

Converting rice husk to silicon with high purity and porosity for anode materials in Li-ion battery

정대수, 송동수, 박승빈*
KAIST
(seungbinpark@kaist.ac.kr*)

Recently, social concerns and importance over ‘green growth’ and ‘renewable energy technology’ has increased, which result from the increase of cost of fossil fuels and climate change. One of the critical technologies for accomplishing the ‘green growth’ would be to recycle waste products generated in the manufacturing process of products. In Korea, one of the major wastes is rice husks, generated from the production of rice. The annual rice production in the world is approx. 1 billion metric tons, of which about 20% is rice husk. However, its utilization has been limited to just low-value application in agriculture area such as stockbreeding rug, bed soil and lagging materials because of their tough, woody, abrasive property. Many researchers endeavor to increase their added value. Especially, efforts of utilization of rice husk focus on production of silicon-based materials, including SiC, Si₃N₄, SiO₂ and high grade Si, because of the high silicon content in rice husk. In this work, we developed a refinery process for integrated usage of rice husks and increase of the value of rice husks and examine a possibility of the rice husk as new source of silicon with high purity and porosity for anode materials in Li-ion battery.