

***REECa<sub>4</sub>O(BO<sub>3</sub>)<sub>3</sub> (REECOB): new material for high-temperature piezoelectric applications***

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Most piezoelectric components for both actuating and sensing applications are nowadays made from ceramics, mainly with perovskite structure. There are some single crystalline exceptions, the most prominent of which is quartz. Unfortunately these components are subjected to limits by means of temperature, due to physical properties like Curietemperature, melting point or phase transitions, low electrical resistivity etc. Quartz can be used below 300–350°C, the Curie-temperature for PZT-ceramics (lead-zirconate-titanateceramics) is max. 500°C. New single crystalline materials offer the possibility of working at elevated temperatures. GaPO<sub>4</sub> is one of these, expanding usage temperatures up until 900°C, langasite crystals (lanthanum-gallium-silicates) and related structures are working even in a higher temperature range, merely limited by their low electrical resistivity at elevated temperatures. In the last few years a new material was discovered which seems to display constant behaviour up until 1300°C: the REECOB family (REECa<sub>4</sub>O(BO<sub>3</sub>)<sub>3</sub>). We succeeded in growing crystals of different compositions and made some preliminary measurements on mechanical thermal behaviour. A short overview about high-temperature piezoelectric materials and first results on systematic growth of REECOB single crystals will be given.