

REACTOR CAVITY AND CORE BARREL DESIGN FOR SALT COOLED HIGH TEMPERATURE REACTORS

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PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,189,384	11/30/2021	2012-091
United States Of America	Issued Patent	9,773,574	09/26/2017	2012-091

BRIEF DESCRIPTION

Researchers at the University of California, Berkeley have designed a reactor cavity, reactor vessel, and core barrel system that has desirable features for use with fluoride salt cooled high temperature reactors (FHRs). The FHRs offer two potential advantages: smaller equipment size, because of the higher volumetric heat capacity of the salts, and the absence of chemical exothermal reactions between the reactor, intermediate loop and power cycle coolants for increased safety. The FHR is a pool type reactor, with a reactor vessel design similar to that commonly used in pool-type sodium fast reactors (SFRs). General design practice in SFRs is to have a separate guard vessel to maintain the coolant inventory in the primary system if the reactor vessel leaks or ruptures.

This invention uses a different design approach that eliminates the need for a guard vessel. The design also provides useful structures to hold intermediate and emergency cooling heat exchangers and other equipment needed for operation of the reactor.

APPLICATIONS

- » Fluoride salt cooled high temperature reactors (FHRs)

ADVANTAGES

- » Lower cost design with increased efficiency.
- » May have safety advantages during earthquakes and other natural disasters.

RELATED MATERIALS

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

- » **Energy**
- » Other

RELATED CASES

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