0.3-0.8 for NYAB and about 1 for GYAB crystals. In the case of NYAB it increases with an increase in crystallization temperature and a decrease in the crystal growth rate. The temperature and concentration ranges of the phase transitions were determined for these crystals by X-ray technique, microprobe analysis, optical and electron microscopy.

References

MS16.03.07 A NEW FLUX FOR THE RAPID GROWTH OF POTASSIUM TITANIUM PHOSPHATE (KTOPO) SINGLE CRYSTAL. M. T. Sebastian, S. Suma, N. Santha, Electronic Ceramics Division, Regional Research Laboratory, Thiruvananthapuram-695 019, India

Single crystals of the well known non-linear and electro-optic material KTOPO(KTP) has been grown using a new barium-potassium based complex phosphate flux. The solubility of KTP in this new flux is higher at high temperatures and low at low temperatures as compared to the conventional flux K2HPO4. The new flux is less viscous and hence avoids the problem of glass formation and a higher cooling rate can be given. Good quality crystals of KTP up to 6mm in size can be grown in a day by giving a cooling rate of 120 °C/day. The KTP crystals grown in this new flux are transparent, free of inclusions or elements from the flux and OH incorporation. The use of this flux indicates the possibility of growing relatively large crystals commercially in a short time.

MS16.03.08 GROWTH KINETICS OF PROTEIN SINGLE CRYSTALS IN THE GEL ACUPUNCTURE TECHNIQUE. Abel Moreno1, Juan Ma. Garcia-Ruiz2 & Manuel Soriano-Garcia1, Instituto de Química-UNAM, C.U. Coyocan 04510, Mexico, D.F., Instituto Andaluz de Ciencias de la Tierra, C.S.I.C.-Universidad de Granada Campus Pientenueva s/n 18002 Granada, Spain

This work presents the growth kinetics of protein crystal growth in the gel acupuncture technique. This new method has been proposed previously for the growth of protein single crystals (1). The main advantage of the technique is that the crystals are obtained inside an X-ray capillary tubes. The growth of single crystals of lysozyme (HEW), Thaumatin within capillary tubes was monitored by time-lapse video-microscopy. The crystals were obtained by diffusive transport of precipitating agent through capillaries of internal diameter ranging from 0.2 mm to 1.5 mm, using the gel acupuncture technique. For crystals growing from true protein solutions, the measured average growth rates vary with capillary diameter from 2.7 Å/s to 3.7 Å/s for thaumatin and from 2.8 Å/s to 22 Å/s for lysozyme. The measured average growth rates, for crystals growing into gelled protein solutions, were 1.8 Å/s for thaumatin and 2.5 Å/s for lysozyme. In all the cases, the trend in variation of the growth rate with time is similar and suggest that, for capillaries with internal diameter radius lower than 1.2 mm, protein crystals grow in gel and free solution under diffusive mass transport control. Finally, it is showed that the crystal growth rate depends on the height of the capillary tube where nucleation occurs and it is function of the internal diameter of the capillary tube.