CASTOR® 1000/19 for Spent Fuel from VVER 1000 Nuclear Power Plants

DESCRIPTION

The CASTOR® 1000/19 cask is designed for the transport and storage of spent fuel assemblies of VVER 1000 reactors.

The cask consists of a monolithic body [8] made of ductile cast iron, a basket [6] for accommodating the fuel assemblies and a double-lid system (primary and secondary lid arranged one above the other [4, 2]) as well as a protection plate [1].

On the outside wall, radial cooling fins are machined to improve the passive heat dissipation. The double-lid system made of stainless steel is tightly bolted to the cask body guaranteeing a safe long-term containment of the fuel assemblies. During interim storage the lid system consisting of the two barriers is permanently being monitored for leak-tightness. Monitoring is performed by a pressure switch which is integrated in the secondary lid.

For neutron moderation, axial boreholes are drilled into the cask wall and filled with polyethylene moderator rods [7]. In addition, there are plates of polyethylene at the bottom end and on the underside of the secondary lid [3].

At the bottom and lid end of the cask body, two [9] respectively four trunnions [5] are bolted for attachment of handling equipment. For transport on public routes the cask can be equipped with shock absorbers.
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**LICENSES**
In combination with shock absorbers, the CASTOR® 1000/19 cask design complies with the international regulations of the IAEA for type B(U) package designs.

The cask also fulfills the requirements for long-term interim storage for a minimum of 60 years.

**REFERENCES**
For the new cask type CASTOR® 1000/19, a license as a dual purpose cask for storage and transportation in the Czech Republic (CZ) was issued in June 2010. So far 41 casks have been successfully loaded in Temelin (CZ).

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**TECHNICAL DATA**

**Cask Contents**
Max. 19 spent fuel assemblies up to 5 wt.-% \(^{235}\text{U}\) initial enrichment and a maximum burn-up of 60 GWd/tHM.

**Dimensions and Weight in the Storage Configuration**
- Overall height: 550 cm
- Outer diameter: 229 cm
- Cavity height: 463 cm
- Cavity diameter: 148 cm
- Cask weight empty: \(\approx\) 115 t