



## TECHNICAL DATA

# ArmaPET<sup>®</sup> Eco50

ArmaPET Eco50 insulation solution looks beyond product performance and supports energy-efficient sustainable building with improved comfort and safety.

- // Reliable lifetime insulation performance
- // 100% recycled material to support the industry environmental directives
- // Fully recyclable foam boards and cut-offs
- // Prevents degradation through moisture, rodents and insects
- // Robust material allows fast and easy handling
- // Thicknesses up to 200 mm and flexible dimensions facilitate installation
- // Superior compatibility with organic and mineral adhesives

[www.armacell-core-foams.com](http://www.armacell-core-foams.com)



 **armacell**<sup>®</sup>  
ArmaPET<sup>®</sup>

# ARMAPET ECO50

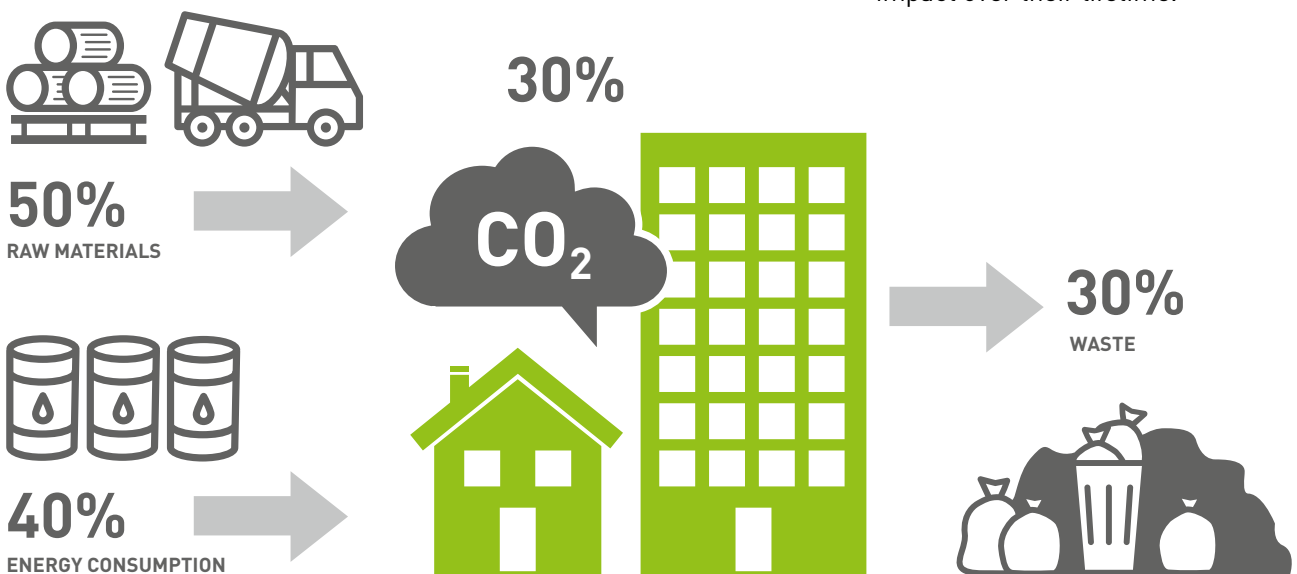
Armacell is following the growing demand for high-performance insulating materials in the construction market, and offers a foam core that combines structural integrity and **thermal insulation** with process versatility, design flexibility and outstanding **sustainability**.

Climate protection and sustainability are shaping the political agenda worldwide. Embracing responsibility for future generations means taking energy and resource savings into account in today's decisions. In order to build a low-carbon economy, by 2050 the European Union aims to progressively reduce its greenhouse gas emissions by 80% compared to 1990.

The greatest potential for savings is to be found in the building sector: in the industrial nations, a huge amount of energy is used in transport and industry, but building and construction accounts for the majority – around 40% of European energy consumption! At the same time, the construction industry is one of the most resource-intensive business sectors and 30 – 40% of the world's waste results from the demolition and disposal of buildings.

The building sector is not only the largest single user of raw materials worldwide, but also the greatest producer of waste. Buildings have the greatest environmental impact during their operational phase, some 30% of greenhouse gases worldwide are produced in buildings:

With ArmaPET Eco50, Armacell offers a product solution that facilitates the creation of buildings that have greater energy efficiency and a reduced environmental impact over their lifetime.



