

Forty samples from thirteen different types of building materials cement, wood, marble, granite, gypsum, brick, sand, ceiling for ceramic ceramic, iron, aluminum, insulators for water, and paints, used in Jeddah were analyzed by a gamma spectrometer based on HP Ge detector. Concentrations in Bq/kg dry weight for natural radioactivity, the Ra-226 and Th-232 series, as well as K-40 and the fall out Cs-137 were measured. Also the Ra_{eq} were determined Bq/kg for each sample to the value 370 Bq/kg permissible limit of the dose rate (1.5 m Sv/y).

The penetrability of Rn for some samples (cement, marble, granite, gypsum, brick, sand, ceramic, insulators for water), were checked from the criteria (equation 2); (Bossew et al, 2003). The exposure and the dose rate one meter above the earth nGy/h & annual dose m Gy were calculated for each samples, As well as the external burden factor Hex were checked .

Concentrations for all the samples except one ceramic sample and two granite samples are relatively high, gives Ra_{eq} higher or around 370 Bq/kg. Also; the high concentrations of ^{40}K of some wood sample, 2109 Bq/kg increases the absorbed dose. The results indicated that all the samples collected from the market used as building materials in Jeddah are safe in general for the radioactivity levels