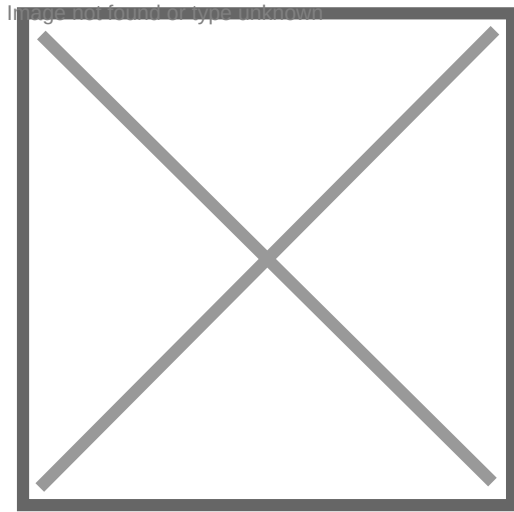




SPIRE-07-2017

SUPREME

Full Title: Sustainable and flexible powder metallurgy processes optimization by a holistic reduction of raw material resources and energy consumption.

Aim:

SUPREME aims at optimizing powder metallurgy processes throughout the supply chain. It will focus on a combination of fast-growing industrial production routes and advanced ferrous and non-ferrous metals. By offering more integrated, flexible and sustainable processes for powders manufacturing and metallic parts fabrication, SUPREME enables a reduction of the raw material losses while improving energy efficiency and thus carbon dioxide emissions, into sustainable processes and towards a circular economy.

Concept:

A cross-sectorial integration and optimization has been designed between several powder metallurgy processes: gas and water atomization as well as ball milling for metal powder production, laser-based additive manufacturing and near-net shape technologies for end-parts fabrication. Some quality and process control will be developed to monitor KPI, to demonstrate the optimization of material and energy use. 4 demonstrators will be proposed at each step of the value chain: real industrial setting and business exploitation at MRL 7: mineral concentration, metal powder manufacturing, metal part manufacturing and end-product will validate a global optimization of >25% material efficiency, >10% energy efficiency, >10% in yield efficiency and >30% of CO2 emissions. SUPREME has an outstanding consortium of 17 partners, represented by 11 companies including 6 SMEs ensuring a successful implementation towards market applications. 5 application sectors are targeted: automotive, aeronautics, cutting tools,

molding tools and medical. The process key differentiation advantages will bring modularity, flexibility and sustainability and will reduce the total cost breakdown of these technologies.

Start date:

01/09/2017

End date:

31/12/2020