

About TAFNEX™

One material, endless possibilities

TAFNEX™ is a thermoplastic composite material that consists of **carbon fiber (CF)** and **polypropylene (PP)**. The cornerstone of TAFNEX™ materials is a distinctive bonding technology for CF along with a novel PP recipe, achieving a fully impregnated material with remarkable properties.

Key benefits:



Lightweight



Outstanding mechanical performance



Exceptional chemical resistance



Excellent (salt) water resistance



UV resistance



Wear resistance



Versatile & fast processing



Mechanically recyclable



Easy storage

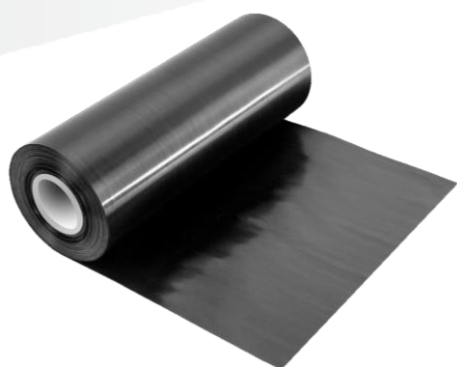
TAFNEX™ is produced as a unidirectional tape (**UD Tape**) but can also be provided in further finished products: **Structural Sheet**, **Woven Sheet**, **Design Sheet**, **Sandwich Panel**, and **Tube**. Furthermore, the TAFNEX™ brand includes PP-CF **Compound** materials for different processes.

→ Find out more about each product on the following pages.

TAFNEX™ UD Tape

Innovative versatility delivered on a roll

Leveraging our extensive expertise in material and product development, we provide a high-quality **PP-CF UD tape** material featuring excellent fiber distribution and full impregnation. **TAFNEX™ UD Tape** comes with a **fiber volume content of 50 %** and a **thickness of 0.15 mm**. Additionally, a 40 % fiber volume grade (0.2 mm thick) and a UV-resistant grade are available upon special request. Find out more about the delivery forms and possible specifications below.



Mother roll

Width

570 to 630 mm

Length

up to 650 m

Delivery

on 3 inch paper core



Slit tape

Width

3 to 550 mm

Length

up to 650 m

Delivery

typically on
3 inch paper core



Chips

Standard sizes

6x6 mm | 6x12 mm

12x12 mm | 12x24 mm

24x24 mm | 24x36 mm

36x36 mm

Delivery

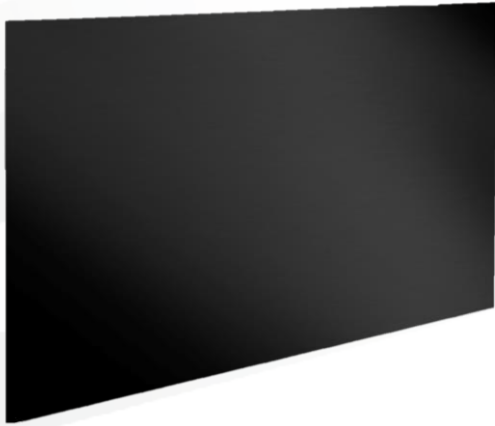
in plastic bag

Key properties:

- **Fiber content:** 50 vol.-%
- **Thickness:** 0.15 mm
- **Areal weight:** 200 gsm
- **Processing temperature:** 170 – 220 °C
- **Tensile strength:** 1,430 MPa
- **Tensile modulus:** 110 GPa
- **Flexural strength:** 1,020 MPa
- **Flexural modulus:** 105 GPa
- **ILSS:** 30.5 MPa

TAFNEX™ Structural Sheet

Tailored layers for ultimate performance



TAFNEX™ Structural Sheets are manufactured through full-surface stacking of UD tape layers, followed by consolidation in a press. **Each layer is customizable** to meet specific application requirements. Whether you prefer ready-to-use sheets or want to produce them yourself using **TAFNEX™ UD Tape**, we've got you covered.

