**Effects of Aggressive Ammonium Nitrate on Durability Properties of Concrete using Sandstone and Granite Aggregates**


## ABSTRACT

The storage of chemical fertilizers in concrete building often leads to durability problems due to chemical attack. The damage of concrete is mostly caused by certain ammonium salts. The main purpose of the research is to investigate the durability properties of concrete being exposed to ammonium nitrate solution. In this investigation, experiments are conducted on concrete type G50 and G60. The leaching process is achieved by the use of 20% concentration solution of ammonium nitrate. The durability properties investigated are water absorption, volume of permeable voids, and sorptivity. Compressive strength, pH value, and degradation depth are measured after a certain period of leaching. A decrease in compressive strength and an increase in porosity are found through the conducted experiments. Apart from that, the experimental data shows that pH value decreases with increased leaching time while the degradation depth of concrete increases with leaching time. By comparing concrete type G50 and G60, concrete type G60 is more resistant to ammonium nitrate attack.