

ABSTRACT

The present invention relates to the technical field of piezoelectric crystals, and in particular to a method for preparing a large-size lithium tantalate crystal. The method comprises the following steps: (a) molding formulated lithium tantalate raw material into a round cake with a size of $\Phi 220 \times 50$ mm by using an isostatic press; (b) placing the molded lithium tantalate raw material into a crucible, and heating the crucible to 1450–1500 °C at a heating rate of 300–400 °C/h for melting the lithium tantalate raw material into a molten liquid; (c) lowering a seed crystal to be in contact with the molten liquid, controlling the rotating speed to be 10–12 rpm/min, subjecting the seed crystal to necking to 2–3 mm, and allowing for automatic growth; and (d) controlling a cooling speed of the crystal to be 50–60 °C/h, and subjecting the crystal to static electricity elimination by using a static electricity eliminating device when the crystal is cooled to 100 °C.