MONITORING OF COMPOSITE INFUSION PROCESSES FOR MARINE INDUSTRY

MONOCLE PROJECT

The aim of the MONOCLE project is to develop a methodology for monitoring the infusion process for large, thick, unique or near-unique parts, and to provide operators with a decision-making tool.

TECHNICAL AND ECONOMIC IMPACTS

- Reduce production costs
- Reduce the environmental footprint of processes and materials
- Provide a decision-making tool

PARTNERS

IRT JULES VERNE, BUREAU VERITAS MARINE & OFFSHORE, NAVAL GROUP - LORIENT, PCMI, PREDICT GROUPE SNEF, SICOMIN

BUDGET

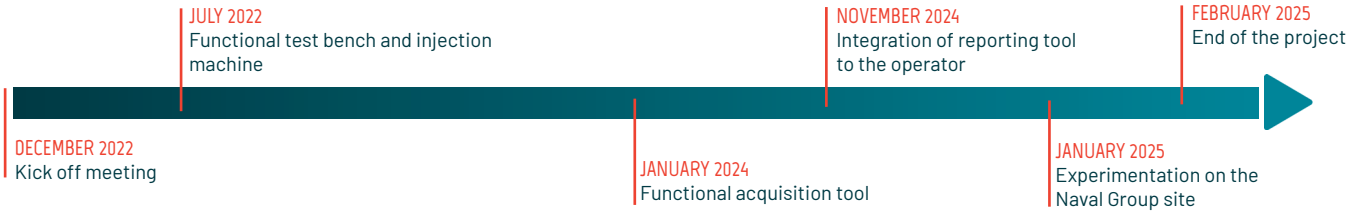
€2 256 K

KEYWORDS

Monitoring, infusion, digital twin, composites

RESEARCH THEMES AND EXPERTISES

Integrated product/process design
Process innovation
Flexible and intelligent production systems
Forming and preforming processes



INDUSTRIAL CONTEXT

Nowadays, NAVAL GROUP considers the infusion process for manufacturing composites of high mechanical performance at controlled costs. Infusion allows access to larger structures because the polymerization occurs at ambient temperature and is seen as a key process for the future.

Although simple, the infusion of complex parts exhibits several challenges, hence the need to develop tools to help operators in the decision-making process.

INNOVATIVE FEATURES

- Real-time detection of process anomalies
- Real-time prediction of process anomalies
- Implementation of a digital twin
- Use of an infusion bench to support infusion monitoring on a real part

INDUSTRIAL APPLICATIONS

The results of the project will enable NAVAL GROUP to continue producing compliant large parts with high thicknesses using tools that complement the experience and know-how of its operators.

The methodology could be adapted to other industrial sectors (wind power, tidal power, marine, aeronautics) for large parts using other manufacturing processes.

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