Quantification of the Silver Nanoparticle Released into an Aquatic Environment due to the Use of Silver Nanoparticle Contained Soaps

박준수, 곽병규, 배은주, 이정진, 김영훈[1], 이종협*
서울대학교; [1]광운대학교
(jyi@snu.ac.kr*)

The continuing increase in the use of nanomaterials in many consumer products will cause to increase the non-intentional exposure of nanomaterials into human and environment. Especially, ca. 20% of nano-consumer products contain silver nanoparticles (AgNPs), which may have toxic to aquatic organisms. Reliable data on nanomaterials released from consumer products are required to evaluate the environmental effects. In this work, we selected two commercially available "silver-soaps", containing AgNPs, and quantified the amount of AgNPs/ions released during the use of these soaps via EPA SW 846 Method 3050B. The presence of AgNPs in the soap and washed water was confirmed by microscopic analysis (SEM, TEM, and EDX). Based on the results, the estimation of AgNPs released from the "silver-soaps" was used to calculate exposure factor of AgNPs into the aquatic enviroment.