

## Comparative study of fusion relevant properties of Be<sub>12</sub>V and Be<sub>12</sub>Ti

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Beryllides (Be<sub>12</sub>Ti, Be<sub>12</sub>V, etc.) are expected to be promising materials for advanced neutron multipliers for DEMO blanket. It is already reported that, in comparison to pure beryllium, they have some outstanding characteristics – higher melting points, better tritium release parameters and compatibility with structural materials. However, there is still a lack of knowledge of some properties which play important roles in the case of the use of beryllides in the fusion reactor.

Be<sub>12</sub>Ti and Be<sub>12</sub>V specimens provided by Brush Wellman Inc. were investigated. This study comprises the investigations of microstructure by means of X-Ray diffraction analysis and optical microscopy. Uniaxial compression tests were implemented in the program of characterization of beryllides aiming to study mechanical performance of samples under constant loads at different temperatures. Also, the oxidation behavior of beryllides after annealing tests at 600 and 800 °C in the ambient atmosphere was studied by means of Ion Beam Analysis using Rutherford backscattering (RBS) and Particle-induced X-Ray emission (PIXE) techniques. The thickness of the oxide surface layers was evaluated for both kinds of beryllides. Comparative analysis of the investigated properties of Be<sub>12</sub>Ti and Be<sub>12</sub>V is disclosed in this work.

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