

# WIC - Carbon Fiber Compounds

Lighter, stronger, sustainable.

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**WIC products are carbon fiber based high-performance plastics with a very attractive cost-benefit ratio.**

WIC compounds, made from recycled carbon fiber sheets, have excellent mechanical properties whilst also being low density, and therefore, low weight. This particular strength means the material is ideal for lightweight applications. It can help, for example, to produce lighter-weight cars with lower CO<sub>2</sub> emissions, and lighter equipment and devices in more convenient shapes. Another interesting characteristic of WIC products is that they are very good at conducting electricity. This means that electrostatic charges can be avoided and it can be used, for example, in explosion prevention applications.

PA66, PA6 and PP based WIC compounds are now classed as standard products. Application specific solutions with other polymer bases or filler blends can be developed.

In addition to their special properties and lightweight potential, WIC products provide interesting cost savings in comparison to high-fill fiberglass compounds when the volume/piece price is taken in account.

- Cars – front-end carrier, engine cover, engine mount, fuel filter mount, crossbar, GOR, cowl, mirror mount, gas cap hinge arm, tailgate, glove compartment, air-flow fin, central console support, seat components, door components, shelf support
- E&E – industrial vacuum cleaners, lamp housings, fan propellers, power tools, ATEX filters, wheels and transport boxes, EMI/ ESD components
- Rolls and transport boxes, EMI / ESD components
- Sport & leisure – surfboard fins, paddles, kiteboard foils, air pumps, drink bottle holders, bike shoes, scooters, drones, ski boots, snowboard/ski bindings
- Medical technology – orthotics, prosthetics, walking frames
- Industrial – wind turbine blades, device cases, guide rails, antistatic transport containers, holders, grabs, mounting systems, filter housings

## WIC – Carbon Fiber Compounds: advantages at a glance

- **Low density → lightweight construction**
- **High fixity/ rigidity (potential metal substitute)**
- **Good electrical conductivity**
- **Good resistance to wear and tear**
- **High dimensional stability**
- **Design freedom**

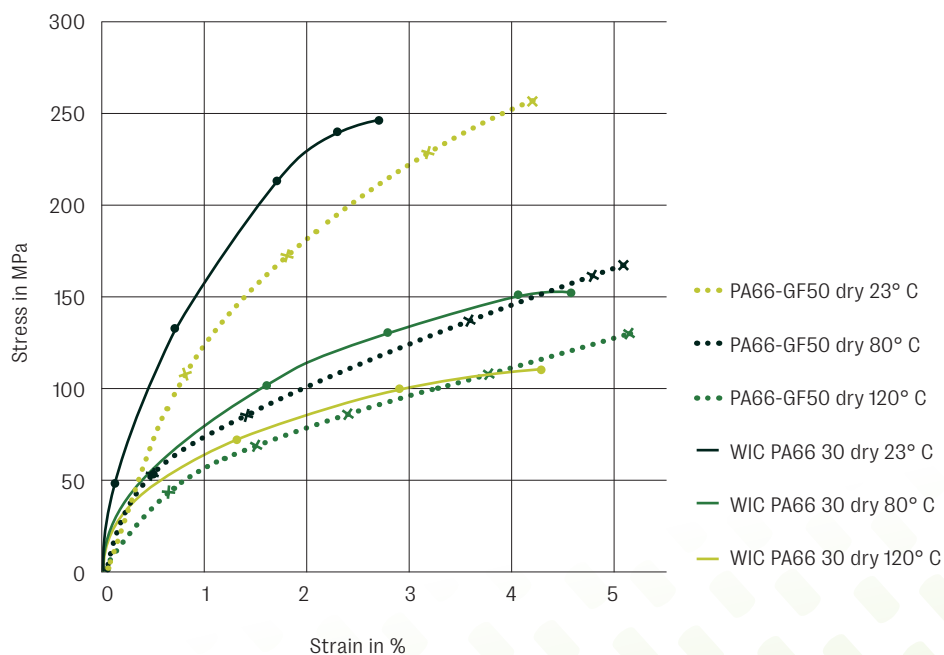
Product name	CO <sub>2</sub> -Footprint (GWP100) [kg CO <sub>2</sub> eq.] GaBi (DIN EN ISO 14040/14044)	Carbon fiber content [%]	Product variants*	Density [g/cm <sup>3</sup> ] ISO 1183	Tension (dry / cond.) E-modulus [MPa] ISO 52731/32	Tensile strength (dry / cond.) [MPa] ISO 527-1/-2	Impact strength 23°C (dry / cond.) [kJ/m <sup>2</sup> ] ISO 179/1eU	Notched bar impact strength (dry / cond.) 23°C [kJ/m <sup>2</sup> ] ISO 179/1eA
WIC PA6 10**	6.08	10	N / BK / BKD / IM / LE	1.17	9,000 / 5,000	135 / 85	45 / 71	4 / 8
WIC PA6 20**	5.72	20	N / BK / BKD / IM / LE	1.23	15,500 / 8,200	190 / 106	55 / 70	7 / 12
WIC PA6 30**	5.23	30	N / BK / BKD / IM / LE	1.27	22,500 / 11,500	200 / 125	55 / 65	10 / 14
WIC PA6 40**	4.79	40	N / BK / BKD / IM / LE	1.33	29,000 / 14,200	210 / 125	50 / 55	9 / 12
WIC PA66 10**	6.04	10	N / BK / BKD / IM / LE	1.18	9,000	145	30	3,5
WIC PA66 20**	5.60	20	N / BK / BKD / IM / LE	1.23	16,000 / 11,000	195 / 140	50 / 63	6 / 8
WIC PA66 30**	5.06	30	N / BK / BKD / IM / LE	1.27	22,500 / 14,000	210 / 152	55 / 60	8 / 10
WIC PA66 40**	4.54	40	N / BK / BKD / IM / LE	1.33	30,000 / 18,000	225 / 160	50 / 60	7 / 9
WIC PP10	1.50	10	N / BK / BKD / IM / LE	0.97	5,500	60	30	6
WIC PP20	1.36	20	N / BK / BKD / IM / LE	1.01	9,500	80	48	9
WIC PP30	1.26	30	N / BK / BKD / IM / LE	1.07	13,000	93	52	10
WIC PP40	1.17	40	N / BK / BKD / IM / LE	1.13	15,500	93	36	9