Buildings are the largest single source of raw material use, the greatest producer of waste, they account for 40% of the world's energy consumption and are responsible for 30% of CO<sub>2</sub> emissions worldwide.

## LONG-TERM RELIABILITY AND ENERGY EFFICIENCY

ArmaPET Eco50 is our latest product solution for the (semi-)structural insulation of building envelopes, roofs, floors and internal partitions, or load bearing applications such as under-slab insulation. ArmaPET Eco50 can be used on its own and/or as part of a prefabricated system in new building construction and renovation projects.

Thermal conductivity is a central technical property, but it should not be the only one taken into account when selecting an insulation material. Mechanical stability, low maintenance and standard-compliant fire behaviour are further obvious requirements that insulation materials must meet.

But what about ease of installation? After all, what use is a technically superior insulation material if it cannot be installed securely, cleanly and quickly, even under difficult conditions on the building site?

ArmaPET Eco50 meets all of these material requirements and has the advantages of economy as well as environmental characteristics that are vital for innovative and sustainable construction, with a lower lifecycle cost:



// Long-term stability of the insulation properties and low thermal conductivity secure lifetime insulation performance.

// Excellent water resistance guarantees stable thermal conductivity even after many years of operation.

// The closed-cell structure minimises moisture penetration to avoid mildew and rot, and ensures long-term corrosion protection and has minimal maintenance requirements.

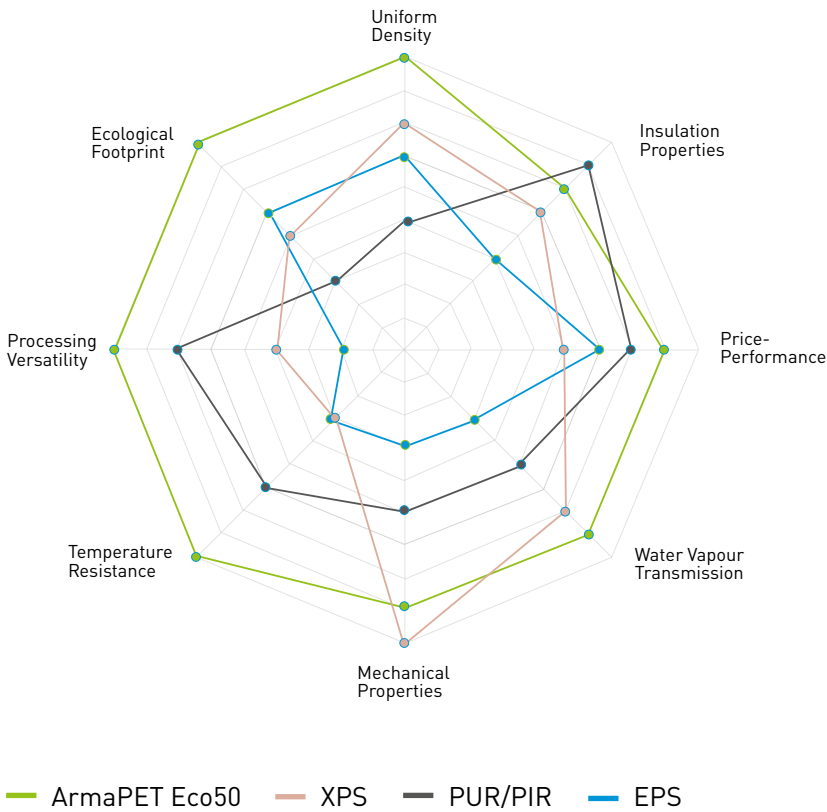
// Easy to use due to low weight and full compatibility with most production methods (e.g. adhesive bonding and plastering) and all common 2-component or hot-melt adhesives.

// Solvent stability provides resistance to most acids, salts and fuels.

// Thermoforming and thermal welding allow for the most challenging contemporary architectural designs.

