Document Type	:	Thesis
Document Title	:	*Cement analysis by studying the gamma-ray spectrum due to thermal neutron capture* *تحليل الأسمنت بدراسة الطيف الجامي الناتج عن أسر التيوترونات الحرارية*
Document Language	:	Arabic
Abstract	:	The elemental qualitative analysis and estimation of the ratio of two cement samples before and after fabrication have been achieved in this work using the prompt gamma-ray neutron activation analysis technique (PGNAA). A (1.85 X lollBq 241 Am-Be) isotopic neutron source was used for irradiation of a standard sample of Polyinyle Chloride (P. V .C) used for energy calibration in addition to some radioactive standard sources. The prompt gamma-ray spectrum for each sample has been collected. The result obtained shows that, more than (183) gamma-ray lines were identified belonging to the elements; H, B, N, Na, Mg, AI, Si, P, 5, CI, K, Ca, Sc, I Ti, V, Mn, Fe, Cu, Zn, Ni, Sr, Cd, Sb, Pr and Nd. Some of these elements are considered as background such as H, B, CI and Cd. In order to identify these energies a computer program in addition to calibration curve are used. If the principles applied for elements identifation is presented. The ratios between the values of some important elements obtained in the two cement samples spectra have been calculated for Fe, AI, Ca and Zn. II It was clear from the results obtained that the concentration of some of those element such as: Ca and Zn are not changed, while the rest in case of element Al and Fe are increased. This can be attributed to the fact that the raw material before fabrication contains very small amount (traces) of these element. Before going to fabrication of cement the manufacturers normally add Aluminium and Iron to the raw material with certain percentages so that the cement can have the appropriate strength for construction and the samples before and after fabrication are different, it is impossible to have the same sample
Supervisor	:	د. عبد المنعم محمود محمد حسان ، د. محمد رياض عرفه ، د. جمال حمزة مدني
Publishing Year	:	1995