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## Experimental qualification of rotatable plug seals for Sodium Fast Reactor on a large scale test stand

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In the framework of the ASTRID (Advanced Sodium Technological Reactor for Industrial Demonstration) project, the CEA Sealing Laboratory with its partner TECHNETICS (TGF) was involved to propose a new concept of rotating plug seals to replace the commonly used liquid-metal seals. An innovative combination of static, dynamic and inflatable seals in silicone rubber ensuring double tightness-barriers for the cover gas was developed. Following the design phase and materials studies, a dedicated test stand was built to qualify the technical performances of these seals. The large size of the test stand composed of a 2.5 m diameter rotating plates was chosen to provide a small profile height on seal diameter ratio, and a volume of enclosed gas large enough to allow representative qualification of tightness test methods. After a description of the test stand, the paper presents the main outcomes of the technical qualifications (mechanical behavior, sealing performance, endurance test) led on several seals design.

### Country/Int. Organization

France

**Primary author:** Mr VULLIEZ, karl (CEA, DEN, SDTC, Laboratoire d'Étanchéité, 30207, Bagnols Sur Cèze France.)

**Presenter:** Mr VULLIEZ, karl (CEA, DEN, SDTC, Laboratoire d'Étanchéité, 30207, Bagnols Sur Cèze France.)

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