

FENICE

Fire Resistant Environmentally Friendly Composites



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BATTERY BOXES

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dei Materiali Ceramici



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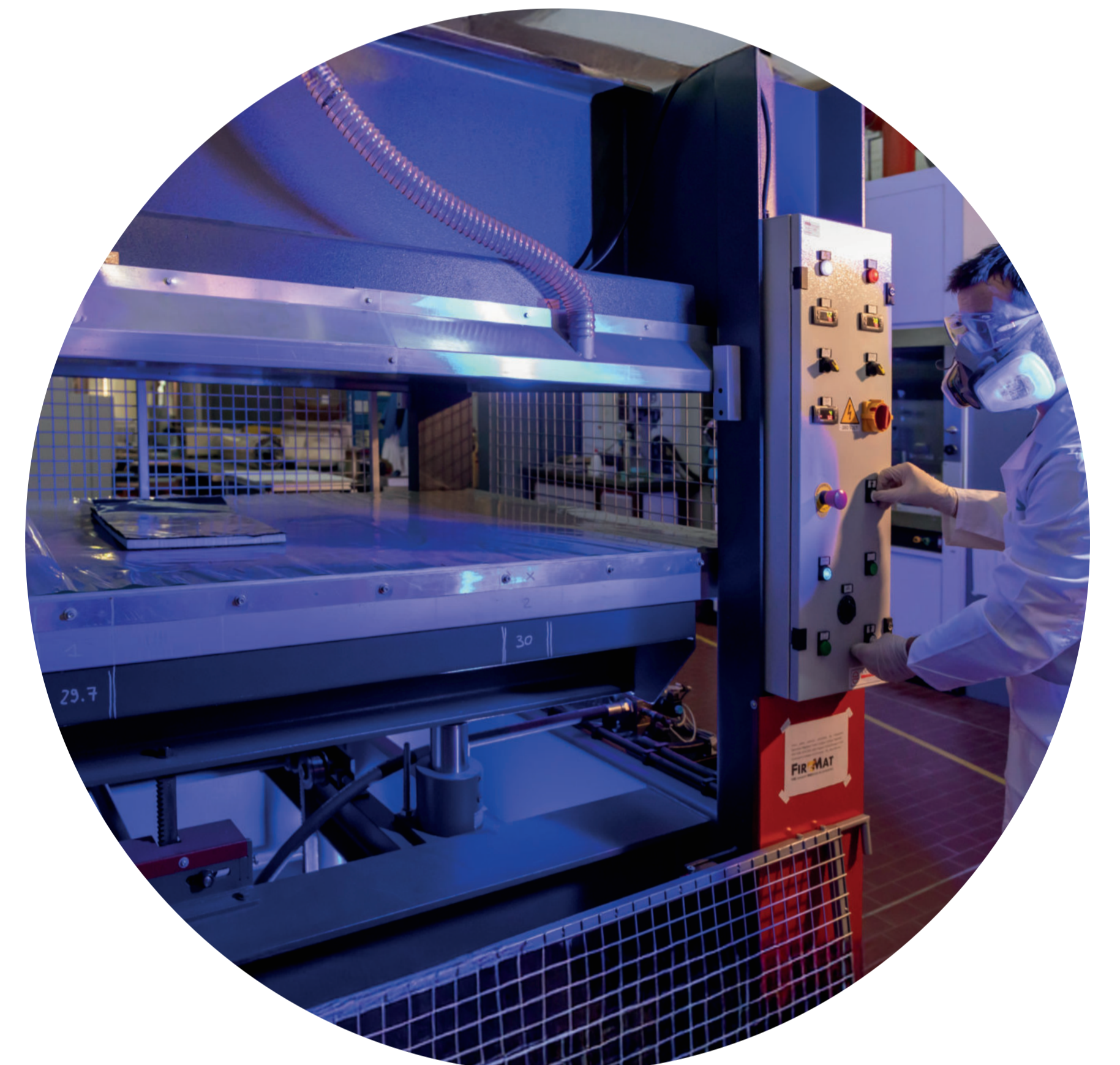
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FENICE - FIRE RESISTANT ENVIRONMENTALLY FRIENDLY COMPOSITES

Composite materials with high fire resistance for safer battery boxes in electrical cars:

1. Fiber metal laminates from secondary aluminium, associated to closed loop recyclable or bio-based resins;
2. As an alternative, low cost and fully inorganic composites based on fire-resistant geopolymers matrix.

