In this study, boriding thermochemical process was applied to samples prepared from ferrous-based powder metal (P/M) materials with four different chemical components using in the automotive industry and compared with each other. In the boriding process; all samples were stored in solid medium at 900 oC for 5 hours using commercial powder (Ekabor-1) and left to cool in furnace. And then, optical microstructure, microhardness and layer thicknesses of the samples were measured. In addition, the morphology and phase structure of the obtained boron layer are investigated. According to the obtained results, it was evaluated that the surface properties of ferrous-based P/M materials could be improved by boring.