



## 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 supports industry environmental directives
- // Fully recyclable foam boards and cut-offs
- // Prevents degradation by moisture, rodents and insects
- // Robust material allows fast and easy handling
- // Thickness 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

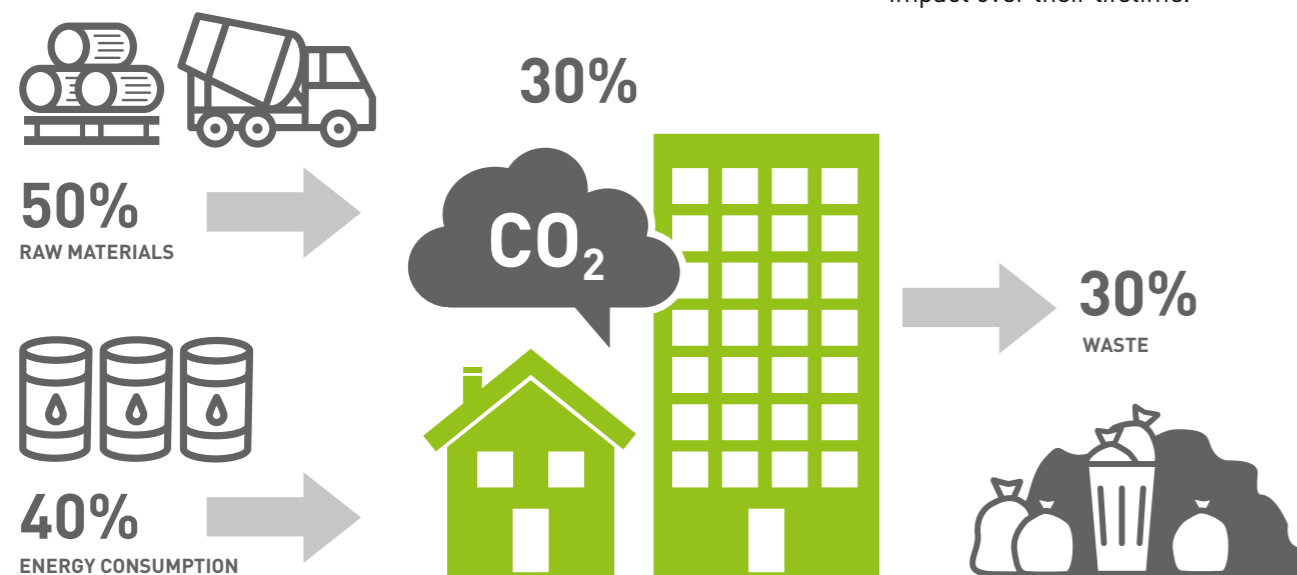
Armacell is following the growing demand for high-performance insulating materials in the construction market, and offers a foam core that combines structural integrity and **thermal insulation** with process versatility, design flexibility and outstanding **sustainability**.

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 minimal maintenance requirements

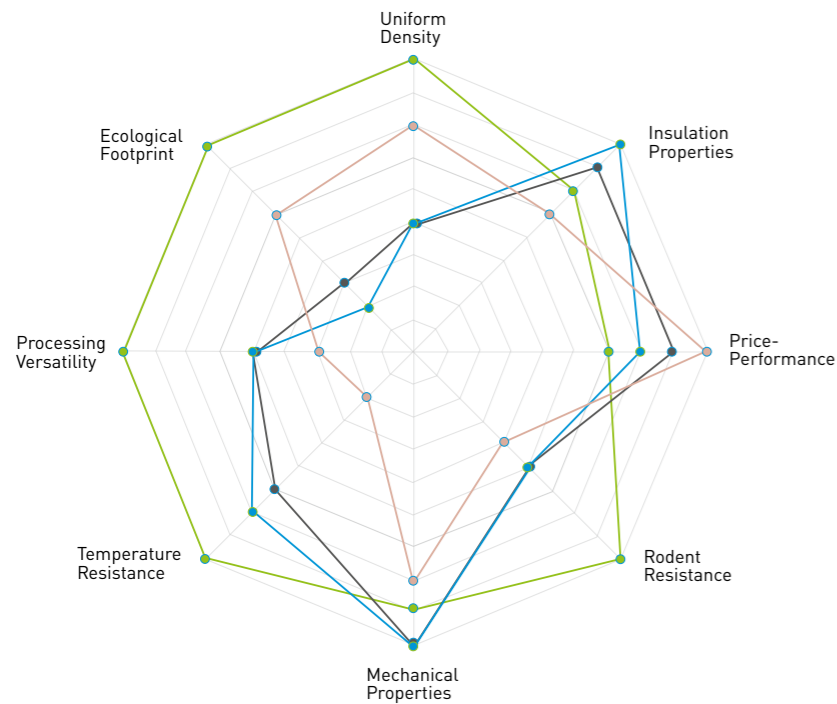
// Easy to use due to low weight and full compatibility with most production methods (e.g. adhesive bonding and plastering) and all common 2-component or hot-melt adhesives

