

Hydrogen Sulfide Adsorption on Nano-Sized Zinc Oxide/Reduced Graphite Oxide Composite at Ambient Condition

박문규, SONG HOONSUB¹, 남성찬², 이광복*
충남대학교; ¹UNIVERSITY OF WATERLOO;
²한국에너지기술연구원
(cosy32@cnu.ac.kr*)

This paper presents new insights on the synthesis of nano-ZnO on reduced graphite oxide (rGO) composite via a microwave-assisted route and its use as a potential sorbent to adsorb hydrogen sulfide (H₂S) at ambient conditions. Depending on the synthesis methods, the nano-sized ZnO on rGO presents different characteristics, in particular the the degree of nano-ZnO dispersion on the surface of the rGO. Microwave-assisted reduction was able to offer a mild reduction to the oxygen-containing functional groups attached on the surface of graphite oxide (GO). Because those functional groups act as anchor sites for metal ions, it was possible to achieve uniformly distributed nano-sized ZnO particles on the surface of the rGO sheets. H₂S adsorption tests at ambient conditions were conducted. The adsorption capacity increased dramatically for the microwave-assisted composite compared to the composite manufactured using the reflux method. Possible reasons for this difference have been discussed.