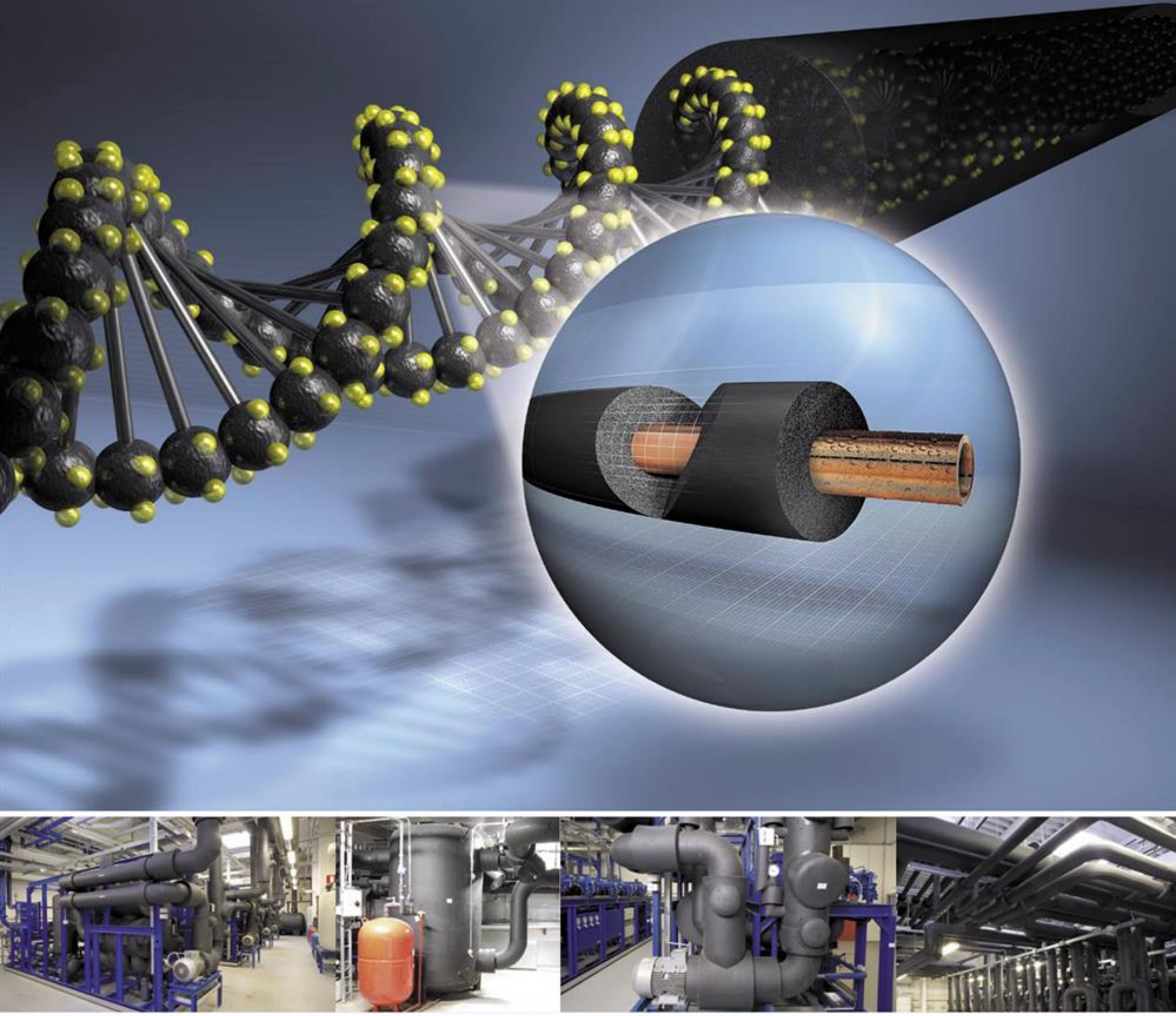
Armaflex®

Insulation Engineered For **COLD SYSTEMS**



armacell
engineered foams

THE MAKERS OF Armaflex®

Armaflex®

Insulation Engineered For **COLD SYSTEMS**

Why Insulate Cold Systems?

Insulation is typically seen as a means to prevent heat loss or gain through the building envelope. Yet energy efficient design must also address all interior piping and air handling systems - with the right insulation materials in the right thicknesses. In particular an insulation system must be capable of preventing condensation, moisture intrusion and long term degradation.

