Comparative LCA of Sulfur Polymer Cement and Portland Cement applied in Korea

김현태, 박진원*
연세대학교 화공생명공학과
(jwpark@yonsei.ac.kr*)

Since 1970s, the amount of sulfur collected from industry using fossil fuels has increased in the world. In Korea, the oversupply of sulfur in Korea started to happen from 2003. If this sulfur would not be reduced with appropriate technology, enormous treatment cost of sulfur would be rapidly increased.
One of the solutions for this problem is developing sulfur to Sulfur Polymer Cement (SPC). It has a high strength, rapid setting and high resistant for acid and salt. There are several researches for optimizing the condition to make the SPC. Through these results, it is essential to evaluate the environmental effect of SPC comparing to conventional Portland cement production process because lots of carbon dioxide emitted in cement industry in Korea.
In this study, we report the Life Cycle Assessment (LCA) analysis for producing SPC and Portland cement which applied in Korea with appropriate assumption to expect the amount of carbon dioxide and environmental impacts and confirm the impact of using SPC instead of Portland cement.