

### Electrochemical Stability of Ionic Clathrate Hydrates with the Change of Temperature condition

임동욱, 이원희, 이 혼\*  
KAIST  
(h\_lee@kaist.ac.kr\*)

The ionic clathrate hydrates, known for distinguishing crystalline structures and high ionic conductivity, have been researched as novel solid electrolytes of electrochemical systems. In the present work, we investigated the electrochemical stability of several representative ionic clathrate hydrates at various temperatures. Electrochemical stability of the ionic hydrate complexes can be represented by measurement of the electrochemical window, also called as potential window, from linear sweep voltammetry (LSV). Potential windows of various superionic conductive tetraalkylammonium hydroxide hydrates were measured. It was revealed that different hydrate crystal structures affected the electrochemical stability and the ionic clathrate hydrates had the tendency to possess wider potential window at lower temperature.