Moisture from condensation is a problem in any cold system. It is often assumed that all insulation materials are equally suitable for any application. This generalisation is wrong for cold systems and can lead to system failure, call-backs, energy waste, even mould and building closure. Not every insulation is engineered for cold applications and the perceived convenience of specifying a single insulation material for an entire project can have serious consequences.

The consequences of choosing the wrong insulation for cold systems can be serious and costly.

No corrossion even after 25 years. Armaflex installation at Rabo Bank, Amsterdam.

Insulation Requirements for Insulating Cold Systems

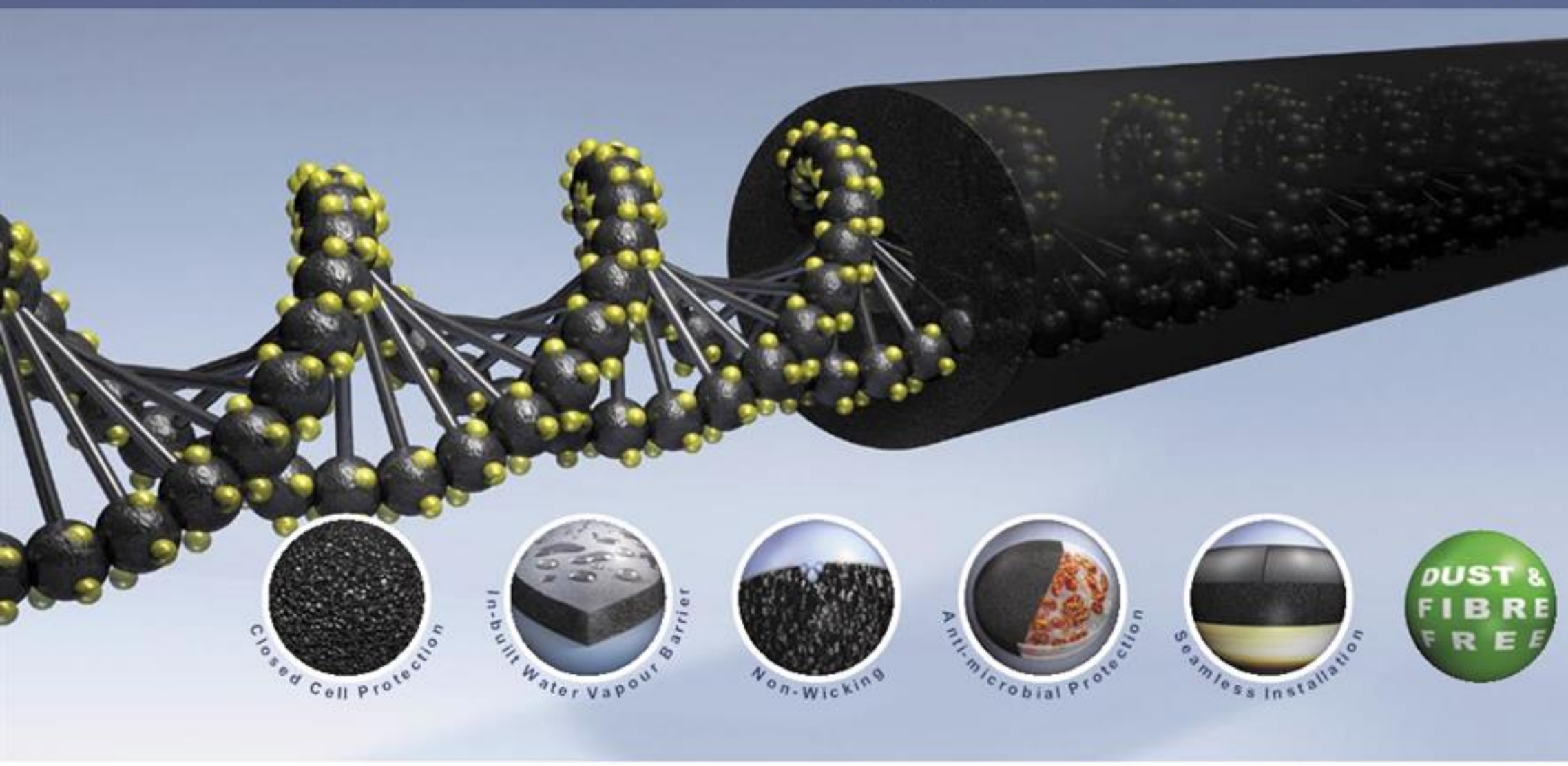
Insulation used on cold lines must effectively prevent condensation. Typically in order to achieve this an insulation material should, in addition to excellent technical values, exhibit the following:

