

Relationship between capacity and PMMA size in free-standing MXene( $\text{Ti}_3\text{C}_2\text{T}_x$ ) hollow shells  
film for a lithium-ion battery

민규덕, 유필진<sup>†</sup>  
성균관대학교  
(pjyoo@skku.edu<sup>†</sup>)

Recently, various research have been reported that MXene shows superior electrical performances in energy storage system. Since MXene has both of the high electrical conductivity and moderate capacity, it is a promise material for energy storage devices such as lithium-ion batteries and Na-ion batteries. However, merely stacked 2D MXene film shows lower performances than it is expected. Meanwhile, it has been reported that the film exhibits a high energy density when using a 3D hollow structure. Inspiring from research, in this study, We have investigated lithium ion battery capacity and lithium ion conductivity according to the size of 3-D Mxene hollow shell. To adjust sizes of the hollow shell, we have used various sizes of PMMA particles and coated the particles surfaces by MXene film, and followed by sintering to fabricate the hollow shell.

Keywords: Mxene, PMMA, anode, lithium battery, conductivity