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## Structural and electrical spectroscopy characterizations of Bioglass<sup>®</sup> electrically charged by corona triode discharge system

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The demand for orthopedic implants has directed research towards the development of materials that maintain their integrity and good functioning for a long period of time without showing failures and the need for a new surgical intervention. For this, several bioactive coatings have been studied, in order to meet all needs and be the most suitable for the local conditions where they will be implanted. Thus, the 45S5 bioglass appears as a very viable option due to its positive influence on osseointegration [1]. Furthermore, it is suggested that if the surface of the bioglass is charged and/or polarized, the effectiveness of osseointegration is enhanced [2,3].

In this work, the 45S5 bioglass was structurally and electrically characterized. The samples of bioglass was charged by corona discharge and the influence of particle size, temperature and corona discharge time were verified. TSDC experiments were performed to verify charge accumulation. It was found that the temperature that would store the greatest amount of charge is 200 °C. This dielectric study was correlated with an analysis of the bioactivity data, which shows that the formation of the apatite layer is accelerated by the presence of negative charges in the bioglass samples.

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### References

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