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Study on hydrogen retention produced from reaction of FLiNaK in ECR plasma HYUNJAE PARK, YONG-SUP CHOI, TAIHEOP LHO, PLASMA FUNDAMENTAL TECHNOLOGY DEVELOPMENT TEAM — In this study, hydrogen retention from the interaction between an electron cyclone resonance (ECR) plasma and a molten salt, has been experimentally investigated. FLiNaK, which is comprised of LiF (46.5 mol%), NaF (11.5 mol%), and KF (42 mol%), has been used as a molten salt. The molten salt was prepared at the base pressure of 2×10^{-6} torr and 500°C which is above the melting point. However, the chamber pressure was increased up to 3×10^5 mTorr owing to the outgassing from the mixture. The experiments have been performed at the working pressure of 1 mTorr at different reaction times. The electron temperature and the ion density in hydrogen ECR plasma were measured by making use of Langmuir probe. Retention of hydrogen in FLiNaK was investigated by means of TDS (Thermal Desorption Spectrometry) method. The chemical species produced from the interaction between the plasma and the molten salt by an optical emission spectroscopy (OES) and a residual gas analyzer (RGA) have been also observed.

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