MSP 25 P **ZnO HYDROTHERMAL CRYSTAL GROWTH**

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Growth of large high-quality ZnO crystals is important not only for basic studies but also for applications. Hydrothermal and flux methods are regarded as inferior to the vapor growth method due to the possibility of impurity incorporation. However, the hydrothermal method has the advantage to produce large bulk crystals since crystals grow under low supersaturation.

Usually, ZnO is obtained in expensive Platinum or Gold lined autoclaves. In order to decrease the production cost of such crystals, we are proposing the use of new materials for the autoclave body.

In this paper, we present some results related to the importance of the mineraliser concentration and growth temperatures on ZnO growth. Special approaches have been used for preparation of the nutrient and seed materials. High-purity ZnO chemical reagent has been pressed into the tablets and annealed at 900°C; these pellets have been used as starting nutrient. Crystal growth occurs in mixt hydrothermal solutions of KOH, LiOH and NaOH with concentrations of 2-3M, limited by the autoclave material. The growth temperatures were ranged between 300°-370°C and the temperature difference between growth zone and dissolution zone was 10-15°C. The growth rate of the crystal obtained were 0.1–0.4 mm per day.

The obtained crystals were characterized using x-ray diffraction (PANalytical X'Pert Pro MPD), scanning electron microscope (Inspect S Phillips) and atomic force microscope (Nanosurf® EasyScan).