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**Estimation of Pore Pressure in the Rim Region
of High Burnup UO₂ Fuel**

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Abstract

An attempt has been made to estimate the pore pressure in the rim region of high burnup UO₂ fuel as a function of rim burnup using the measured rim width, average porosity and pore density in the rim region. First, a linear relationship is developed based on measured rim burnup and rim width. Second, fraction of fission gas retained in the grain boundary of rim region is estimated. Third, total pores in the rim is calculated from the measured pore density in the rim region. Finally using the assumption that all the pores in the rim have the same size of 1.2 μm , pore pressure is calculated from the equation of state for ideal gas. An estimated pore pressure of about 60 to 80 MPa for the rim burnup of 90 GWd/tU appears to be in reasonable agreement with other value given in a literature that pore pressure at 800 K become 90-210 MPa for pellet average burnup of 80 GWd/tU.