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

// Thermoformability and weldability allow for the most challenging contemporary architectural designs



## DESIGN FREEDOM



Due to its thermoplastic nature, ArmaPET Eco50 is well-suited for thermoforming by heating to its softening point. 3D-shaped or double curved insulating panels 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 — XPS — PUR — PIR

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



**CLOSED-CELL STRUCTURE**

**RECYCLED + RECYCLABLE**

## 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.

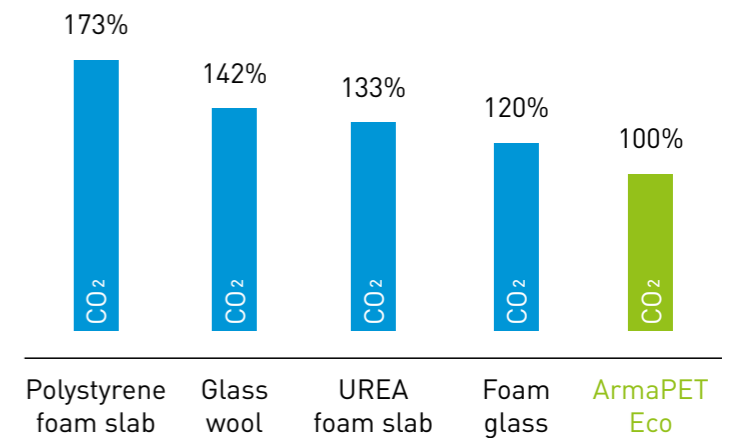
This is how the conversion takes place: After collection (1), the PET bottles are sorted and then crushed into flakes (2). This is followed by a granulation process (3) and, finally, by production of the ArmaPET Eco50 foam boards (4). In this way, single-use plastic bottles are converted into a sustainable 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:



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



## FOR ECO-CONCIOUS BUILDINGS

ArmaPET Eco50 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.

ArmaPET Eco50 is the first truly recycled and recyclable solution for the structural insulation market. It contributes to a sensible use of plastic waste and helps to save energy and reduce CO<sub>2</sub> emissions.



Choosing ArmaPET Eco50 insulating foam core helps to improve the environmental footprint of your construction and takes 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

We innovate and develop new technologies, and focus on products that deliver superior technical and sustainable performance. Armacell is the **inventor of ArmaFlex**, the world's first and best-known brand for rubber-based technical insulation. And the first and reliable choice for specifiers and builders worldwide.

Armacell is a pioneer in the field of polyethylene terephthalate technology (PET), and the first manufacturer to succeed in qualifying PET foam as a core material for the composite industry. We introduced **the world's first foam cores based on 100% recycled PET bottles**. We have already converted over 1.7 billion single-use PET bottles into long-lifetime, high-value foam core materials for composite sandwich structures. ArmaPET materials have been utilised in up to 90-metre-long wind turbine blades, high-speed train body structures, surfboards, and even in the 24-karat gilded roof of an orthodox cathedral.

At Armacell, we are dedicated to delivering sustainable solutions that help to protect the environment and mitigate climate change.

## TECHNICAL DATA (Preliminary \*)

Density	EN 1602	kg/m <sup>3</sup>	48 +/- 10
Compressive Stress	EN 826	KPa	>150 <sup>(1)</sup>
Compressive Stress after freeze-thaw (wet)	EN 12091 EN 826	KPa	>150 <sup>(1)</sup>
Compressive Stress after freeze-thaw (dry)	EN 12091 EN 826	KPa	>150 <sup>(1)</sup>
Tensile Strength perpendicular to the faces	EN 1607	KPa	482
Bending Strength	EN 12089 method B	KPa	780
Water Vapour Transmission	EN 12086	μ	2400
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%	2,6
Coefficient of Linear Thermal Expansion	ASTM E228 - 17	°C <sup>-1</sup>	50·10 <sup>-6</sup>
Dimensional Stability 70°C / 90% RH	EN 1604	%	L = -0.4 W = 0.4 T = 2.8
Service Temperature		°C	-40 to 150°C
Reaction to fire	EN 13501-1	Class	E
Thermal Conductivity	EN 12667	W/(m·K)	0.030 (at 10°C) 0.029 (at 20°C) 0.028 (at 40°C)

\* Based on an extrusion thickness of 50 mm.



### Board Dimension / mm (at room temperature)

Length <sup>(2)</sup>	Width	Thickness <sup>(3)</sup>
3000 -7/+20	1000 +/- 10	20/25/50 +/- 1

<sup>(1)</sup> at 10% of relative deformation  
<sup>(2)</sup> Further length dimensions are available on special request.  
<sup>(3)</sup> Thicknesses of 51-200 mm are available on special request.

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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 3,000 employees and 23 production plants in 15 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:  
[www.armacell-core-foams.com](http://www.armacell-core-foams.com)

