Gurit CASE STUDY

CASE STUDY: PFLÜGER TOB - SUSTAINABLE BASE PROFILES FOR WINDOWS AND DOORS

Pflüger TOB, a manufacturer of base profiles for windows and doors, required a sustainable, thermally optimized and durable core material for their base junctions for windows and doors. The solution was Kerdyn™ FR, providing flexibility and precision for all types of installations.

KERDYN FR - THE MATERIAL OF CHOICE

The need for a sustainable material led Pflüger TOB to select Gurit Kerdyn FR as the material of choice for their window and door base junctions. Kerdyn FR is a structural core material, made from up to 100% recycled PET, sourced from used plastic bottles. As well as having high sustainability credentials, other benefits of Gurit Kerdyn FR include:

- High compression strength
- Excellent screw retention
- Able to withstand high temperatures
- Water resistant
- Recyclable
- Creates outstanding stability and sealing
- Good insulation properties

OVERVIEW

Windows, doors, and the surrounding frames and profiles are instrumental in the energy efficiency of buildings.

When considering which material to use for bridging the spaces between the building construction and door and window frames, the list of material properties is considerable: strength, durability, insulating capability and fire retardancy to name just a few.

One manufacturer of these parts, Pflüger TOB, has gone one step further and added sustainability to this list.

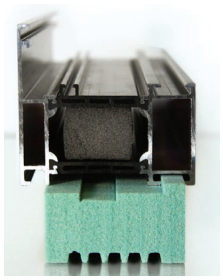
Using the latest production equipment and concepts, Pflüger TOB convert sheets of Kerdyn FR into a number of profiles for thermal separation, construction, sealing, and insulation applications:

WINDOW APPLICATIONS FOR KERDYN FR

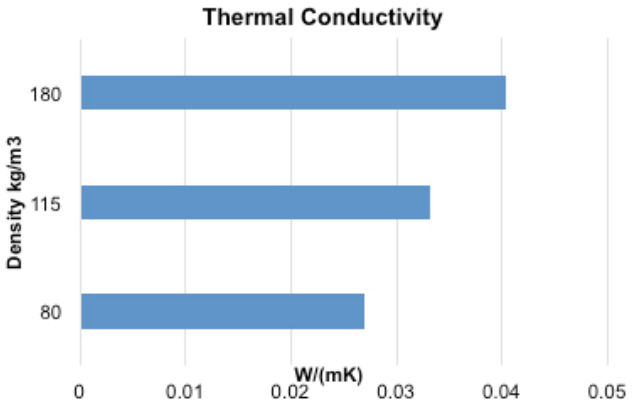
Using Kerdyn FR for window base junctions enables significant improvements in the installation of the window, due to the higher screw retention values. Particularly with windows made of wood, using a base made from Kerdyn FR can reduce the likelihood of deterioration and rotting in the junction area.

IMPROVED THERMAL PROPERTIES

Significant improvements can be seen in thermal properties when using Kerdyn FR in window bases. In the graph (right), Kerdyn thermal conductivity value is reported at each density. The thermal conductivity of Kerdyn reaches 0.027 at 80kg/m^3 density.



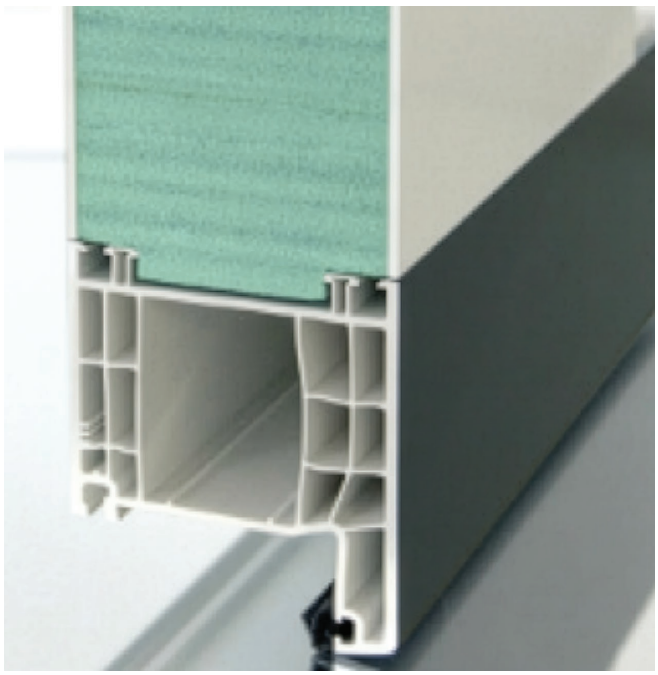
Above: Examples of a window base junction profiles made from Kerdyn FR. **Below:** Thermal Conductivity of Kerdyn FR across density range.