1. **An effective water vapour barrier**
   Without an effective and robust water vapour barrier condensation can directly occur on the cold surface of the pipe.
2. **A closed cell structure not prone to "wicking"**
   Open cell materials used on hot pipes are protected by an external water vapour barrier. Once moisture is able to penetrate this it creeps throughout the whole material through "wicking" - accelerating processes such as corrosion and mould growth.
3. **No obvious potential for thermal bridging**
   When valves, pipe hangers and flanges are left uninsulated condensation will occur at these "thermal bridges". Flexible materials which insulate all of the pipework can eliminate condensation at these points.
4. **Low environment impact values (ODP and GWP)**
   To reduce carbon emissions only insulation with low ODP and GWP values is normally acceptable.
5. **Long term stability of thermal values**
   Insulation thermal properties typically vary over time. It is usually essential that the material prevents condensation over the lifetime of the installation and this requires highly stable thermal values.

Insulation Engineered For **COLD SYSTEMS**

Armaflex®

Armaflex, Clean and Efficient Insulation designed for CONDENSATION CONTROL



Combining an excellent thermal conductivity with closed cell structure, Armaflex features an in built water vapour barrier and a high resistance to water ingress. Unlike other insulation materials Armaflex requires no external vapour barrier and will maintain its thermal properties over a long period of time.

It's the inherent attributes of Armaflex with Microban® anti-mocrobial protection which make it the choice for cold systems around the globe:

Closed cell protection

Closed cell insulation materials possess a built-in resistance to the passage of water vapour. As a result closed cell materials do not rely on an easily pierced external water vapour barrier to prevent condensation on refrigeration and air conditioning systems.

In-built water vapour barrier

Closed cell Armaflex material has such a high built in resistance to water vapour ingress that the insulation effectively acts as if it is itself the water vapour barrier. No easily compromised external foil barrier is required.

Non-wicking

Since the insulation itself acts as a vapour barrier the "wicking" effect is not possible.

This means that a small puncture in the insulation surface results only in localised damage and not system wide failure reducing the risk of; condensation, mould growth and under insulation corrosion.

In-built anti-microbial protection

Armaflex contains Microban, an anti-microbial additive which actively inhibits mould and bacteria. Effective resistance against microbial growth is provided even if the surface is damaged or pierced.

Seamless Installation

Armaflex Adhesive is a full contact adhesive which fully fuses the Armaflex insulation together. This means that adhered seams and butt joints do not represent the thermal bridges or water vapour bridges they would otherwise be.

Dust & fibre free

Dusty and fibrous materials are both difficult to work with and create an additional workplace hazard often aggravating respiratory conditions amongst those working with and around them. As a nitrile rubber material, Armaflex is entirely dust and fibre free, making it suitable for use in schools, offices and hospitals.

What is Microban® protection?

Microban®* technology is built-in protection for solid products, coatings and fibers. Microban anti-microbial protection gives Class O Armaflex products additional protection against harmful microbes such as, bacteria, mould and mildew.

*MICROBAN is a registered trademark of Microban Products Company.

Armaflex®

Insulation Engineered For **COLD SYSTEMS**

» Armaflex Products designed for cold systems

CLASS O ARMAFLEX

Closed cell, elastomeric, nitrile rubber insulation material with a Class O fire rating and excellent thermal properties. Available in tubes, pre-slit tubes, sheets, self-adhesive sheets and tapes.

CLASS O ARMAFLEX 15M COILS

Continuous and coils of Class O Armaflex tube ideal for new pipework.

CLASS O ARMAFLEX SELFSEAL

Pre-slit Class O Armaflex tubes with a pair of self adhesive strips down the longitudinal seam. Specifically designed to reduce installation time on existing pipework.

ARMAFLEX AC COILS

Long lengths of continuous Armaflex coils for air conditioning and domestic heating pipes. Achieves a Class O fire rating. Supplied in easy to carry boxes.

