

Transportation capabilities of hot cell facility

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The purpose of this paper is to present new transportation cask TERA 300. The paper focuses on designing, testing and approving of this cask. This cask was designed as a part of the new hot cell facility. Design of this cask was made by ŠKODA Nuclear Engineering in cooperation with Research center Rez and company ÚJP. The main goal was to create cask with reasonable dimensions, good shielding abilities, sufficient inner space and great variability of use.

TERA 300 is designed to be used for transport irradiated samples from variable materials (e.g. steel, concrete, ceramic) with activity up to 300 TBq for ^{60}Co . The cask allows vertical and horizontal receiving with a great range of travel length. Due to the great variability of use, it is a complex machine with an electric driven travel of inner nest. Shielding material is made of lead, tungsten, and uranium.



The cask itself isn't hermetic, a hermetic function is ensured by inner hermetic capsule. The hermetic capsule is made of stainless steel. The capsule is designed in two dimensions, smaller and bigger one. The cask can accommodate 4 pcs of smaller capsules or 2 pcs of bigger capsules. Inner space of smaller version is sufficient to accommodate 1 CT sample. Capsules are designed for manipulation in the hot cell by manipulators.

The cask was produced in 2017. We made operational tests at the beginning of this year. First test was vertical receiving on the ceiling of the cells. We used non active samples for the purpose of this test. Second test was done on the manipulating stand and verify horizontal receiving. The purpose of the last test was verify shielding ability with high active source. This tests showed us some critical points and possible improvement of some parts on the cask.

The cask will be approved as a type B(U) from The State Office for Nuclear Safety at the end of the year 2018.