The density of the concrete is important parameter for different properties. Using different types and rates of aggregates cause different densities of the concretes. Radiation shielding properties can be varied with the density and it is important to obtain optimum density for this purposes. In this study radiation attenuation coefficients were measured by comparison of five different densities of concrete that called lightweight, semi lightweight, ordinary and semi heavyweight and heavyweight. For this purpose concretes were produced with suitable aggregate in laboratory conditions and determined some physical and mechanical properties. The total linear attenuation coefficient measurements have been obtained by a collimated beam of gamma ray from sources $^{60}$Co.

**Keywords:** Concrete, Shielding, Radiation, $^{60}$Co, Density