

NEW PRODUCT



## ArmaFORM® PET MC: a multi-density PET foam core

It is common practice for composite sandwich solutions to combine different densities in one foam core to improve impact and point load resistance and at the same time keeping the weight at its minimum. Bonding the different core material layers together requires the use of adhesives and cutting or perforating the foam sheets, both increasing production costs and adding extra weight.

Due to its thermoplastic nature, ArmaFORM® PET opens new ways of processing the core into a multi-layered concept: the thermo-welding process. This process provides a uniform and well controlled bond line every time and eliminates the core stress concentration induced by cutting the foam.

### ArmaFORM® PET MC benefits

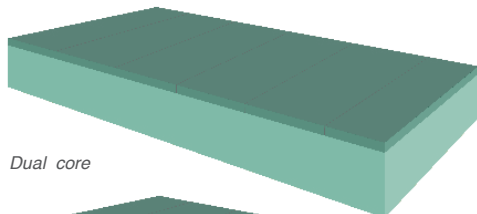
- > Better strength-to-weight ratio
- > Higher impact and point load resistance
- > Increased sandwich stiffness
- > Superior screw retention without additional reinforcement
- > 100% made of recycled PET and 100% recyclable after use phase



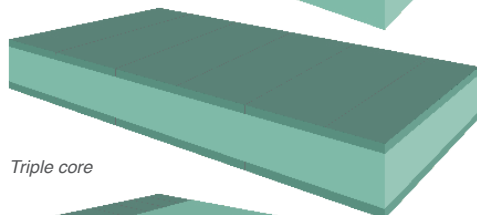
High density top layer for impact and point load resistance.

Low density core for bending strength and stiffness.

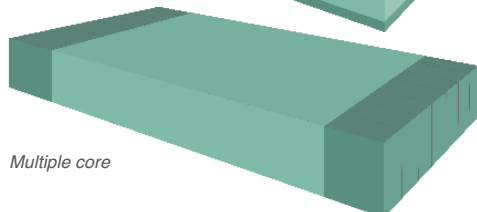
ArmaFORM® PET MC - the combination of different densities in one foam core



Dual core



Triple core



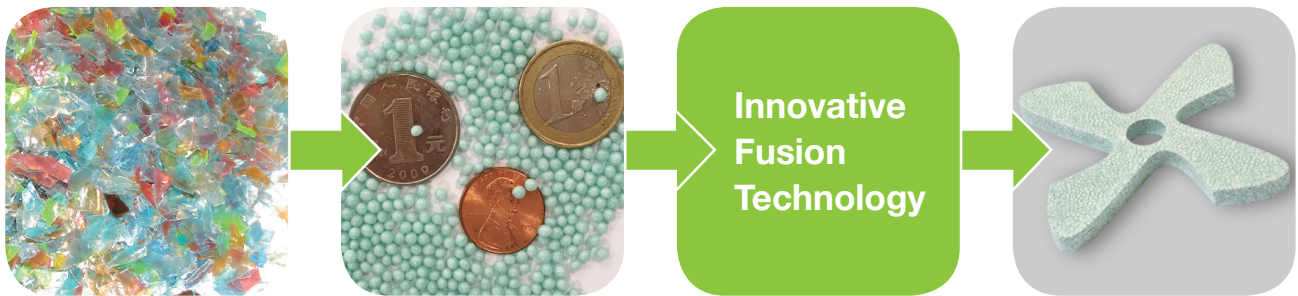
Multiple core

### ArmaFORM® PET MC applications

ArmaFORM® PET MC is designed to replace traditional Plywood-XPS and other multi-ply panels used in a variety of applications like load bearing floor panels in lightweight trucks and trailers, side wall insulation panels in refrigerated trucks, in modular housing or accessible areas like scaffolding platforms, pedestrian bridges, stage panels and many more.

## From PET beads to 3D shaped foam parts

Armacell continuously creates innovation and now offers particle foams based on PET. This new development enables the manufacturing of ready-to-use parts from foamed PET beads on an industrial scale.



Starting from recycled PET flakes, the polymer is granulated and further processed by Armacell's patented technology to produce foamed PET beads. A new technology has been developed for the fusion of the loose beads to yield custom shaped ready-to-use foam parts. This novel technology is highly automated and not restricted to a particular density.

PET beads combine the high mechanical properties of structural core foams with the advantages of particle foams to offer lightweight and strong three-dimensional foam parts which are producible in nearly any shape. Some of the most interesting and impressive features of PET beads are:

### Cost-effective manufacturing of 3-D shaped foam parts for serial production

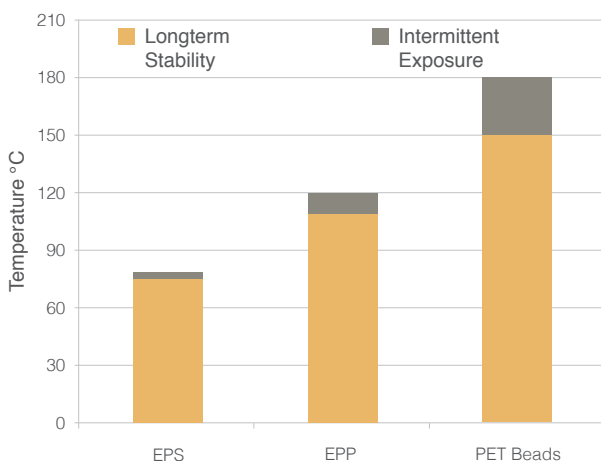


Figure 1: Temperature Stability (°C)

The new moulding technology does not require further production steps like milling and avoids any scrap. It is virtually a waste-free production.

