

PLOOTO

Product Passport through Twinning of Circular Value Chains

CETMA COMPOSITES Srl

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Ploto Abstract



The constantly increasing demand of scarce resources and critical raw materials (CRMs), requires efficient resource usage of resources, reuse and recycling of materials- and responsible waste management and prevention.

The circular economy's model establishes a virtuous cycle where products and resources can be reused, repurposed and recycled to maximize productivity of resources, to reduce waste and by products that can become raw materials (RMs) entering in other industrial processes, thus reducing the depletion of natural resources and the overall environmental effects on climate change.

Ploto aims to deliver a Circular and Resilient Information System (CRIS) to support manufacturers in their green, digital and circular transition. CRIS enables waste reduction and end-to-end traceability of Secondary Raw Materials (SRM) through interconnected digital services for real-time decision making, monitoring and certification of materials and products.

Ploto delivers: a) a transformation framework based on traceability strategies for materials/products per business case, with reference processes for SRM use from waste deposit to new products, and governance models for circular value chains;

b) ICT tools for modelling product, production processes and supply chains, as an aggregation of individual component Digital Twins with cognition capabilities (cognitive Digital Twins – CDTs).

c) Data will feed RM-recovery and waste dataspace allowing the provision of material certification and product passport. Finally, d) A circular sustainability balanced scorecard (framework+toolkit) assess impact of decision-making at CDT level based on various KPIs.

The solution will be piloted in three different circular supply chains demonstrating waste reduction, reusability of scrap and production by-products, operational improvement.

The consortium is led by Maggioli SpA, consists of 20 partners from 8 different countries. The duration of the project is 36 months

Role in the Plotoo project



- **Brief description of Cetma Composites role in the project**

Cetma Composites will work in the project with the aim to develop new composite structures and technologies to be applied to the drone sector, characterized with higher performance, optimized cost/performance ratio and lower environmental impact.

Cetma Composites will cooperate with the other project partners in order to make possible the re-use of expired prepreg, coming from companies working in the composite sector, developing new processes for the manufacturing of optimized structures for drones.

Cetma Composites will work also to achieve higher process control (process sensing and digitalization) to reduce the cost and environmental impact of processes.

Role in the Plotoo project



What is to be improved?

- Development of process for expired prepreg for the manufacturing of structures for drones

Which are the affected processes?

- Process 1: Identification of requirements of components for drones to be manufactured with expired prepreg
- Process 2: Definition of manufacturing process with expired prepreps
- Process 3: Production of the components for drones made of expired prepreg

Which machines/equipment are considered?

- Process 1: Vacuum bag (autoclave or out of autoclave)
- Process 2: Compression moulding
- Process 3: Tool manufacturing (CNC milling of metal blocks, manufacturing of composite tools)

Which stakeholders/actors are considered?

- Prepreg scrap producers
- Composite part users



CETMA composites

TARAS

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