NH/ARMAFLEX

Halogen free, closed cell nitrile rubber based Armaflex insulation material with a low smoke toxicity rating. Achieves a number of maritime fire performance certificates.

HT/ARMAFLEX

Naturally UV resistant closed cell EPDM rubber based Armaflex insulation material capable of operating at line temperatures up to 150°C.

ARMAFLEX TUFFCOAT

Class O Armaflex tubes with a tough white covering pre-applied. Covering provides protection against UV exposure, impact damage and weathering.

ARMAFLEX SPLIT / DUOSPLIT

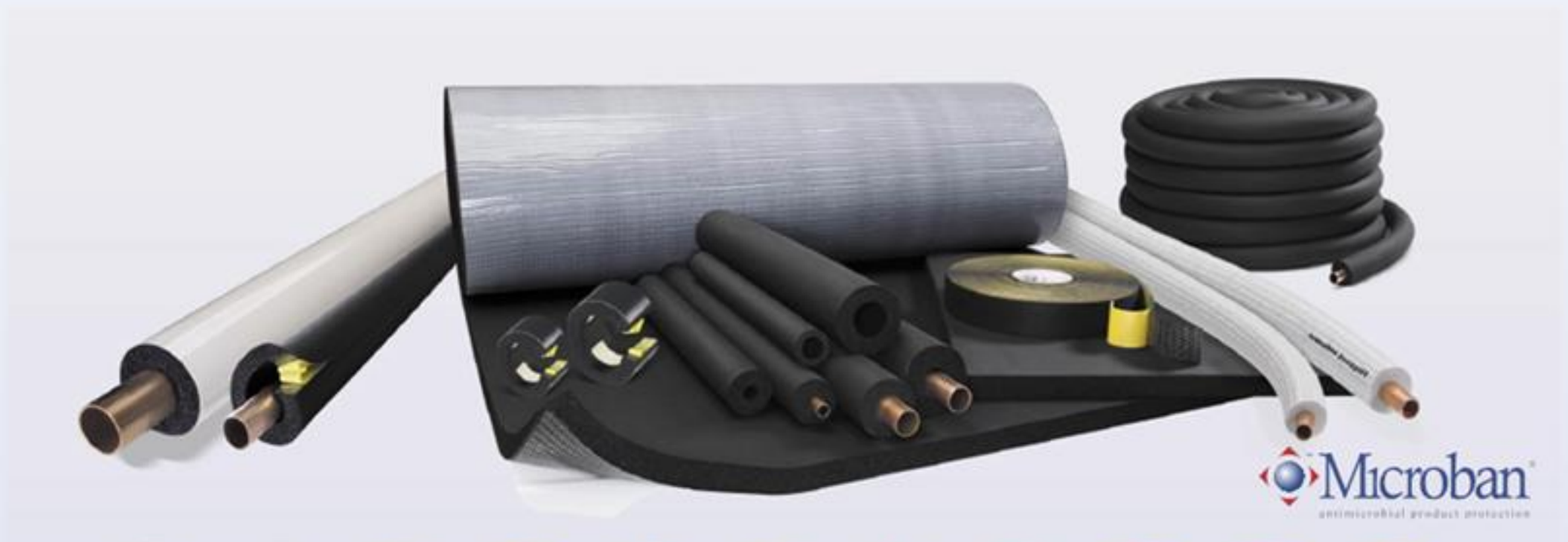
Copper pipes pre-insulated with a naturally UV resistant closed cell EPDM rubber based Armaflex insulation. Insulation comes with a tough white covering pre-applied. Designed for use with split air conditioning systems.

ARMAFIX PIPE SUPPORT

Armaflex sections with load bearing PUR/PIR inserts and an aluminium outer cladding to prevent excessive material compression.

ARMALOAD PIPE SUPPORT & SECTIONS

High density sections of Armaflex designed to resist material compression.

