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GAMMA ACTIVITY AS A GUIDE FOR THE BUILDING RAW MATERIALS SELECTION AND CONTROLLING THE ENVIRONMENTAL HAZARDS

The spectrometric measurements can provide an alarm for the radiation activity and radioelement concentrations. The activity increase over the ambient background can be achieved by well calibrated gamma-spectrometers. In comparison between Wadi El-Dahl and Abu Zawal quarries for building raw materials (feldspar), the activity concentration of El-Dahl stream sediments are 54.5 and 44.5 Bq/kg for uranium and thorium respectively. While the activity concentration of Abu Zawal rock quarry are 167.03 and 79.77 Bq/kg for uranium and thorium respectively. These activities yielding effective dose rates of 0.63 mSv/y for Wadi El-Dahl stream sediments and 1.48 mSv/y for Abu Zawal rock quarry. In summary, the spectrometric measurements are excellent selective tool to monitoring the environment against the radiation risk. In this aspect, Wadi El-Dahl stream sediment quarry considered as the more suitable for producing feldspar as a raw materials to building industry. In comparison, Abu Zawal rock quarry has a higher effective dose rate exceeds the international permissible limits which is 1 mSv/y. A total of 19 feldspar samples were completely described regarding their general chemical features by using x-ray fluorescence. From the study all the samples contain high concentration of barium and rubidium which can separate using different methods in order to use in different important industry.

Keywords: ground spectrometric survey, x-ray fluorescence, feldspar.