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Qualification of HANARO Fuel at KAERI

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ABSTRACT

In order to get a full-power(30MW) license from the regulatory body, the irradiation tests on pin-type U3Si-Al dispersion fuel, fabricated by both atomization and conventional comminution methods, have been performed in the HANARO core to verify the irradiation performance of the HANARO fuel at high power and a high burnup. Detailed non-destructive and destructive PIE, such as the measurement of the burnup distribution, fuel swelling, clad corrosion, dimensional changes, fuel rod bending strength, micro-structure, etc., were performed. It was verified through the irradiation tests that the HANARO fuel maintains a proper in-pile performance and integrity even at a high power of 121 kW/m and up to a high burnup of 85 at%.

This paper also summarize the progress of fuel localization program by adapting centrifugal atomization technology to produce HANARO driver fuel at KAERI.