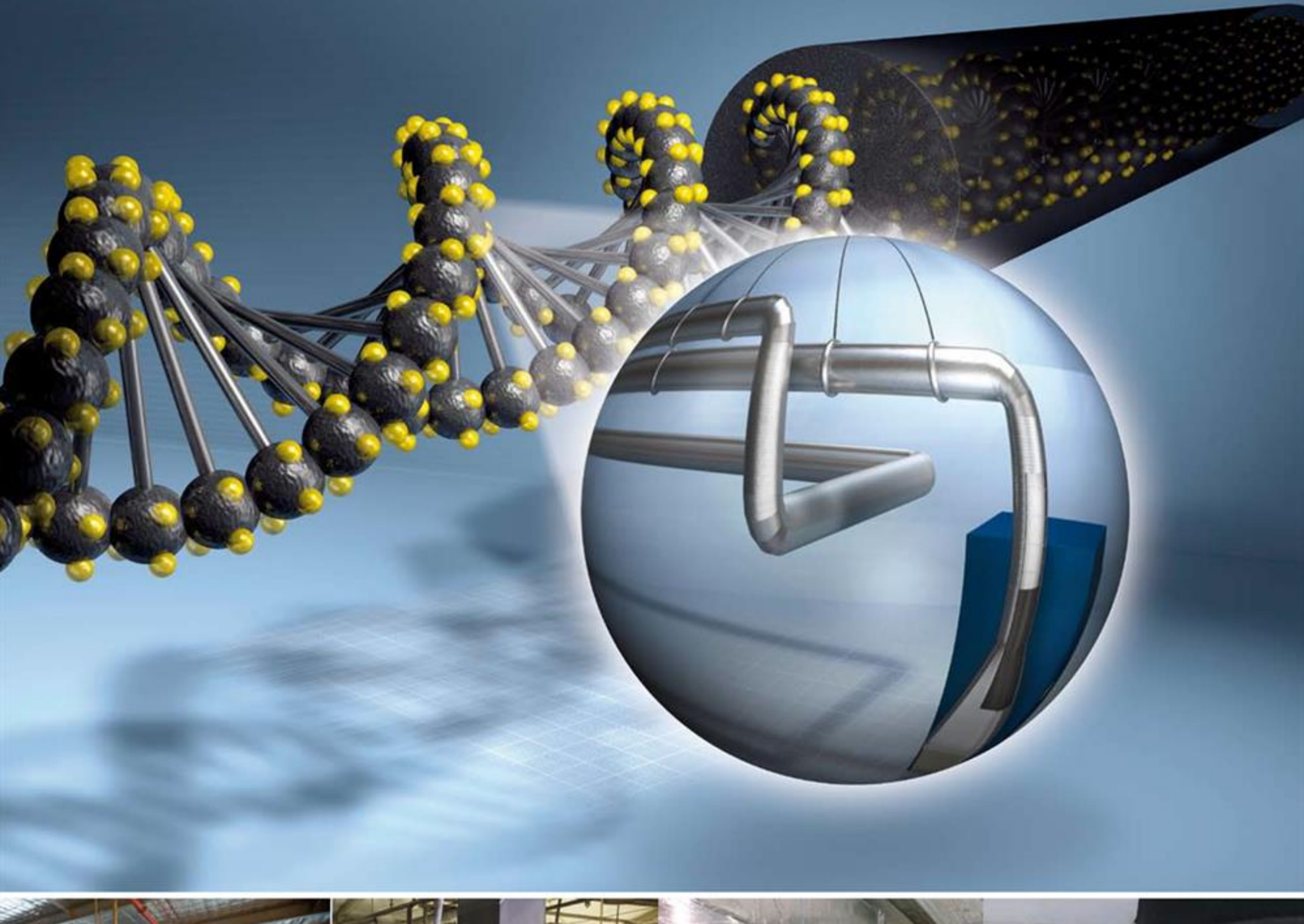


armacell
engineered foams

Armacell UK Limited
Mars Street Oldham, Lancs. OL9 6LY
Tel 0161 287 7100 · Fax 0161 633 2685
www.armacell.com · info.uk@armacell.com

Armaflex®

Insulation Engineered For **DUCT SYSTEMS**



armacell
engineered foams

THE MAKERS OF Armaflex®

Armaflex®

Insulation Engineered For **DUCT SYSTEMS**

» Ductwork and building comfort

Many modern buildings are air tight and rely on re-circulating filtered but stale air. Almost all gases remain within the envelope and air ductwork is an essential part of removing any contaminants and maintaining occupant comfort.

However whilst air ductwork is an essential part of the solution to indoor air pollution it can also provide an inconvenient means of spreading noise and air pollution throughout a building.

