

Method for growing Ag_7SnS_5 I using method of directed crystallization from melt-solution comprises stepwise heating of evacuated quartz ampoules containing the starting components: silver, tin, sulfur, and silver iodide, taken in a stoichiometric ratio, at a rate of 100 K/h up to 723 K, and holding at this temperature for 48 hours to homogenize melt of resulting charge; the growth rate of single crystals is 0.4-0.5 mm/h, and further growth of single crystals is carried out in evacuated quartz ampoules using method of directional solidification from melt-solution at a melt zone temperature of 1123 K for 140 hours. Next, annealing is performed at a temperature of 800 K for 72 hours, after which the single crystal is cooled to room temperature at a rate of 5 K/hour.