

# Sustainable graphene and GRM-based multifunctional materials

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Graphene and related materials (GRM) have diverse applications, but their usability hinges on being recyclable. The EU-funded GIANCE project addresses environmental challenges by creating sustainable, lightweight, and recyclable graphene and related materials (GRM)-based multifunctional composites, coatings, foams, and membranes (GRM-bM). These materials aim to exhibit enhanced properties, including thermal, mechanical, and chemical functionalities such as wear resistance, corrosion resistance, chemical and fire resistance, hardness, impact resistance, high-temperature resistance, structural health monitoring, ultra-low friction surfaces, and hydrogen storage. The project seeks to improve manufacturing processes and develop 11 GRM-enabled products for sectors like automotive, aerospace, energy, and water treatment, while also supporting the Graphene Flagship initiative.