



نموذج (I) : بيانات بحث مقدم للترقية
البحث الخامس – مشترك

1- عنوان البحث

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Shielding parameters for cobalt free steel alloys

2- البيانات الخاصة بالنشر

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5- ملخص البحث باللغة الإنجليزية

Steel alloys are widely used for radiation shielding in nuclear applications since Cobalt is an expensive element, this leads to the steels is may be expensive, so it is preventing wider application and selection. So the important direction of this research is preparing cobalt-free maraging stainless steel as shielding to reduce the production cost. Therefore, seven different free-cobalt steel alloys were prepared by using an electro slag re-melting technique. Steel compound ratios were calculated by using the software WinXCOM program for Monte Carlo simulation, at energies of photon 662, 1173 and 1332 keV. The attenuation properties of these alloys were studied. Furthermore, the total of removal macroscopic cross-section, transmission number and mean free path were determined using Geant4 code for fast neutrons radiation shielding. Therefore, shielding parameter variations are applied to the steel alloys to investigate the superior shielding properties to gamma rays than other materials.