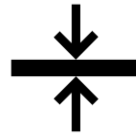
Customization options:



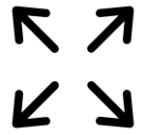
Tailored reinforcement



Optimized performance



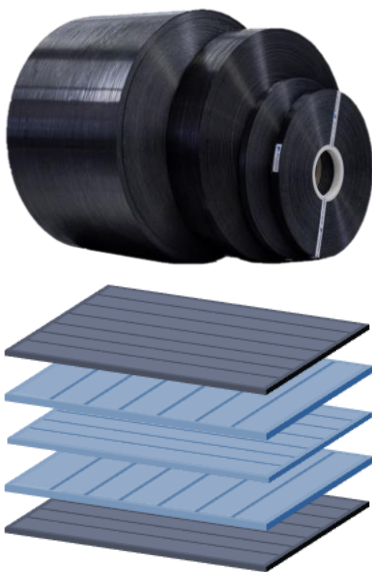
Adjustable thickness



Scalable size

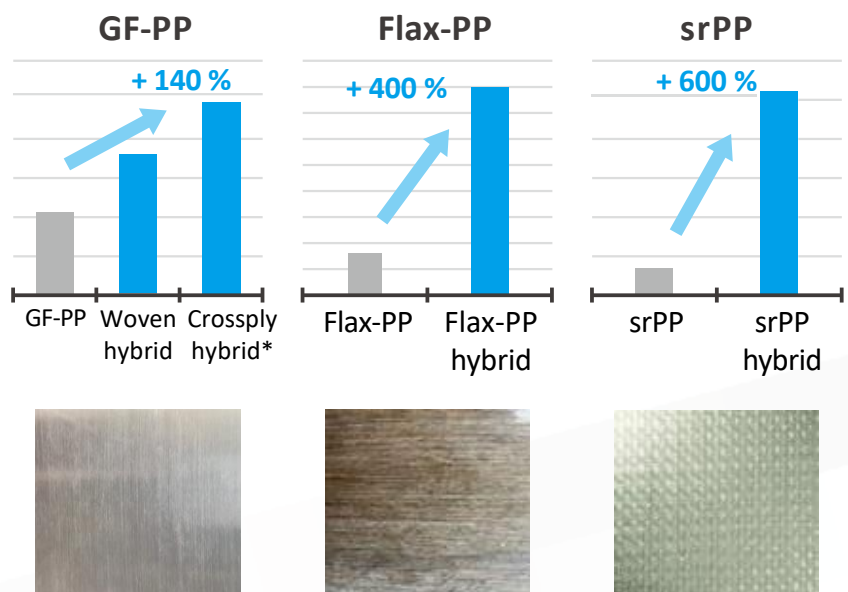


TAFNEX™ Structural Sheets are also available as **hybrids**, combining carbon fiber sheet with **glass or natural fiber sheets**.



TAFNEX™ UD Tape
used as skin layers

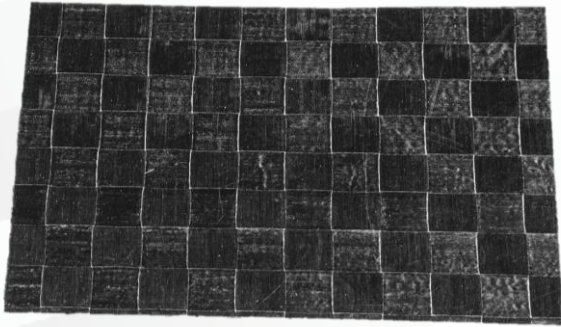
Flexural modulus increase



*: 0° layer dominated layup

TAFNEX™ Woven Sheet

Style and performance in perfect sync



TAFNEX™ Woven Sheets are made by weaving slit tape into a specific pattern, followed by a pressing step to consolidate the structure. By design, each woven layer comprises two crossed layers of tape. Find out more about the possible designs and specifications below.

