



University of Rijeka, Faculty of Maritime studies

PROJECT ACRONYM AND TITLE: M-COMARE - Marine Composite Material Recycling and Re-use

FUNDING PROGRAMME: Scientific-Research Project Initiatives of The University of Rijeka (ZIP UNIRI)

PERSON RESPONSIBLE: Goran Vizentin, Ph.D.

FINANCIAL DATA

Project total cost	Overall funding assigned to PFRI
8.626,98 €	8.226,98 €

SUMMARY

The use of modern, composite materials in the maritime industry is becoming increasingly attractive since the middle of the 20th century for various applications in marine structures and vessels. A problem with secure and efficient disposal of such structures at the end of their life cycles arises. The strategy of disposal of composites as a waste is non-existent in the Republic of Croatia.

The most widespread composite material used as structural material in the maritime sector is GFRP (Glass Fibre Reinforced Plastics) due to its superior performance in strength-to-weight and stiffness-to-weight ratios, corrosion resistance and excellent thermal and sound insulation, as well as performance advantages based on cost. An obvious solution to this problem is to recycle the material as much as possible. Although this type of recycling process is still in its infancy, extensive research in this field exists. Currently considered methods of composite recycling are mechanical recycling (reducing the size of the scrap to produce recyclates) and thermal processing (breaking composite to materials and energy by combustion, fluidized bed or pyrolysis). Previous research indicates to pyrolysis as the most efficient method of separating fibres from the matrix as the mass loss during this process is significantly smaller compared to other methods.

M-COMARE project aims to facilitate the implementation of recycled fibres from existing GFRP end of life parts of marine structures and vessels as re-used constituent fibre material for new composite material components. To achieve this, parts of marine structures will be collected, mechanically cut up in smaller pieces and thermally processed in order to obtain the separation of matrix and fibre constituents. The later will be used in the production of new components.

Start date	End date
01.06.2023.	31.05.2026.

WEBSITE: -

ADDITIONAL INFORMATION:

Members of the project team:

- Goran Vizentin, *University of Rijeka, Faculty of Maritime Studies*
- Goran Vukelić, *University of Rijeka, Faculty of Maritime Studies*
- Špiro Ivošević, *University of Monte Negro, Faculty of Maritime studies Kotor*
- Ljubomir Pozder, *University of Rijeka, Faculty of Maritime Studies*
- Darko Glujić, *University of Rijeka, Faculty of Maritime Studies*