» Indoor air quality and mould growth

Our air is always contaminated with pollutants, these pollutants include not only naturally generated gases such as carbon dioxide but also harmful, man made, volatile organic chemicals, industrial fibres, highly acidic particles of dust and spores of mould and bacteria. Whilst breathing these may not result in any immediate signs of ill health they may all contribute towards "building related symptoms".

Carefully selecting the insulation on ductwork systems can minimise any potential contribution to indoor air pollution.

» Noise and discomfort

Noise impacts upon all building inhabitants, causing stress and discomfort resulting in a loss of productivity.

Mechanical systems often generate unwanted noise which can be carried by the distribution ductwork throughout a building. The nature of this noise can be complex but it cannot be ignored. Indeed there is a legal requirement to ensure noise levels within any working environment are brought within reasonable limits.

Reducing the noise level at its source is occasionally possible but acoustically treating the ductwork is usually possible. It is important to specify insulation products which are suitable for this purpose.

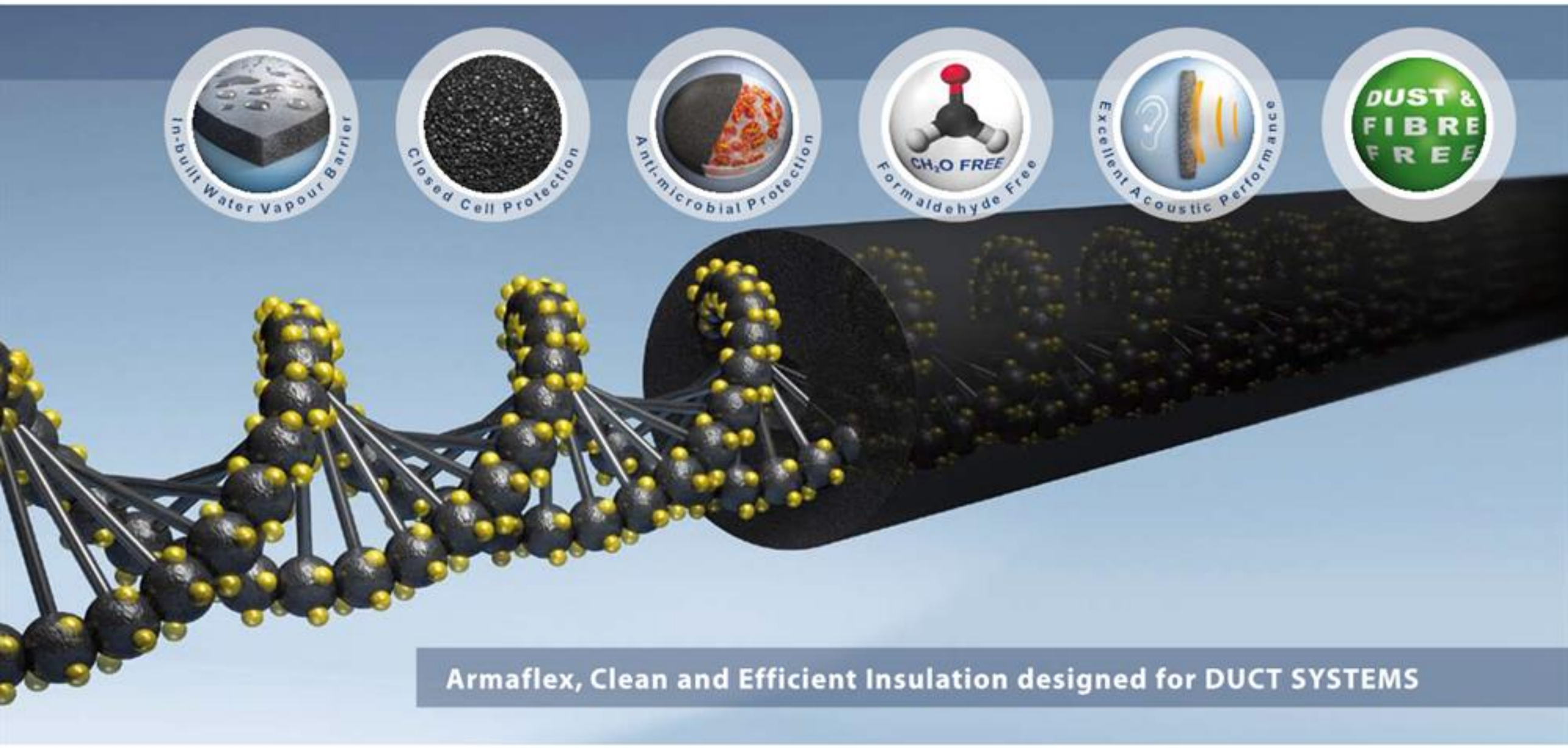
» Insulation requirements for duct systems

