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## CORROSION OF 12X18H10T STEEL IN Ce-, Nd- AND U-CONTAINING MOLTEN LiCl-KCl EUTECTIC

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The present work is aimed at the study of the 12X18H10T steel corrosion in the molten LiCl-KCl eutectic, which contains different proportions of CeCl<sub>3</sub>, NdCl<sub>3</sub> and UCl<sub>3</sub>.

The CeCl<sub>3</sub> and NdCl<sub>3</sub> concentrations varied within the interval of 0.2-5.0 mol.%, and the UCl<sub>3</sub> concentration varied within the interval of 1.0-2.5 mol.%. The temperature of the experiments was 500 °C. The composition of the melts under study was close to the composition of real electrolytes, which appear at the nitride SNF processing.

The basic method of study is the gravimetric method with the exposure time from 24 to 100 hours. Atomic-adsorption, micro X-ray spectral and X-ray structural methods were used for samples analysis.

The first component of selective dissolution in the steel under study was Fe. Chromium and manganese dissolution degrees were the smallest. The presence of UCl<sub>3</sub> in the melt was found to have the largest impact on corrosion. The corrosion rate is rather small. For example, in the melt containing 1 mol.% of NdCl<sub>3</sub> the corrosion is equal to 1.93 g/(m<sup>2</sup>-h), and in the (LiCl-KCl)eut. + 1%CeCl<sub>3</sub> + 1%NdCl<sub>3</sub> + 1%UCl<sub>3</sub> melt it is 2.61 g/(m<sup>2</sup>-h).

The corrosion mechanism was found to be electrochemical.

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