

Since the beginning of the 1990s', several experimental series have been performed

at the Hungarian Academy of Sciences KFKI Atomic Energy Research Institute (AEKI)

with E110 and Zircaloy claddings.

The aims of these experiments were to study and to compare the mechanical properties

of the cladding materials and to investigate the effect of oxidation and hydrogen

uptake on the mechanical performance of the claddings under accident conditions.

The objectives have been achieved through separate effect tests with well defined

conditions.

The main results of the tests have been collected into the Experimental Database of

E110 Claddings under Accident Conditions. The database involves the data of several

experimental series in the following main directories:

- Cladding ballooning tests (more than 170 tube tests).
- Tensile tests with tube and sheet specimens (more than 100 samples).
- Oxidation tests between 500-1200 °C.
- Ring compression tests (more than 100 samples).

Most of the tests were carried out with E110 cladding, but several experimental

points were produced with Zircaloy-4 cladding as well for comparison purposes.

The database includes not only the on-line measured data, but the results of post-test

examinations (visual observations, metallographic analysis, SEM analysis).

Experimental technical reports and some selected papers describing the tests are also

available in the database.