

PRESS RELEASE

BMFTR “Fusion 2040” Funding Program:

H.C. Starck Tungsten Developing Tungsten Powders for Fusion Reactors

Mission-Critical Contribution to a Revolutionary Future Technology

Goslar, GERMANY, July 15, 2026 – H.C. Starck Tungsten is developing specialized tungsten powders as a vital component to help build Germany’s first fusion reactor. The project is part of the German Federal Ministry of Research, Technology and Space’s (BMFTR) multi-billion-euro Fusion 2040 funding program, which aims to bring the first power plants based on this revolutionary technology into operation around 2040.

The Goslar-based company will supply tungsten metal powders for producing components used to line the interior walls of the fusion reactor. This lining, known as the “first wall”, shields the reactor structure from the plasma burning inside the reactor, which reaches temperatures of approximately 100 million degrees Celsius — hotter than the sun.

In addition to withstanding these extreme temperatures, the reactor walls must resist particle bombardment and intense neutron irradiation. Tungsten is particularly well suited to this application thanks to its exceptional heat resistance and its unique stability under neutron exposure.

Innovative Solutions for Precision Manufacturing

“The key challenges for our research and development team lie less in the protective properties of the tungsten alloys themselves — which we are already familiar with from other applications — and more in their mechanical processing, which we expect to be based on additive manufacturing,” says Project Manager Tino Säuberlich.

“Because tungsten is inherently brittle, we are developing innovative solutions that enable high-precision manufacture of the tiles and their secure attachment to cooling elements. At the same time, maximum material purity is essential to prevent issues such as cracking, radioactive activation or oxidation caused by oxygen inclusions.”

Contributing to an Integrated Technology Initiative

Testing the manufacture of these components and their performance when exposed to plasma will require Germany to establish dedicated testing infrastructure in the years ahead.

“This is where close collaboration between industry, research institutions and policymakers becomes essential,” Säuberlich explains. “Given the extraordinary complexity of the project, every participating organization is dependent on the expertise and achievements of its partners. Quite apart from the initiative’s visionary objective, it is this collaborative approach that makes it so fascinating.”

Julia Meese-Marktscheffel, Director Technology & Innovation Global, adds: “Our involvement in the ‘Fusion 2040’ program demonstrates that our understanding of innovation extends far beyond short-term solutions and also addresses the technological challenges of upcoming decades.”

Step by Step Toward Industrial Application

The aim of Fusion 2040 is to establish fusion technology as a climate-neutral, safe, affordable and baseload-capable source of energy while positioning Germany as a key player in this industry of the future. The roadmap is following clearly defined development stages with the current research and development phase being followed by technology transfer to industrial applications in the early 2030s and the commissioning of initial demonstration reactors during the 2040s.

Making progress in key enabling technologies and establishing a high-performance industrial ecosystem are considered to be critical first stepping stones to success and this is why the German government is providing substantial funding, both for the long-term financing of research institutions and for the targeted support of industrial development projects.

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About H.C. Starck Tungsten Powders

H.C. Starck Tungsten, a subsidiary of Mitsubishi Materials Corporation, is the world's leading manufacturer of high-quality tungsten powders tailored to individual customer requirements. The company combines one hundred years of experience in the recycling and processing of tungsten with a high level of innovation and technological expertise. H.C. Starck Tungsten Powders employs around 560 people at three production sites in Germany, Canada and China as well as sales offices in the USA and Japan. The company headquarters are located in the largest production facility in Goslar.

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