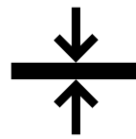
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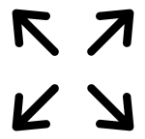
Tailored reinforcement



Customized appearance



Adjustable thickness



Scalable size

TAFNEX™ Woven Sheets can feature different weaving styles, including **plain** and **twill** patterns. They are also available as **hybrids** configurations, combining carbon fiber (CF) with **glass (GF)** or **natural fiber (NF)** tape.

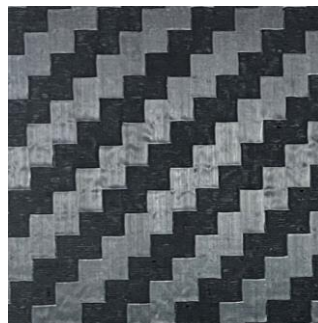
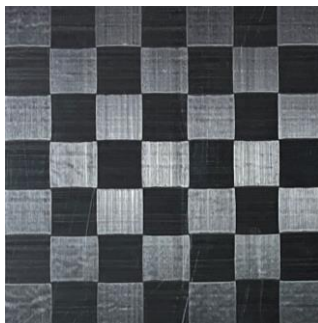
*Plain weave
(12.5 mm)*

*Plain weave
(25 mm)*

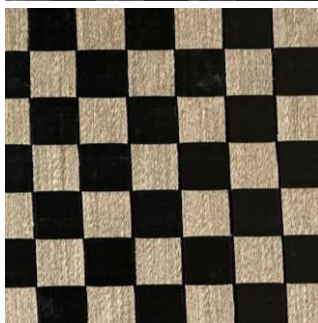
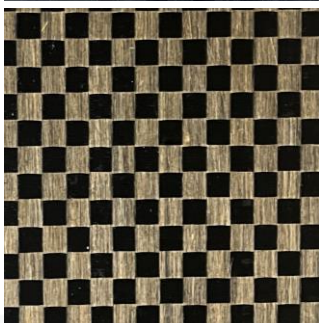
*Twill weave
(12.5 mm)*

*Twill weave
(25 mm)*

Full CF
or
CF + GF

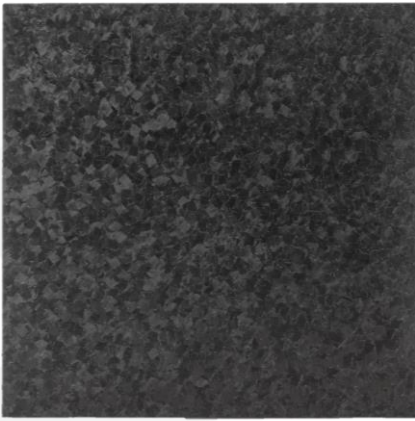


CF + NF



TAFNEX™ Design Sheet

Premium carbon aesthetics



Created from scattered chips and consolidated in a press, **TAFNEX™ Design Sheets** feature a **customizable forged carbon look**. This includes a range of coloring options that provide a unique alternative to the classic black carbon aesthetic. Learn more about the potential designs and specifications below.

Customization options:



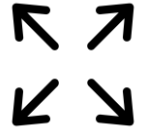
**Tailored
design**



**Customized
performance**



**Adjustable
thickness**



Scalable size



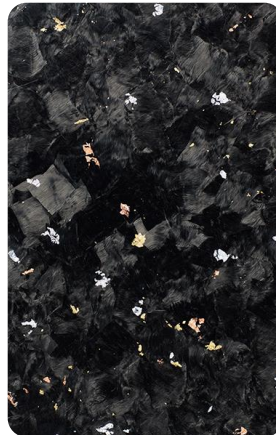
TAFNEX™ Design Sheets offer numerous customization options, including multiple **coloring** choices:



