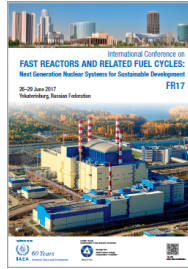


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## Fabrication process of NpO<sub>2</sub> pellets

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In order to increase dissolution ratio of the irradiated NpO<sub>2</sub> targets, it's necessary to add a little diluent into NpO<sub>2</sub> pellet. In this paper, pressureless sintering processes and microstructures of NpO<sub>2</sub>-10% CaO, NpO<sub>2</sub>-10%SrO, NpO<sub>2</sub>-10%MgO and NpO<sub>2</sub>-5%MgO pellets were studied, sintered at 1730°C for 2 hours in Ar-5%H<sub>2</sub> gases. Only NpO<sub>2</sub> solid solution phase structure was found in all the pellets. NpO<sub>2</sub>-10%CaO pellet melts at the sintering process. NpO<sub>2</sub>-10%SrO pellet has a sintered density of 60.0% TD with cracking and porous microstructures. NpO<sub>2</sub>-10%MgO pellet has a sintered density of 83.1%TD with irregular grains. NpO<sub>2</sub>-5%MgO pellet can be sintered to 90.0%TD with cobble grains. Density of NpO<sub>2</sub>-5%MgO pellet will increase to 92.5%TD using UO<sub>2</sub> powder embedded sintering process.

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