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**Manufacturing Progress Status of EMPIRE UMo
Irradiation Experiment**

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ABSTRACT

In the framework of the joint international efforts to reduce the risk of proliferation by minimizing the use of highly enriched uranium, a research reactor fuel based on uranium-molybdenum (UMo) alloys is being developed by the HERACLES group in close collaboration with US DOE and partners from all over the world. HERACLES is composed of AREVA-NP (former CERCA), CEA, ILL, SCK•CEN and TUM. HERACLES works towards the qualification of UMo fuels, based on a series of comprehension experiments and manufacturing developments.

The European Mini Plate Irradiation Experiment (EMPIRE) is an irradiation experiment funded by US DOE to support the HERACLES European conversion program. This test was designed to answer specific questions of the comprehension phase and to study effects of different parameters on performance: such as particle size distribution, coating microstructure, heat treatment, fission rate, etc. It will be irradiated in ATR reactor (U.S.A.) in 2017.

We will present the EMPIRE manufacturing project and the status of the LEU mini-size plate production. The focus will be made on the LEU UMo dispersed mini-plates.