Neutronics analysis on mini test fuel in the RSG-gas core/Tukiran S, Tagor MS

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Abstrak

Research of UMo fuel for research reactor has been developing right now. The fuel of research reactor used is uranium low enrichment with high density. For supporting the development of fuel, an assessment of mini fuel in the RSG-GAS core was performed. The mini fuel are U7Mo-Al and U6Zr-Al with densitis of 7.0gU/cc and 5.2 gU/cc, respectively. The size of both fuel are the same namely 630x70.75x1.30 mm were inserted to the 3 plates of dummy fuel. Before being irradiated in the core, a calculation for safety analysis from neutronics and thermohydrolics aspects were required. However, in this paper will discuss safety analysis of the U7Mo-Al and U6Zr-Al mini fuels from neutronic point of view. The calculation was done using WIMSD-5B and Batan-3DIFF code. The result showed that both of the mini fuels could be irradiated in the RSG-GAS core with burn up less than 70 % within 12 cycles of operation without over limiting the safety margin. Power density of U7Mo-Al mini fuel bigger than U6Zr-Al fuel.