

Master thesis project

Surface engineering of Copper powder

This master thesis is a joint project between Graphmatech, Sandvik Additive Manufacturing, and Uppsala University.

Background

Copper is one of the key materials that will play a significant role in the electrification of our society going forward, due to its electrical- and thermal conductive properties. Sandvik is a large manufacturer of fine copper powders for various manufacturing technologies such as metal-injection moulding and additive manufacturing. There is an increased market interest for copper powders with a stable oxygen content, a property that is strongly connected to the products shelf life.

Graphmatech is a material development company that develops and sells metal graphene composites. Sandvik and Graphmatech are together with Uppsala University interested in exploring how one with surface engineering of copper powder can influence the oxidation properties.

Project description

The aim of this project is to gain a deeper understanding on how one can change the surface properties of copper to create a more stable product without influencing the final product properties. The student will investigate different chemical ways to treat powder and then evaluate how this influence the oxidation and powder properties. The laboratory work will be performed at Graphmatech in Uppsala, powder analysis will be made at Sandvik Additive Manufacturing in Sandviken and material characterisation at Uppsala University. The project will consist of a short literature survey to search for suitable chemistries to evaluate, designing a test matrix, laboratory work, oxidation trials, material- and powder characterisation.

About you

We are looking for a self-motivated candidate and can take own initiatives and are interested in gaining a deeper understanding on how to influence the surface properties of a material. You will be joining a great team with a scientific focus together with a strong connection to the product and production process.

Apply & Further Information

Marie Vennström, Business development manager at Graphmatech

Marie.Vennstrom@graphmatech.com, 073 - 80 66 324

Rickard Sandberg, Powder R&D Manager, Sandvik Additive Manufacturing

Rickard.Sandberg@sandvik.com, 070-388 65 69