

found that low or α -spodumene could be synthesised easily by crystallising the glass at temperatures above 750° and pressures in excess of 20 kb, if a pressure of 10 kb or more was maintained during the heating-up period. Fig. 8 shows plots of the percentage of α - and β -eucryptite crystallising out as a function of time under these conditions.

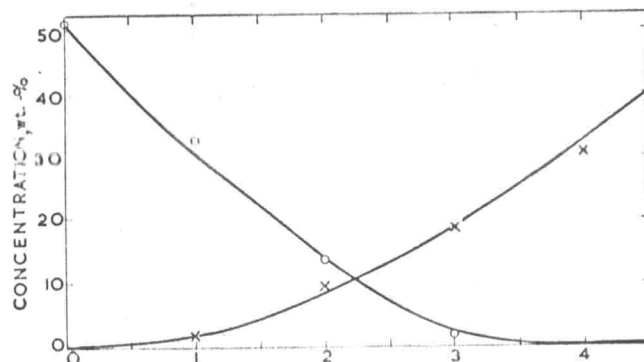


Fig. 8. Crystallisation of α (x) and β -eucryptite (o) out of glass in a constant time period as function of the pressure applied during heating up

The temperature and pressure of crystallisation are kept constant at 650° and 20 kb. Points along abscissa indicate pressure during heating 0, none; 1, 5; 2, 10; 3, 15; 4, 20 kb.

Clearly the nuclei of the high-density phases are formed at the lower temperature under pressure. However, these nuclei will *not* grow at appreciable rates below 400° , and, if the sample is heated at temperatures between 400 and 600° , the nuclei of the β -phase will form and grow faster. If the pre-formed nuclei are taken to a high enough temperature, then the growth of these α -phase nuclei predominates over the nucleation and growth of the β -phases.

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