

Developing nano-dispersoid strengthened materials for high-temperature applications

Stockholm, Sweden, March 2021 – QuesTek Europe, as part of a consortium led by RWTH Aachen, have initiated the project “Tailoring ODS materials processing routes for additive manufacturing of high temperature devices for aggressive environments” (topAM). This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 958192.

The topAM project aims to develop novel nano-oxide/nitride-dispersoid strengthened (ODS) high-performance alloys on Fe, Ni, and NiCu basis, for printable gas burner heads and high-temperature heat exchangers. The combination of improved materials performance, topology optimized design of additively manufactured components and intelligent sensor integration is expected to drastically increase the equipment life-time under extreme service conditions.

Within topAM, QuesTek Europe will together with RWTH Aachen lead the efforts on materials modelling, simulations and alloy design. Utilizing QuesTek’s Materials by Design® approach, we will take advantage of the AM-process inherent oxygen to design and improve high temperature strength ensuring chemical integrity with the matrix composition. The collaboration with RWTH Aachen will enable simultaneous design of ODS alloys and their corresponding laser powder bed fusion process parameters for accelerated material and component development.

Martin Walbrühl, Materials Design Engineer at QuesTek Europe, commented: “European research projects are a unique way to unite the stakeholders within European industry. A pressing technological need has been formulated and the necessary competence gathered to develop innovative and ground-breaking solutions that pave the way for a sustainable production- and manufacturing industry in Europe. We are excited to use our computational materials design approach to support and accelerate this process.”

The topAM consortium consists of 15 members, ranging from academia to industrial users in energy/processing: RWTH Aachen, QuesTek Europe, Kanthal, VDM Metals, Indutherm, ZOZ, RISE IVF, KME Germany, KIT Cracow, DECHEMA, IPM Brno, UCM Complutense University of Madrid, Hochschule Osnabrück, Université de la Rochelle, and Linde. topAM is a 4-year project valued at €6 million.

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About QuesTek Europe AB

QuesTek is a global leader in Materials Design and Integrated Computational Materials Engineering (ICME). Founded in 2016 as a corporate joint venture between QuesTek International LLC and Thermo-Calc Software AB, QuesTek Europe brings together QuesTek USA’s Materials by Design™ expertise with the computational software development expertise of Thermo-Calc Software. By doing this, QuesTek Europe are able to offer ICME technologies and modelling services, as well as designed novel materials, to the European market. For more information about QuesTek Europe, visit www.questekeurope.com or contact info@questekeurope.com.