Additional products and information are available on request.

\* Notes: N = natural / BK = black / BKD = deep black / IM = impact modified / LE = low emission

\*\* Measured values PA (cond.) Based on test specimens conditioned according to ISO 1110

## Stress-strain curve PA66-GF50 vs. WIC PA66 30



These are guide values and not a specification. The test values mentioned are representative values only and not binding minimum or maximum figures. These test values have been determined on standardised test specimens and can be affected by pigmentation, mould design and processing conditions. ALTECH IQ and ECO differ in the degree of specification options. Any information given on the chemical and physical characteristics of our products, including, without limitation, technical advice on applications, whether verbally, in writing or by testing the product, is given to the best of our knowledge and in good faith and does not exempt the buyer from carrying out their own investigations and tests in order to ascertain the product's specific suitability for the purpose intended. The buyer is solely responsible for confirming the suitability of the product for a particular application, its utilization and processing and must observe any applicable laws and government regulations. NO EXPRESS OR IMPLIED RECOMMENDATION OR WARRANTY IS GIVEN WITH REGARD TO THE SUITABILITY OF THE PRODUCT FOR A PARTICULAR APPLICATION, SUCH AS, BUT NOT LIMITED TO; SAFETY-CRITICAL COMPONENTS OR SYSTEMS.

**Important:** Irrespective of product type or designation, WIPAG does not recommend or support the use of any products it supplies which fall in the following medical, pharmaceutical or diagnostic application categories.

- risk class III applications according to EU directive 93/42/EEC
- any bodily implant applications for greater than 30 days
- any critical component in any medical device that supports or sustains human life.

At all times, our standard terms and conditions of sale apply.

**Additional Information:**

In general the existence of residual amounts of ferrous and non-ferrous metals cannot be completely ruled out in recycle feed stocks. In order to minimize potential negative effects of such inclusions, WIPAG employs extensive metal (and non-metal) detection and separation systems in the production of its ALTECH IQ/ECO compounds. However, even the highest product quality assurance processes cannot guarantee zero levels of ferrous and non-ferrous metal in the final product. To further reduce risk, moulders are therefore advised to deploy their own detection and separation techniques. In particular, special measures are advised to be employed with hot runner tools. For any questions or advice concerning development of parts with ALTECH IQ/ECO grades please contact our TS&AD department.