ABSTRACT

Optimization of synthesis Enrich superphosphate fertilizer process could be made from rock phosphate (Egypt and China) with acidulation partial sulfuric acid-phosphoric acid mixing with ratio 1:1.35 (mix acid) and water content is a role of this process. Optimization is made with mixing rock phosphate +200 mesh with mix acid and gradually water content increased and the result are collected until five days, and it were detected to calculated total phosphate content, total phosphate citric soluble and acidity. The result are addition water content in Enrich superphosphate fertilizer synthesis from rock phosphate and added the mixing sulfuric acid 98% and phosphoric acid 85% with ratio 1:1.35 are carried out optimum condition about 10-15%. For phosphate rock from China is optimum with addition 15% water and the result specification are $P_2O_5$ water soluble content 29.51%, $P_2O_5$ citric soluble content 33.26%, $P_2O_5$ total content 34.51% and monocalcium phosphate 25.01%. For phosphate rock from Egypt is optimum with addition 10% water and the result specification are $P_2O_5$ water soluble content 27.78%, $P_2O_5$ citric soluble content 29.32%, $P_2O_5$ total content 30.74% and monocalcium phosphate 24.73%.