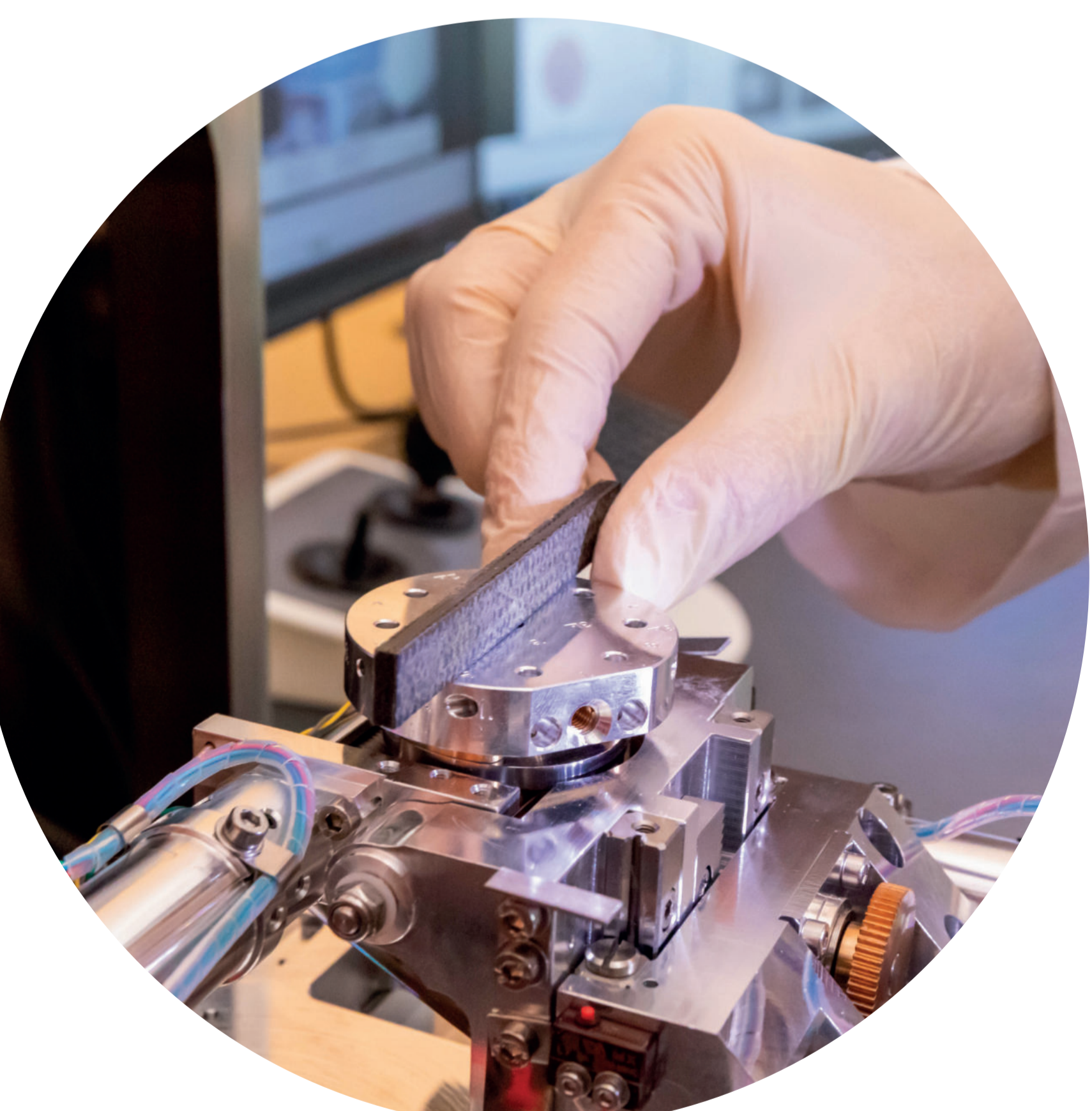


FENICE project works on composite components optimisation, both in terms of structural performances and sustainable mass production.

The use of biobased and inorganic resins improves the LCA of the solution. The use of aluminium foils in combination with PMC structural layers allow to achieve high fire resistance.

Fiber reinforced materials are the winning solution to support tensile loads, but with limited compression and flexural strength, so optimized structures are being studied, e.g. sandwiches.

The use of basalt and recycled carbon fibers allows for a reduction in the C-footprint of the final composite pieces.



Other ongoing projects developing FML (Fiber Metal Laminates) and involving Certimac and ENEA are: CARBO-PLUS - Reconstructed Carbon Fabrics for Sustainable Composites Mass Production, developing FML composites for shipbuilding and construction; TANTUM ERGO - Enabling Technologies for Sustainable Production and Maintenance of Offshore Renewable Energy Components developing composite materials suitable for offshore renewable energy applications; BRILLIANT - Biobased Fiber-Reinforced Composites: Validation and End-of-Life Treatment, developing FML with carbon-negative reinforcements; CAMPRES - Composites for Advanced Mass Production of Energy Storage, about the development of thermoplastic battery boxes; NALUCOAT POC - Composite-Aluminum Laminates for Fire-Resistant, Sustainable Battery Boxes: Development of fiber-metal composites for high-performance battery enclosures in sports cars.

