

Plasma sintering application on advanced breeding functional materials for fusion applications

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Beryllium intermetallic compounds, known as beryllides, such as Be₁₂Ti and Be₁₂V, are highly promising advanced neutron multipliers for JA demonstration (DEMO) fusion power reactors due to their low swelling and high stability at high temperatures. Advanced neutron multipliers are being developed by Japan and the EU as part of their Broader Approach (BA) activities within the International Fusion Energy Research Center (IFERC) project.

We have conducted research and development on beryllides in the past decade, targeting a high density including high stability under severe environments. According to many trials and errors to establish the optimized conditions for high density. By this experience, the tendency of the density depending on the sintering conditions has been well understood and we have succeeded to establish database on dependence of the sintering density on sintering conditions, temperature, time and pressure for these materials.

In this study, we will address an overview of R&Ds on plasma sintering process for beryllides, focusing on temperature dependence to density and several properties.

Professional Status of the Speaker

Senior Scientist

Interest in submitting a paper in a special issue of

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Invitation letter for visa

No

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