MULTHEM Project Press Release

MULTHEM, an acronym for 'Multi-material Additive Manufacturing for Lightweight and Thermal Management,' was launched on 1 December 2022 with a kick-off meeting taking place in Sittard and Geleen in The Netherlands. This project spans across three years and is supported by the Horizon Europe Research & Innovation program grant totalling €4,071,977.00. The consortium of nine partners come from eight countries, including the Coordinator, Technology Centre of Metal-mechanical and Transport (Spain), alongside with Solmatek Solutions Sl (Spain), Fraunhofer Institute for Production Systems and Design Technology IPK (Germany), Luxembourg Institute of Science and Technology (Luxembourg), Brightlands Materials Centre - TNO (The Netherlands), Eirecomposites Teoranta (Ireland), Prima Additive (Italy), Thales (France), and Brunel University London (United Kingdom).

The 26th Climate Change Conference has emphasized the need to curb global carbon dioxide emissions and mitigate the impacts of global warming. Notably, the transport sector contributes approximately 16% of the global carbon emissions, highlighting the pivotal role of fleet electrification in the journey towards climate neutrality. However, the main challenges are the current weight of components and the cost of implementing new systems that ensure efficiency and long-term sustainability. Carbon fibre composites (CFC) is seen as an attractive alternative to metals in products requiring lightweight features. However, traditional manufacturing processes and poor thermal conductivity have confined CFCs to structural roles, limiting their potential. For instance, battery casings, electrical motors, and power electronics housings are often crafted entirely from aluminium due to their need for efficient heat dissipation. However, this approach results in heavier and less cost-effective solutions compared to pure CFCs.

MULTHEM aims to develop a reliable and validated Additively Manufactured (AM) CFC process with enhanced thermal conductivity through different material combinations and nanotechnology integration. This innovation enables the creation of dual-function components, such as battery and motor housings, offering structural strength and efficient cooling at a more cost-effective rate than traditional methods. This approach will enhance the product performance by reducing weight, facilitated by designs achievable only through AM, and by using CFC-metal structures with enhanced thermal conductivity strategies, which are lighter and stronger than aluminium or steel. This effort reflects our collective recognition of the need for transformative technologies and production methods to develop lighter, more efficient, and cost-effective solutions to achieve climate neutrality.

Project Website: MULTHEM • Website
Project LinkedIn Page: MULTHEM • LinkedIn
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