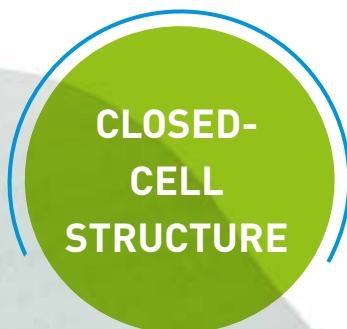
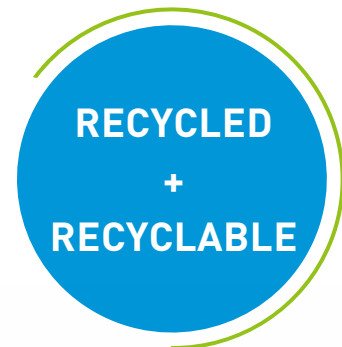


# DESIGN FREEDOM



The thermoplastic nature of ArmaPET Eco50 makes it well-suited to thermoforming by heating to its softening point. 3D-shaped or double-curved insulation boards are possible without cutting the material. It also allows the use of almost any type of decorative surface finish, such as glossy gel coatings, mosaic tiles, aluminium and stone. The exceptional design flexibility of ArmaPET Eco50 is unprecedented in its combination of an outstanding environmental profile and the technical and mechanical properties required of today's insulating building materials.

ArmaPET Eco50 makes it possible to meet contemporary architectural demands that would be impossible to realise with traditional insulating materials.



## FROM THE EMPTY BOTTLE TO INSULATING FOAM

ArmaPET Eco50 is made using Armacell's unique and patented process technology, which enables the production of PET foam materials based on 100% recycled PET.

This is how the conversion takes place: After collection (1), the PET bottles are sorted and then crushed into flakes (2). This is followed by a granulation process (3) and, finally, by production of the ArmaPET Eco50 foam boards (4). In this way, single-use plastic bottles are converted into a sustainable building material. After its service phase, spanning several decades, ArmaPET Eco50 can again be fully recycled (6).

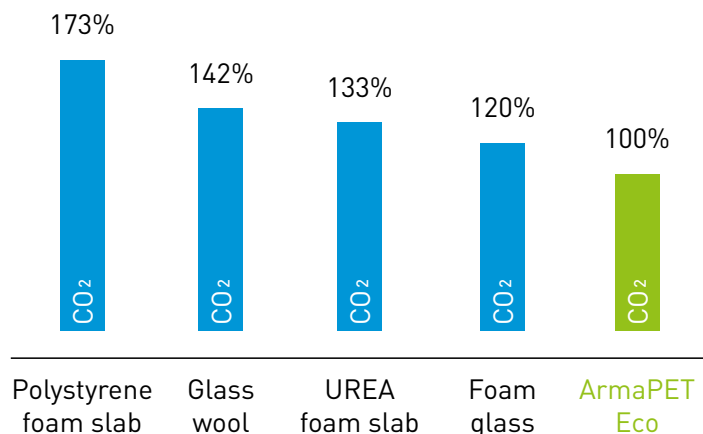


Instead of having a service life of just a few weeks, single-use plastic bottles become a long-lifetime, high-value material in the economy.

## FOR A BETTER CARBON FOOTPRINT

Using 100% recycled PET plastic as the raw material base for ArmaPET Eco50 results in a much lower level of CO<sub>2</sub> emissions than that of other polymeric insulating foams.

In addition, it is 100% recyclable. In plastic waste terms, this is probably its greatest benefit. Installation waste and demolition scrap management is easier than for the main rival materials. And it does not contain any halogenated compounds or CFCs/ HFCs that could negatively impact its disposal or recycling scenarios.



CO<sub>2</sub> emissions of ArmaPET Eco in comparison to competitive materials.  
ArmaPET Eco = 100% reference

## FOR ECO-CONCIOUS BUILDINGS

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Armacell published the **first ever environmental product declaration (EPD) for a PET-based insulating foam**. Certified by the Institut Bauen und Umwelt e.V. (IBU), this EPD provides transparent, independent and reproducible analysis of the environmental impact of ArmaPET Eco50.

It gives detailed information, including sound data and figures, on the extent to which the product contributes to the greenhouse effect, acidification, over-fertilisation, smog and depletion of the ozone layer. The information provided is based on the international ISO 14025 standard and the European EN 15804 standard for construction products. The declaration is a cradle-to-gate EPD and registered on the IBU database system.



**CHOOSING ARMAPET ECO50 INSULATING FOAM WILL IMPROVE THE ENVIRONMENTAL FOOTPRINT OF YOUR CONSTRUCTION AND IS A BIG STEP TOWARDS KEEPING OUR ENVIRONMENT CLEANER. NONE OF US CAN SAVE THE WORLD ALL ON OUR OWN. BUT EACH AND EVERY STEP ALONG THE WAY HELPS US MOVE TOWARDS A MORE SUSTAINABLE SOCIETY.**

## PIONEER IN FOAM TECHNOLOGIES

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At Armacell, we see ourselves as a pioneering provider of industry-leading solutions in insulation technology. Armacell is the **inventor of ArmaFlex®**, the world's best-known brand for rubber-based technical insulation. It is the first and reliable choice for professional installation worldwide.

