

In a frame of Russian DEMO Program and our participation in ITER activity a helium cooled lithium ceramic breeder with beryllium as a neutron multiplier is one a variant of tritium breeding zone (TBZ) for a blanket. It is proposed to test the manufactured Test Blanket Modules (TBM) developed on a base of the researches in ITER and follow to design the blanket for DEMO. The program of TBM development includes R&D of TBZ materials and tritium technologies. To test TBZ of TBM installation functional in-reactor investigations tritium-breeding models (RITM-F) was developed, designed and fabricated. RITM-F contains five parts: reactor assemble, tritium gas system, cooling system, control and monitoring systems and processing of experimental data. Two models of TBZ were tested at IVV-2M nuclear reactor and tritium extraction from lithium ceramic breeder materials was investigated. The results of the in-pile experiments are applied to development of TBM TBZ. During operation some modifications were made, maintenance processes were developed to provide a radiation safety under operation. Results of in-pile experiments and RITM-F operations are presented in this paper.