Additionally, the applicable high service temperature level of up to +180°C can significantly speed up further processing steps since fast curing resins could be employed to equip the foamed part with skins. Finally, by reducing production steps and cycle times, cost benefits can be realized.

### Microcellular closed cell foam

The fine and smooth surface structure provides good adhesion to facing layers and avoids unnecessary resin or additional treatment. PET beads are compatible with all common resin systems and thermoset materials. The homogeneous and small cells ensure unchanged high mechanical properties (compression & shear) over the entire foam part and good insulation properties at the same time.

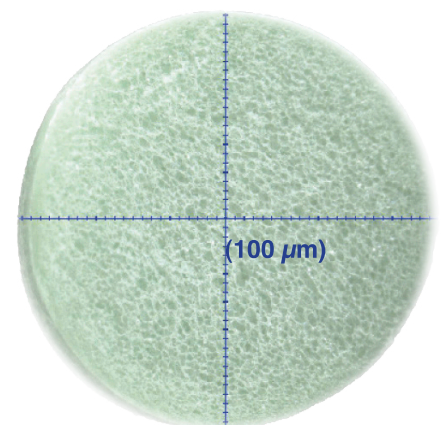


Figure 2: Cell Size (µm)

## Sustainability

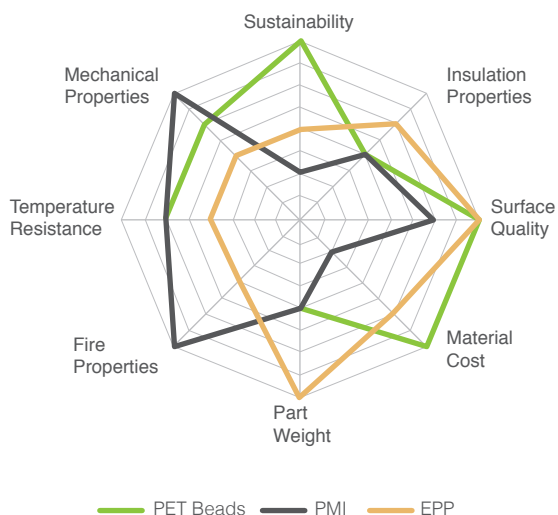
PET beads are manufactured and processed in an eco-friendly manner without using FCHCs. Furthermore, grades with tailored fire retardancy characteristics have been developed which employ the newest generation of halogen-free flame retardants.

Being made from 100% recycled PET and recyclable again after their use phase, PET beads represent a highly sustainable alternative to comparable materials in the market.

## Preliminary technical data

<b>Density</b>	ISO 845	kg/m <sup>3</sup>	200 *
<b>Compression Strength (10 % deformation)</b>	ISO 844	MPa	1,26
<b>Compression Strength (25 % deformation)</b>	ISO 844	MPa	1,71
<b>Compression Modulus</b>	ISO 844	MPa	28,31
<b>Shear Strength</b>	ISO 1922	MPa	0,79
<b>Shear Modulus</b>	ISO 1922	MPa	21,77
<b>Shear Elongation</b>	ISO 1922	%	3,6
<b>Tensile Strength</b>	ISO 527-2	MPa	0,5

\* Further densities under development. Please contact us for more information.



## Our offer

- › High mechanical properties
- › Superior temperature resistance
- › Tailored fire properties
- › Good resistance to chemicals & oils
- › Freedom of design
- › Closed-cell structure
- › Good insulation properties
- › Made from 100% made from recycled PET
- › 100% recyclable after use-phase

*Armacell provides this information as a technical service. To the extent the information is derived from sources other than Armacell, Armacell is substantially, if not wholly, relying upon the other source(s) to provide accurate information. Information provided as a result of Armacell's own technical analysis and testing is accurate to the extent of our knowledge and ability, using effective standardized methods and procedures. Each user of these products, or information, should perform their own tests to determine the safety, fitness and suitability of these products, or combination of products, for any foreseeable purposes, applications and uses by the user and by any third party to which the user may convey the products. Since Armacell cannot control the end of this product, Armacell does not guarantee that the user will obtain the same results as published in this document. The data and information is provided as technical service, and the data and information are subject to change without notice.*

## Armacell Benelux S.A.

Rue des Trois Entités 9 - B-4890 Thimister-Clermont

Tel.: +32 (0) 87 32 50 70 - Fax: +32 (0) 87 32 50 71

info.armaform@armacell.com - www.armacell-core-foams.com

Copyright: Armacell Benelux SA.

**ArmaFORM**