

Preparation of experiments at CVR Hot-cell

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Paper presents the preparation for new experiments and first measurements done in hot-cell facility at CVR (Research centre Rez).

The hot cell facility were built within the project SUSEN (Sustainable Energy) at CVR (Research centre Rez). The project uses existing building converted for the purpose of placement of new hot cells. Within this project a new complex of 10 hot cells and one semi-hot cell. Our facility allows work with radioactive samples with activity up to 300 TBq ^{60}Co and with dimension of 2 CT.

Presentation is focused on preparation of new method of swelling measurement (dimension change) of small specimens, cladding testing and first results on active materials.

Using the replicas of surface of highly irradiated specimen with modern 3D scanning device and computer 3D modeling we can replicated the specimen shape. With measuring before and after irradiation even very small changes in dimension (volume or surface) can be described. Also with some 3D modeling surface damage can be excluded from the measuring.

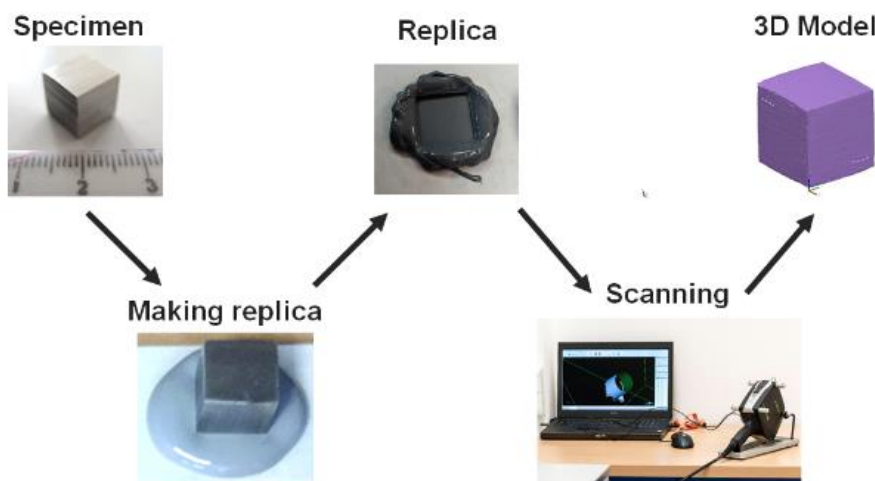


Figure P9: Schematic procedure.

Two type of specimen holder were design for two shapes of cladding specimen for tensile and creep test. During preparation work 3D printer was used for quick production of prototype holder during the evolution of construction design. This process allowed to shorten the time for preparation of infrastructure for new test and specimen shapes.

First SEM and nanoindentation results will be presented. The SEM is equipped with EBSD and WDS sensors and nanoindentation device is equipped with heating table and multi-indent head.