A new type of infinitely tunable composite material
Maezio™ continuous fiber-reinforced thermoplastic (CFRTP) composites from Covestro are based on the combined strength of reinforcing fibers and the manufacturing flexibility and performance of thermoplastic resin. The result is nearly 120 microns thin and lightweight unidirectional (UD) tape, meaning that the long strands of fiber are oriented and providing strength in the lengthwise direction of the tape. In laminating several layers of tape together at different angles, it is possible to produce thin, stiff and lightweight sheets with mechanical strength that can be tuned to your specific application.

Our primary materials are carbon fiber and polycarbonate, but we can also provide composite solutions that use other fibers and thermoplastic resins. With our production base in the south of Germany, we can provide consistent, high-volume supply for our customers.

Unprecedented ease of forming
For forming, or shaping, the material, we have a tape-based approach that makes forming easier.

For large, deep-draw shapes such as car body panels, other transport applications and furniture, we recommend a tape-based approach to forming that starts with laying out layers of tape using an automated robotic layup process. The tape stack is then transferred into a large-scale thermal compression molding tool where the part is formed and additional features such as ribs, hooks and bosses can be added through overmolding, as needed.

For smaller parts, we recommend starting with pre-formed Maezio™ composite sheets that can be tailor-made in terms of number of tape layers and fiber orientation. These sheets can then be formed in conventional thermal compression molding machines, again making it easy to integrate additional features such as ribs, hooks and bosses during the forming process.

In terms of forming and in relation to comparable materials, carbon fiber-based Maezio™ composites offer an extremely attractive mix of short cycle times and high yield rates at low cost.
A new premium material for designers

Flexible integration

- Stiff/soft resin combinations for seamless buttons, hinges, and other flexible features through resin combinations.
- Edge radius for tight, compound geometries through thermoforming.
- Integrated features: easily add hooks, ribs, bosses, and other features during the thermal compression molding process.
- Apertures: easily added during forming.
- Undercuts: design for complex geometries using tools with moving parts.
- RF transparency: add radio frequency transparent windows for antenna connectivity.

Competitive performance

Benchmarked against other materials in its class, carbon fiber-based Maezio™ composites offer very competitive performance with clear processing advantages over metals and carbon fiber-based thermoset composites. Find out how we can bring light weight, strength, and durability to your product.

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<th>Density (g/cm³)</th>
<th>Specific stiffness</th>
<th>Specific strength</th>
<th>Light weight</th>
<th>Fatigue strength</th>
<th>Corrosion resistance</th>
<th>Transparent to X-rays</th>
<th>Fire resistance</th>
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