BISON: Nuclear Fuel Performance Code

A finite element-based tool for modeling various nuclear fuel forms, solving thermomechanics and species diffusion equations in complex geometries.

BISON is a finite element-based nuclear fuel performance code. It is applicable to light water reactor fuel rods, TRISO particle fuel, metallic rod and plate fuel, and other fuel forms. BISON solves thermomechanics and species diffusion equations for 1D, 2D and 3D geometries, with fuel models that describe temperature properties, fission product swelling and other material aspects. Because it is based on the MOOSE framework, Bison can solve problems efficiently using standard workstations or very large high-performance computers.

This software is a controlled nuclear code, subject to a special release process due to its sensitive nature. To request access, please visit the Nuclear Computational Resource Center and create an account.

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