We are a pioneer in the field of PET foaming technology and the inventor of the patented rPET processing technology, using 100% recycled PET as the raw material base for our ArmaPET foam solutions. With ArmaPET Eco50 we introduced the **world's first polymeric insulation based on 100% recycled PET with CE certification**. With this CE marking, we have achieved a unique degree of transparency for our new ArmaPET Eco50 product. For architects, design engineers, builders and property owners, it proves that the product conforms to the safety, health and environmental requirements for insulation materials required by ETA-21/0623.



## TECHNICAL DATA

Density	EN 1602	kg/m <sup>3</sup>	48 +/- 10
Compressive Stress	EN 826	kPa	>165
Compressive Stress after freeze-thaw (wet) <sup>(1)</sup>	EN 12091 EN 826	kPa	>165
Compressive Stress after freeze-thaw (dry) <sup>(1)</sup>	EN 12091 EN 826	kPa	>165
Compressive Creep (122 days, 40 kPa) <sup>(1)</sup>	EN 13164	%	≤1
Freeze-Thaw Resistance: Compressive Stress (wet/dry)	EN 12091	%	3.8
Tensile Strength perpendicular to the faces <sup>(1)</sup>	EN 1607	kPa	50 mm: 400 100 mm: 250
Tensile Strength perpendicular to the faces after freeze-thaw <sup>(1)</sup>	EN 12091 EN 1607	kPa	280
Bending Strength	EN 12089 method B	kPa	50 mm: >500 100-200 mm: <400
Deformation at 40-kPa load and 70°C for 168 hours	EN 1605	%	≤5
Water Vapour Transmission	EN 12086	μ	>1000
Water Absorption 24h partial immersion	EN 1609 method A	kg/m <sup>2</sup>	≤0.2
Water Absorption long-term, total immersion	EN 12087 method 2A	vol%	≤3
Coefficient of Linear Thermal Expansion	ASTM E228-17	°C <sup>-1</sup>	50·10 <sup>-6</sup>
Dimensional Stability at 70°C and 90% RH	EN 1604	%	<5
Service Temperature		°C	-40 to 150°C
Reaction to fire	EN 13501-1	Class	E

<sup>(1)</sup> Preliminary values based on 50 mm extrusion thickness.

### BOARD DIMENSIONS

at room temperature

#### Length

500 mm	+/- 8 mm
600 mm	+/- 8 mm
2448 mm	+/- 10 mm
3000 mm	+/- 10 mm

#### Width

500 mm	+/- 8 mm
600 mm	+/- 8 mm
1000 mm	+/- 8 mm
1220 mm	+/- 8 mm

#### Thickness <sup>(2)</sup>

50 mm	+/- 1mm
100 mm	+/- 1mm
150 mm	+/- 1mm
200 mm	+/- 1mm

<sup>(2)</sup> Further thicknesses are available on request.

## THERMAL CONDUCTIVITY & RESISTANCE

**MEASURED** according to EN 12667:

$\lambda = W/m \cdot K$	50-200 mm	$R = (m^2 \cdot K)/W$	50 mm	100 mm	150 mm	200 mm
$\lambda$ at 10 °C	0.030	R at 10 °C	1.67	3.33	5.0	6.67
$\lambda$ at 23 °C	0.029	R at 23 °C	1.72	3.45	5.17	6.9
$\lambda$ at 40 °C	0.028	R at 40 °C	1.78	3.57	5.36	7.14

**DECLARED** according to EN 13164 and EN 12667:

$\lambda_D = W/m \cdot K$	50-200 mm	$R_D = (m^2 \cdot K)/W$	50 mm	100 mm	150 mm	200 mm
$\lambda_D$ at 10 °C	0.035	$R_D$ at 10 °C	1.40 <sup>(3)</sup>	2.85 <sup>(3)</sup>	4.25 <sup>(3)</sup>	5.70 <sup>(3)</sup>

<sup>(3)</sup> Rounded downwards to the nearest of 0.05 (m<sup>2</sup>•K)/W.

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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 3,200 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 company information, please visit:  
[www.armacell.com](http://www.armacell.com)

For product information, please visit:  
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