Due to technological developments and changes the construction sector requirements, performance expected from concrete is varies by each passing day. Anymore, as well as conventional performance of concrete (compressive strength, impermeability, etc.), the shielding performance of concrete also is expected to be higher because of radiation occurring from natural or artificial sources with electromagnetic fields emitted by their. In addition, using too rebar in the construction elements in order to increase of construction strength, is reveals the placement problem of the between concrete with rebar and leads to weakening of bond between rebar and concrete.

While heavy concrete as high segregation risk for radiation shielding is generally using in construction of buildings, the self compacting concrete is using in the construction elements with intensive rebar. The main purpose is optimum resolving for these two properties conflicting with one another. In this study, some fresh (unit weight, slump flow) and hardened (ultrasonic pulse velocity, compressive strength) properties of self compacting concrete including hematite and limestone aggregates produced using two different cement (CEM I 42.5 R and Aluminate), three different dosages (300, 400 and 500 kg/m3) were investigated.