"Pflüger have been working in partnership with Gurit and using Kerdyn FR for many years. The easy machining and optimal thermal properties combined with water resistance makes it a perfect fit in our window solutions."

Ulli Pflüger, Managing Director Pflüger TOB GmbH

https://www.pflueger-tob.de/



WINDOW FRAME EXTENSIONS

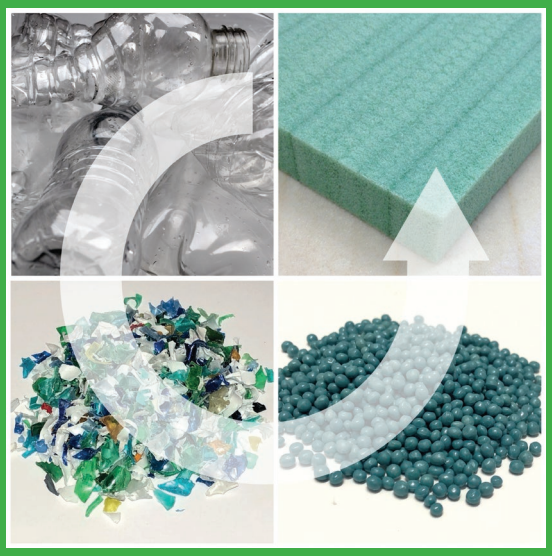
The high strength, water resistance and good mechanical properties of Kerdyn FR make it an ideal material choice for window frame extensions, such as mountings for roller shades or blinds. It is compatible with a wide range of adhesives, making it easy to produce customised window frame extensions, with improved longevity when compared to clipped-on extensions.

INSULATION AND SEALING WEDGES

Another ideal application for Kerdyn FR is for insulating and sealing wedges, bridging the gap between the external window sill and the building construction. Using Kerdyn FR in this area can considerably reduce condensation and water ingress.

HOW IS KERDYN FR 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 FR
- Blocks can be cut into sheets and various shapes/ profiles
- Any waste Kerdyn FR recovered from Gurit's production or customers can be recycled into new blocks



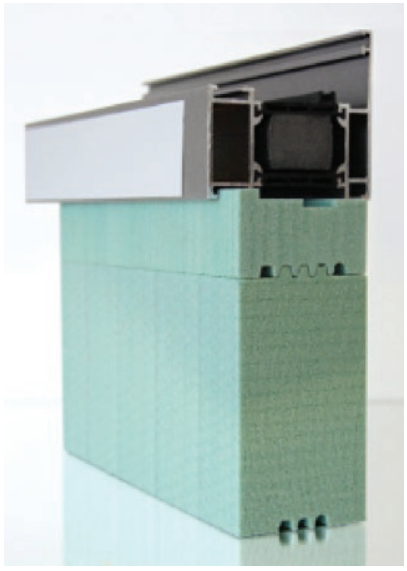
Right: Kerdyn FR manufacture process from bottle to sheet

KERDYN FR FOR DOOR SUB-STRUCTURES

The easy machining and shaping of the Gurit Green FR makes it well suited to the application of door substructures, creating a strong, water-resistant and insulating base for doors and thresholds. The modular construction possible through using the TOB module means it is easy to level and mount the substructure before fitting a sliding door. The result is a system that provides a quiet and even motion of sliding door and a highly insulated substructure.

FLEXIBILITY & PRECISION POSSIBLE THROUGH TOB MODULE

Custom heights for door sub-structures can be achieved by combining several standard-height Kerdyn FR profiles. The individual modules are grooved, then glued and screwed together, giving a monolithic system without joints. Kerdyn FR is available in a range of densities from 80–180kg/m^3, each with different mechanical properties. In addition to tailoring the height of the TOB modules, it is also possible to combine densities. This results in bespoke modules with mechanical properties adapted to the construction, ensuring the highest properties in areas of high stress.



Custom heights achieved through TOB modular system