

Lead free piezoceramic as a substitute for PZT in medical applications

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ABSTRACT

For many years PZT has been used as the active material in applications utilising the piezoelectric effect. This material has excellent piezoelectric properties and the manufacturing and post-processing technology is well established. There is, however a call for lead free substitutes due to the environmental impact and health problems of lead. This is an issue which is already finding its way into European legislation in the form of the ROHS and the WEEE directive. In recent years a few materials have been suggested as substitutes to PZT and one of the most promising compositions are based on potassium sodium niobate (KNN).

In this paper the latest development in optimisation of properties and processing of KNN will be presented. To demonstrate the functionality of the material, transducers has been manufactured and characterised.