

Molten LiCl distillation for developing a post -treatment process of electrolytic reduction process

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Molten salts are useful electrolytes for treating non -ferrous metals. LiCl has a stable features against radiation and high temperature due to its relatively simple structure in liquid while exhibiting a substantial thermal and electrical conductivity. LiCl is adopted as a electrolyte medium of a electrolytic reduction process in pyroprocessing for treating spent fuels (SFs). Oxides are used as a cathode and metals are recovered after a reduction by electrochemical means. Due to the loss of oxygen the oxides become porous and, as a consequence, molten LiCl fills the pores after the electrolytic reduction process. The accompanied salt should be removed before the recovered metal is treated in the following electrorefining process of pyroprocessing. In this study, we investigated the distillation of LiCl under high vacuum to remove the salt from porous solid. Under various distillation conditions we measured the distillation rate of LiCl and found the vacuum distillation could be applied as a post -treatment process of the electrolytic reduction process.