

The White Bow

Building & Construction > Architecture

Target

Prove the possibilities of composites in Architecture

Solution

The Gazechim logistics centre. The perimetral frame, bulkheads and a 340sqm, self-supporting canopy are all made with composite materials, including Gurit Kerdyn™ Green PET

Benefits

Easy to install, lower environmental impact



'The White Bow' Gazechim logistics centre in Valencia, Spain

This spectacular, avant-garde building is the logistics centre for Gazechim Composites Ibérica. As a leader in the distribution of composites, Gazechim were committed to going one step further in demonstrating the possibilities of advanced composite materials in architecture when building their new logistics hub.

The building is the result of a successful collaboration between naval and civil architects. The naval influence can be seen through the design: a sea of wave shaped slats protecting the office section of the building with the majestic 'bow' of the structure rising and floating above, evoking images of a ship sailing on the sea and earning the building its nickname, The White Bow.

The Floating Canopy

A stunning addition to the building is a 340sqm, curved, self-supporting canopy over the loading dock. This challenging design was only feasible thanks to the high strength-to-weight properties of the composite materials used.

The canopy was made using a sandwich structure, with glass skins on the outside, Gurit Kerdyn™ Green PET

in the centre and was infused with a graphene modified polymer matrix.

The properties of Gurit Kerdyn™ Green make it ideally suited to this type of application due to its:

- Good strength to weight ratio
- Excellent thermal insulation properties
- Low resin absorption
- Lower environmental impact, made from up to 100% recycled PET from plastic bottles

In total the Gazechim logistics centre has:

- 600sqm of composites in the façade and canopy
- 880lm of composite profiles for the shades
- 3000lm of composite rebar to reinforce the concrete

The Benefits of Using Composites

The use of Gurit Kerdyn™ Green PET core for the canopy contributed to its excellent mechanical properties, guaranteeing:

- A structure which was half the weight of an equivalent part made of steel
- No heavy or bulky auxiliary support structure needed
- No pillars – eliminating the risks of truck collisions in the loading area
- Better thermal insulation and efficiency, contributing to considerable energy savings
- Quicker construction: Composite parts were manufactured off-site and assembled on-site



Above: The 340sqm, curved, self-supporting canopy over the loading dock



Above: The infusion of the canopy structure

A sustainable structure

Additional sustainability benefits were realised in this structure through:

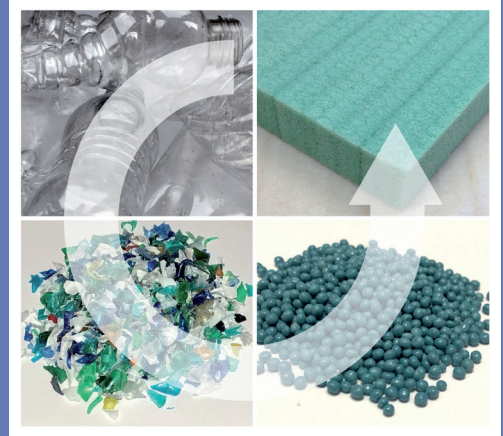
- The thermal insulation provided by the composite slats, contributing favourably to energy savings
- Lightweighting: Reduction in the quantity of material and lower transportation weight of the components
- Use of Kerdyn™ Green in the canopy structure featuring up to 100% recycled PET

This was a pioneering project; whilst clearly demonstrating the competitive advantages of composites, it shows the great synergies and market potential that exist when integrating composites with traditional materials within architectural projects, shaping the future of building and construction with composites.

How is Kerdyn™ Green made?

- Used plastic bottles are collected and crushed into flakes
- Gurit's in house granulator converts the flakes into pellets
- PET pellets are extruded into blocks of Kerdyn™ Green
- Blocks can be cut into sheets and various shapes/ profiles
- Any waste Kerdyn™ Green recovered from Gurit's production or customers can be recycled into new blocks

Right: Kerdyn™ Green manufacture process from bottle to sheet



“The vast experience of using composites in the wind energy and marine markets, has allowed us to transfer its advantages to the world of architecture. Building with composites incorporating Kerdyn™ Green gave us the freedom to design and build a large, lightweight, self-supporting structure. The reduction in the carbon footprint was also a significant advantage, due to Kerdyn™ Green being made from recycled PET. Shaping the future with composites.”

Julio César Galiana, Naval Engineer, European Advanced Composites



For more information on this project, visit:
<https://www.youtube.com/watch?v=6UIRtAYJ3ZY>

www.gazechim.es

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