Boriding effect on the tensile properties, microhardness and radiation shielding has been studied. While boriding increased the hardness of AISI 304 steels from 240 to a maximum value of 1740 HV0.1, elongation and maximum stress clearly showed decreasing values. The borided specimens were more capable in stopping the high energy photons and boriding improved the radiation shielding properties of the AISI 304 steel. From obtained results, it has been concluded that borided AISI 304 stainless steels can be used as a radiation shielding for X-rays.