*Classic
Carbon*



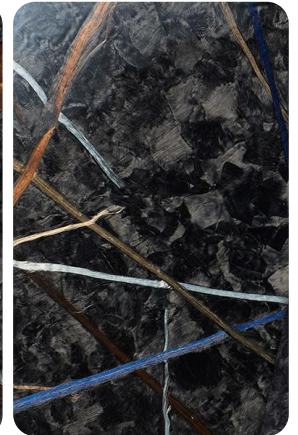
*Luminous
Carbon*



*Midnight
Spark*



*Mosaic
Carbon*



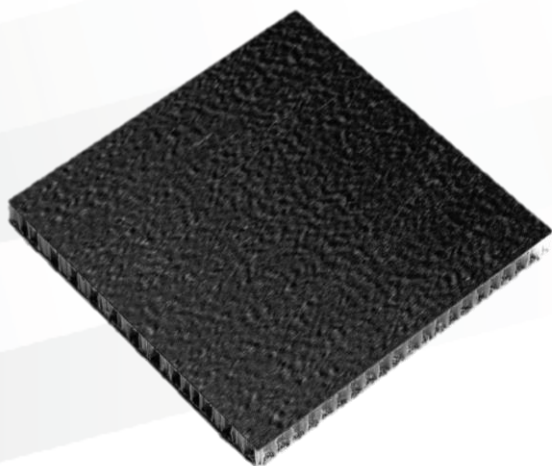
*Shimmering
Fiber*

The **chip size** is almost freely adjustable, but we recommend the following standard sizes:

6x6 mm | 6x12 mm | 12x12 mm | 12x24 mm
24x24 mm | 24x36 mm | 36x36 mm

TAFNEX™ Sandwich Panel

Feather-light material combo



TAFNEX™ Sandwich Panels consist of a skin and a core, each serving distinct functions. Typically, they are **lighter** and **more sustainable**, and they offer **better recyclability** compared to state-of-the-art sandwich panels with thermoset carbon composite skins, particularly when using a PP core.

Customization options:



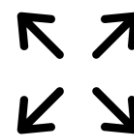
Tailored skin



Customized core



Adjustable
thickness



Scalable size



Structural
Sheet



Woven
Sheet



Design
Sheet



PP honeycomb
Foam
PP-GF LFT
& more

Processing:

- None (use as flat panel)
- Thermoforming
- Injection Molding
- Compression Molding

Exemplary use cases:



- Drone blade
- Automotive underbody shield
- Pickleball paddle

TAFNEX™ Tube

High-performance rotationally symmetric thermoplastic composite parts

Laser-assisted Tape Winding (LATW)

LATW is a **fully automated** production process where the **TAFNEX™ UD Tape** is wound onto a winding core or plastic liner. The properties of the component can be **flexibly adjusted** by changing the winding angle.

Optional: Bending

After the manufacturing process, **TAFNEX™ Tubes** can be bent into **complex shapes**. This allows them to be used for applications that go beyond a straight shape.

Optional: Injection Molding

TAFNEX™ Tubes can also be **functionalized** via an Injection Molding process. For example, functional elements can be added that enable mechanical joining to another component.

➔ These processes allow **TAFNEX™ Tubes** to be used in **many different application fields** from the Mobility sector to the Oil & Gas industry.



Inner diameter: 10 – 1,200 mm
Outer diameter: Adjustable
Wall thickness: Adjustable
Length: up to 3.5 m



Partners:

alformet
YOUR OPTION TO OUTPERFORM METAL

ANYBRID

AVANCO
composites

TAFNEX™

Mitsui Chemicals
Group

TAFNEX™ Compound

Engineered for performance & designed to flow



Made from **polypropylene** and **carbon fiber** reinforcement, **TAFNEX™ Compounds** are plastic pellet materials available in multiple grades. These grades vary in fiber content, length, and the specific manufacturing process they are designed for.

Available grades:

M2000A

Fiber content

20 wt.-%

Fiber length

Medium

Processing

Injection Molding

M3000E

Fiber content

30 wt.-%

Fiber length

Medium

Processing

Injection Molding

L4000A

Fiber content

40 wt.-%

Fiber length

Long

Processing

Injection Molding

MCAM203A

Fiber content

-

Fiber length

Short

Processing

Fused Granular
Fabrication

Exemplary use cases:



Drone blade

Process Injection Molding



Front bumper element

Process Fused Granular Fabrication