May 2025

TENRON: A revolutionary high-performance material for almost any application

The factory of ISOMATEX in Belgium

While AI dominates headlines as the next world-changing idea, TENRON, an innovative new material, is quietly revolutionizing lives around the world thanks to its **high-performance, safety and sustainability** properties.

Founding vision – DRIVING THE WORLD TO THE NEXT LEVEL

The company ISOMATEX (www.isomatex.com), manufacturer of the product named TENRON, was founded in **2005** in Belgium.

In 2005, the "new materials revolution" was well underway since the 1950s with widely adopted materials like Carbon, S2 Glass and P-Aramid (Kevlar/ Twaron).

In 2005, the founders of ISOMATEX embarked on an improbable mission of creating an entirely "new material", TENRON, which would not only deliver high-performance, but also outperform existing materials, prioritize safety and recyclability, and significantly contribute to the reduction of CO_2 emissions to positively impact on our daily lives. ISOMATEX is proud to be the **only European producer of high-performance mineral fibres and its downstream engineered substrates, converted products and composites**. TENRON is actually **the world's**

highest performing mineral fibre. ISOMATEX expects to receive the **EN9100** certification this year or, in other words, to be "**Aeronautics, Space and Defence**" **European Union certified**.

A gigantic mission

In 2005 to develop a high-performing and sustainable new material was not only an idealistic ambition, but no small feat. In particular **ISOMATEX had to design and develop its own equipment and machinery for each step of the manufacturing process including unique sizings** (ultra-thin layer around the fibre, a critical element of performance) **fully compliant with European regulations (REACH) on chemical usages**.

A unique blend of minerals and unique sizings to produce high-performance unique products

A unique proprietary blend of minerals

TENRON is a material made out of **an aggregation of widely available and carefully weighted minerals (its well-guarded "secret formula") extracted in Western Europe** to create a superior material of unmatched quality.
TENRON, as a raw material, looks like a shiny intense black stone.

TENRON, a blend of minerals

Unique proprietary sizings

A sizing (also called "binder") is an ultra-thin layer applied around the fibres and plays a critical role in reinforcing and protecting them for their intended applications. Sizing is key to performance and functionality (for instance the perfect adherence to a matrix – resin to create an exceptional composite).

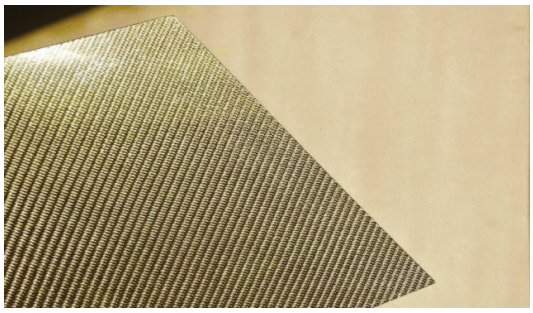
ISOMATEX developed water based sizings which are fully REACH (a European regulation) compliant. It gives TENRON a very strong competitive advantage. Beyond functionality, the sizing gives a beautiful shiny silver-gold hue to TENRON fibres, engineered substrates or composites, adding an aesthetic appeal.

High-performance unique products

TENRON, as a raw material, serves as the foundation for downstream products: **TENRON fibres, TENTON substrates, TENRON felts and TENRON composites as well as TENRON hybrids**.
The first and most critical downstream products are TENRON fibres, which have to be perfectly calibrated and coated with the right sizing to qualify for high-performance applications. Thanks to 17 years of research and development, **TENRON fibres reached aerospace quality at an industrial level (first joint patent ISOMATEX – Airbus Helicopters (AIRBUS Group) in September 2024)**.

TENRON fibres

TENRON Substrate



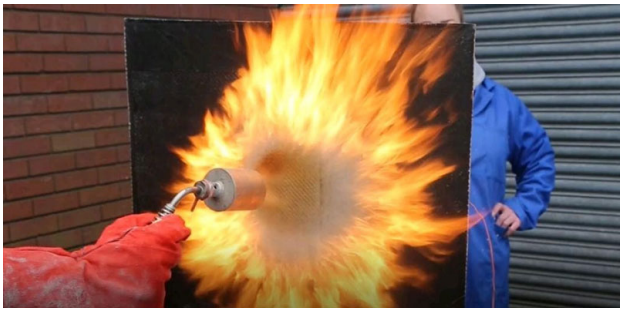
TENRON Composite

<u>Exceptional performance and safety</u>

TENRON, at the fibre level (direct roving) boasts an **exceptional tensile strength**, comparable to or exceeding Carbon and P-Aramid fibres, delivering **high-performance** with a similar weight to mechanical performance ratio in the end-products in particular when compared to Carbon.

Additionally, TENRON absorbs shock and is non-brittle making it **ideal for safety-critical applications.** Thanks to its shock absorptions properties, TENRON also acts as a noise and vibrations reduction material enhancing comfort and performance compared to Carbon.

TENRON also features **exceptional electrical and thermal insulation properties** with a melting point of 1,560°C and the ability to withstand temperatures of up to 1900°C in TENRON reinforced ceramic applications, which can be also a safety-critical property for certain applications.



TENRON, unparalleled safety

The name TENRON actually reflects these exceptional properties as it derives from "TENsile strength" and the first name "RONald", which means "leader". TENRON embodies the epitome of strength and innovation.

Sustainability at its core

The life cycle assessment of TENRON fibres reveals truly compelling competitive advantages. In terms of CO2 impact / Kilo of fibres, internal evaluations show a staggering reduction with 2.5 Kg CO2 / Kg fibres for TENRON compared to 25 Kg CO2 / Kg fibres for Carbon and 12.8 Kg CO2 / Kg fibres for P-Aramid.

Due to their mineral nature, TENRON fibres, textiles and felts can be recycled back to their original properties. Furthermore, all electricity used in production is from 100% certified renewable sources (wind turbines).

Broad industry applications – TENRON, AROUND US ALL THE TIME

TENRON's versatility is evident across a wide spectrum of industries. ISOMATEX is developing semi-structural car parts, aircraft interiors, high-pressure hydrogen tanks and low-pressure gas tanks, high-end insulation felt for helicopters, high-performance bicycles, skis, rackets, high-performance boats, luxury watch cases, protheses, windmill blades and many more exceptional products. Isomatex is trusted by world-class companies like Airbus Helicopers (AIRBUS Group) and top tier car manufacturers.

Open60AAL – Full TENRON hull

A bright future ahead in a fast-growing market

The global composite market is expected to grow at a compound annual rate of 10.8% and is projected to reach EUR 182 billion in 2028 according to "marketsandmarkets", a leading research firm, as companies continue to concentrate on lightweight and high-performance materials to fulfil consumers demands and regulatory environmental needs regardless of short-term shifts of government policies. According to the McKinsey Quarterly report "The Great Reallocation" "after years of companies playing defense with sustainability, the landscape has shifted to an emerging growth opportunity". **TENRON is poised to benefit the most of this society shift as it is not only a high-performance material like Carbon or P-Aramid offered at competitive prices, but has a greatly higher positive impact in term of its overall carbon footprint.**

TENRON's detailed technical specifications can be found on its website under "Technical datasheets": www.isomatex.com/tenron/.