

One reason for the use of hydroxyapatite as a bone substitute is because its chemical composition is similar to the mineral phase of human bones. The element added in the formation of Hydroxyapatite is Borosilicate (Borax and Silica). For the formation of the test specimen, printing with different compressive forces that is 30 kg / cm<sup>2</sup>, 40 kg / cm<sup>2</sup>, and 50 kg / cm<sup>2</sup>, then sintered at a temperature of 1000 ° C. To determine the hardness value of the hydroxyapatite and borosilicate biocomposites, a Hardness test is carried out using the shore hardness test. From the results of the hardness test obtained the best value in each compressive force, namely the compressive force of 50 kg / cm<sup>2</sup> obtained at the composition of 80%: 20% with a hardness value of 97.8 SHN, the compressive force of 40 kg / cm<sup>2</sup> is also found at the composition of 80%: 20% with a hardness value of 97.5 SHN. and at a compressive force of 50 kg / cm<sup>2</sup>, there is an 80%: 20% composition with a hardness value of 97.2 SHN. This gives the conclusion that the increasing borosilicate composition the value of material hardness increases according to the compressive force and sintering temperature provided by not changing the chemical structure of hydroxyapatite.

**Keywords:** Biocomposite, Hydroxyapatite, Hardness Value, Borosilicate, Sintering