Insulation used on duct systems must prevent energy losses and condensation as required whilst also minimising any impact on indoor air quality. In addition to excellent thermal values duct insulation should also be:

1. **A closed cell structure not prone to wicking**
   Unless a material is of a closed cell structure with an in-built water vapour barrier the possibility of "wicking" exists. The "wicking" process quickly saturates an insulation material with moisture increasing the microbial growth rate.
2. **Anti-microbial protection**
   Bacteria and mould will often look to grow within an insulation material underneath the surface covering. Anti-microbial additives which actively destroy mould and bacteria can offer an effective additional line of defence against the growth of microbes.
3. **Dust and fibre free**
   Fibrous materials present the possibility of fibre leakage which has a major impact on indoor air quality. Closed cell, dust and fibre free materials will not pollute the air stream in this way.
4. **Formaldehyde free**
   Many countries around the world set legal maximum formaldehyde levels within buildings. Insulation should be selected to avoid contributing towards the overall formaldehyde level.
5. **Good acoustic properties**
   Any insulation used on ductwork must help to minimise nuisance noise levels.

Insulation Engineered For **DUCT SYSTEMS**

Armaflex®



Superior duct insulation for schools, hospitals and offices

Armaflex is a dust and fibre free, formaldehyde free, duct insulation material with Ozone Depletion and Global Warming Potential ratings of 0. Pairing excellent thermal values with a closed cell structure Armaflex can meet the building regulations energy efficiency targets for ductwork without any risk of impacting upon the indoor air quality or contributing towards sick building syndrome.

The in built water vapour barrier eliminates moisture ingress and the Microban anti-microbial protection prevents mould growth within the material whilst the closed cell structure ensures there is no potential for fibre migration or any impact on indoor air quality.

It's the inherent attributes of Armaflex with Microban® anti-microbial protection which make it first choice for ductwork applications around the globe:

Closed cell protection

Closed cell insulation materials possess a built-in resistance to the passage of water vapour. As a result closed cell materials do not rely on an easily pierced external water vapour barrier to prevent condensation and mould on refrigeration and air conditioning systems.

In-built anti-microbial protection

Armaflex contains Microban, an anti-microbial additive which actively inhibits mould and bacteria. Effective resistance against microbial growth is provided even if the surface is damaged or pierced.

Dust & fibre free

Dusty and fibrous materials create an additional health hazard, often combining with mould spores and bacteria to aggravate respiratory conditions. Armaflex is entirely dust and fibre free, making it particularly suitable for use in schools, offices and hospitals.

In-built water vapour barrier

Closed cell Armaflex material has such a high built in resistance to water vapour ingress that the insulation effectively acts as if it is itself the water vapour barrier. No easily compromised external foil barrier is required.

Formaldehyde free

Formaldehyde is classified as a probable human carcinogen and maximum recommended exposure limits are set by the health and safety executive. Armaflex will not contain or outgas formaldehyde and will not contribute to overall formaldehyde levels.

Excellent Acoustic Performance

Armaflex offers impressive airborne noise absorption at problem frequencies and excellent decoupling and isolation performance on pipes and ducts in contact with other structural and service elements.

What is Microban® protection?

Microban®* technology is built-in protection for solid products, coatings and fibers. Microban anti-microbial protection gives Class O Armaflex products an added level of protection against harmful microbes such as bacteria, mould and mildew.

*MICROBAN is a registered trademark of Microban Products Company.

Armaflex®

Insulation Engineered For **DUCT SYSTEMS**

» Armaflex Products designed for insulation of duct systems

CLASS O ARMAFLEX SHEETS

Closed cell, elastomeric, nitrile rubber insulation material with a Class O fire rating and excellent thermal properties. Ideal for use on ductwork, flanges and valve boxes. Also available in continuous and self adhesive formats.

CLASS O ARMAFLEX DUCT

Class O Armaflex Duct is Class O Armaflex sheet with a bright aluminium foil covering pre-applied.Class O Armaflex Duct is designed for rectangular and circular ductwork.

