



EMPOWERMET

Electric & Mechanical Power for Metal Manufacturing

EMPowerMet launches to advance circular and energy-efficient titanium manufacturing in Europe

[July, 2026] - EMPowerMet, a new Horizon Europe Innovation Action, has been launched to develop and demonstrate a circular and energy-efficient titanium value chain based on secondary resources. The 36-month project, formally titled Electric & Mechanical Power for Metal Manufacturing, will focus on transforming titanium swarf and end-of-life parts into high-performance semi-finished products and industrial components.

Titanium is a critical raw material for Europe, while the continent remains highly dependent on imports and lacks domestic primary production. This exposes European industries to geopolitical risks and supply chain vulnerabilities. EMPowerMet addresses this challenge by exploring new processing routes that make use of solid-state recycling technologies and electrically and mechanically driven manufacturing processes.



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Project n° 101294194

Industrial Demonstrators



The project will introduce and combine technologies such as Field-Assisted Sintering Technology (FAST) and CONFORM™ to transform titanium swarf and end-of-life material into sheets, plates, rods and wires. These semi-finished products will then be further processed through deep drawing, wire-arc Directed Energy Deposition (waDED) and inductive heat treatments to produce hybrid components with reduced energy demand and material waste.

A central ambition of EMPowerMet is to demonstrate the feasibility of replacing conventional, fossil-fuel-intensive manufacturing routes with alternative processes that support resource efficiency, circularity and industrial resilience. The project will validate the proposed process chain at TRL7 through three industrial demonstrators:



Fire
protective
helmet



Space
landing gear
structures



Aeroplane
service
port

These use cases will allow the consortium to assess the technical performance of the developed materials and processes in demanding applications, including safety, space and aerospace-related contexts.

EMPowerMet brings together a multidisciplinary consortium with 15 partners, coordinated by LKR Leichtmetallkompetenzzentrum Ranshofen GmbH.



Throughout the project, partners will work across the full value chain, from technical requirements and process optimisation to industrial-scale production, demonstrator validation, environmental and economic benchmarking, digital product passport development, communication, dissemination, exploitation, skills and standardisation.

The project will also benchmark the developed process chain from environmental, economic, social and circularity perspectives, supporting traceability and sustainability assessment through the development of a Digital Product Passport.

By developing a circular titanium value chain based on secondary resources, EMPowerMet aims to contribute to the European Union's objectives for reduced greenhouse gas emissions, improved resource efficiency, strengthened industrial resilience and cleaner technologies for energy-intensive industries.



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