

## Biodegradation of nonionic and anionic surfactants by a mixed culture

이유진, 김상준, 박지연<sup>1</sup>, 이승우<sup>2</sup>, 양지원\*  
한국과학기술원; <sup>1</sup>한국에너지기술연구원; <sup>2</sup>(주)에코솔루션  
(jwyang@kaist.ac.kr\*)

The biodegradability of 8 nonionic surfactants and 4 anionic ones were investigated by a mixed culture of aerobic microorganisms. The nonionic surfactants were generally well-degraded and the degradation rates were different depending on their structure: Brij series (Brij 30, 56, 76, 97 and 98) > Span 20 > Tergitol 15-S-7 > Tween 80. Although the alkyl chain length and the number of oxyethylene group were different for Brij surfactants, all of 5 Brij surfactants were rapidly degraded because the structure of linear alkyl ethoxylates is simple enough for the microbes to decompose. Anionic surfactants were decomposed in order of SDS > Aerosol OT > SDBS > Calfax 10L. SDBS and Calfax 10L which contain the benzene ring in their structure were hardly degraded. The degradation rate and the tendency of anionic surfactants were not much affected by the concentrations at sub- and supra-CMC.