Mo$^{100}$ to Mo$^{99}$ Production Target: Design, Analysis and Test Status

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ABSTRACT

The target for the Northstar Mo99 production facility is approaching the final stages of design. The desire to maximize production using a minimum amount of Mo100 target material has driven the design to a very high power density target, 120 kW$_{th}$ in 27 cc, or 4.4 kW/cc average. This requires cooling at a heat flux greater than 1000 W/cm$^2$. The target design, predicted temperature and stress states, and experimental results will be presented.