

# Current R&Ds on plasma sintering for advanced neutron multiplier for fusion applications

JA demonstration (DEMO) fusion power reactors have adopted an advanced blanket design loaded with advanced neutron multiplier, beryllium intermetallic compounds (beryllides, in specific, Be<sub>12</sub>Ti) due to their low swelling, high thermal conductivity, 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.

This study evaluates the mechanical properties of beryllide (Be<sub>12</sub>Ti) fabricated using plasma sintering process. To investigate the effect of sintering temperature on the density, hardness, etc. of Be<sub>12</sub>Ti, in specific, plasma sintering was performed at various temperatures and evaluated by several experiments. When beryllide was sintered at 1200 °C, the density of beryllide was evaluated to about 100%.

In this study, we reported dependence of sintering density on sintering conditions, details on the experimental results and address how we consider scaleup process to fusion applications.

## Professional Status of the Speaker

Senior Scientist

## Interest in submitting a paper in a special issue of

No interest

## Invitation letter for visa

No

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