

TMBK
Partners

General information

Founded in 1992.

Performing:

- **Research and development work** in cooperation with scientific and industrial organisations.
- Management of **R&D and technology transfer**.
- **Training and technology support**, mainly in the area of material technology.

Potential

- **Experts** covering numerous areas of science and technology.
- **International multidisciplinary research project performance, management, and coordination.**
- Own tested methodology for **increasing R&D activity effectiveness and competitiveness of research.**
- Training schemes focused on the **needs of technology transfer process participants.**

Sectors of activity

Activities, including R&D work, prototyping and manufacturing, performed **for numerous sectors of science and the economy.**

Examples:

- Aeronautics,
- Transport,
- Material engineering,
- Telecommunications,
- IT,
- Environmental protection.

Main areas of activity

- R&D project performance.
- Product development.
- Product commercialisation.
- Technology transfer mechanism development and implementation.
- Participation in international research and investment programmes (including EU Framework Programmes).

Product example: CNT doped veils

CNT DOPED VEILS - a very thin textile material made of randomly oriented thermoplastic fibers with carbon nanotubes.

These veils are used in the production process of laminates in order to:

- improve their mechanical parameters of the laminates
- assure electro- and thermal conductivity of the laminates.

CNT-doped veils are lighter, thinner and more conductive than other textile materials made from metal coated fibres.

Product example: CNT doped veils

ELECTRO- AND THERMAL CONDUCTIVITY of parts made of laminates are critical to address many industrial and application issues, e.g.:

- overheating of laminates placed closely to heat sources, e.g. car hoods;
- assurance of appropriate electrostatic characteristics of surfaces required for powder coating;
- protection from lightning strike in e.g. aircraft, automotive;
- reduce radar cross section in defense equipment;
- de-icing of aircraft structures such as wings, engine nacelle by heat generation;
- protection from radio frequency interference in electronic and electrical equipment (e.g. processors);
- replacement of metallic parts (e.g. in aircraft, construction industry) in order to reduce mass;
- increase of bonding strength between the laminates' layers – elimination of cracks and delamination.

Product example: CNT doped veils

The use of CNT doped veils in the laminates considerably improves their **MECHANICAL PERFORMANCE** (mainly fractural toughness by app. 50%) which allows for material and weight savings.

By appropriately adjusting technical parameters of the CNT doped veils such as: aerial weight (GSM factor), CNT content, veil thickness, type of polymer used, different properties of the final product are obtained. One can thus imagine a much broader than presented above range of possible applications.

Selected projects

- EU H2020 Research and Innovation Action "**Open access pilot plants for sustainable industrial scale nanocomposites manufacturing based on buckypapers, doped veils and prepregs**" (PLATFORM)
- **Projects relating to new alloys having ultra-fine grain structure (ALFA III), electro-conductive polymer matrix composites with improved mechanical properties (ELECTROPOL), as well as functional and advanced surface treatments of aluminium alloys (FAST-AA), ordered by AIRBUS**
- **Feasibility studies of potential research projects in the area of materials and IT, ordered by AIRBUS**

Selected projects

- EU FP6 Co-ordination Action **"Set-Up of a Market-Oriented Methodology for Joining SMEs within Integrated EU Research Projects on Innovative Clean and Environmental Technologies"** (PRODESTS)
- EU FP6 Cooperative Project **"Hybrid Thermoplastic Composite for Recyclable and High Performance Head Protection System"** (PRO-HEAD)
- EU FP5 CRAFT-type project **"Printed Circuit Boards with High Solderability Tin Coating for Lead Free Soldering"** (PRINT)
- EU FP5 CRAFT-type project **"Development of Diesel Exhaust Gases Filtration Technology with Application of Fuel Additives Enabling Continuous Regeneration of Filters to Minimise the Particulate Emission of City Buses"** (DIEXFIL)

Project objectives

- **Practical implementation of results by industry** (all projects, including those performed within EU Framework Programmes).
- **Development of specialised technical solutions in response to formulated technical and quality specifications** (projects ordered directly by industry, including AIRBUS).
- **Development and implementation of restructuring models and processes, as well as training programmes for R&D institute management staff** (projects within the EU PHARE programme).

Partners

TMBK Partners experts take part in activities performed in cooperation with Polish and international organisations:

- Scientific and research organisations (from Poland, Spain, Belgium, Italy, Germany, Austria, and others)
- Universities (e.g. Warsaw University of Technology in Poland, University of Patras in Greece)
- Industrial partners (from Poland, Germany, Belgium, France, Italy, Greece, UK, and others).