As a dust and fibre free, formaldehyde free product with an ODP of 0, Class O Armaflex Duct is suitable for use on ductwork in offices, schools and hospitals.

HT/ARMAFLEX

Naturally UV resistant closed cell EPDM rubber based Armaflex insulation material capable of operating at line temperatures up to 150ºC.

NH/ARMAFLEX

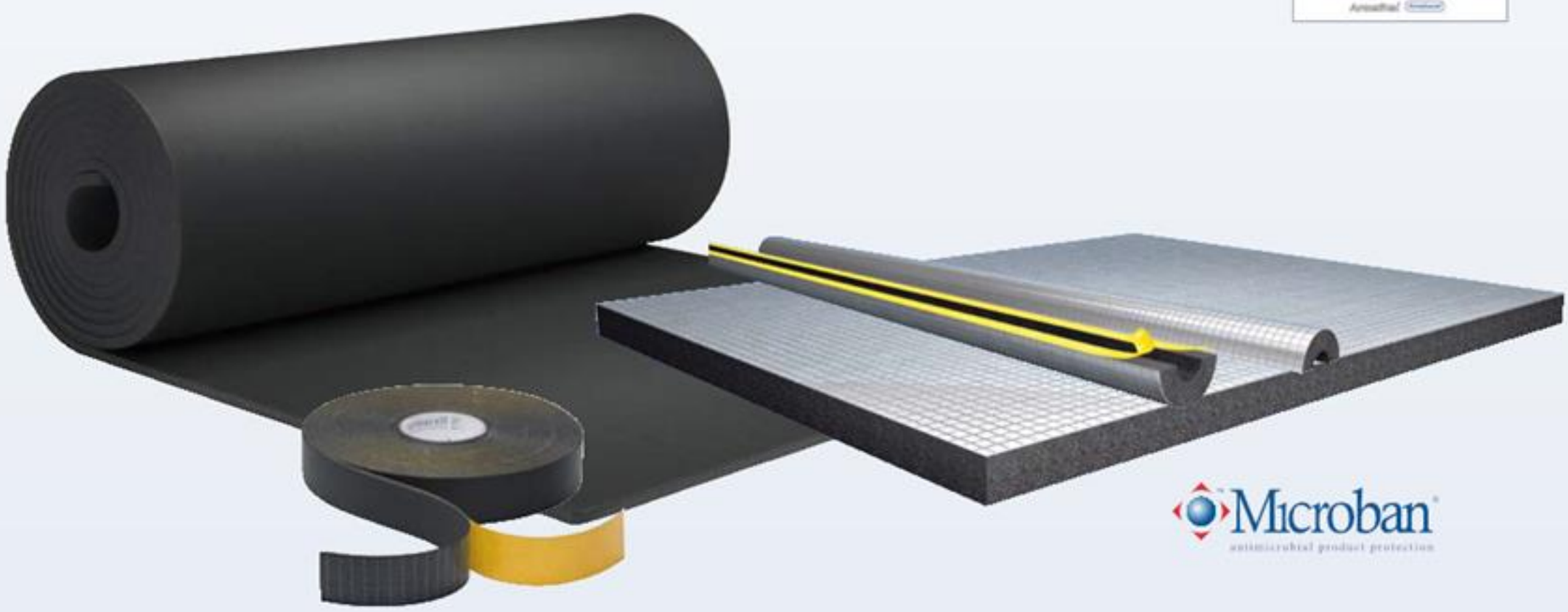
Halogen free, closed cell nitrile rubber based Armaflex insulation material with a low smoke toxicity rating. Achieves a number of maritime fire performance certificates.

ARMAFLEX ACCESSORIES

Armaflex Adhesive 520, for adhering nitrile rubber based Armaflex materials and Armaflex Adhesive 625 for adhering EPDM based Armaflex materials.

Armafinish FR paint, for visual impact and to prevent damage from UV exposure when Armaflex is used outside.

For details of ductwork acoustics and how Armaflex can be used to reduce noise see the related brochure "Acoustic solutions for duct systems".



armacell engineered foams

Armacell UK Limited
Mars Street Oldham, Lancs. OL9 6LY
Tel 0161 287 7100 · Fax 0161 633 2685
www.armacell.com · info.uk@armacell.com