Invention relates to the field of inorganic chemistry and inorganic materials science, specifically to technology for growing $Ag_8 SiS_6$ single crystals. Method is carried out using method of targeted crystallization from melt, which includes stepwise heating of evacuated quartz ampoules containing starting components — silver, silicon, and sulfur, taken in the required stoichiometric ratio — at a rate of 100 K/hour to 723 K and keeping at this temperature for 48 hours to homogenize melt of obtained charge and grow single crystals at a rate of 0.4-0.5 mm/hour. Further growth of single crystals is carried out in evacuated quartz ampoules using method of targeted crystallization from melt at a melt zone temperature of 1290 K for 48 hours and an annealing zone temperature of 920 K, followed by annealing for 72 hours, after which single crystal is cooled to room temperature at a rate of 5 K/h. Proposed method is convenient, fast, and can be performed using standard equipment.