

Figure DR1. Picture of experimental setup and schematic diagram of experimental setup. A microscope heating stage is placed on a Teflon insulating block clamped to the stage of a petrographic microscope with a digital camera. The digital camera is attached to a desktop computer which allows real-time viewing and image capture. Twisted red-black wires feed

heaters on either side of the slide. Two controllers are used, one monitors and controls temperature within the heating stage and the other monitors the temperature on top of the glass slide, under the aluminum cover and near the optical path, with a hypodermic probe (yellow connectors). All temperature measurements are sent to a desktop computer and plotted and stored using a LabView program.

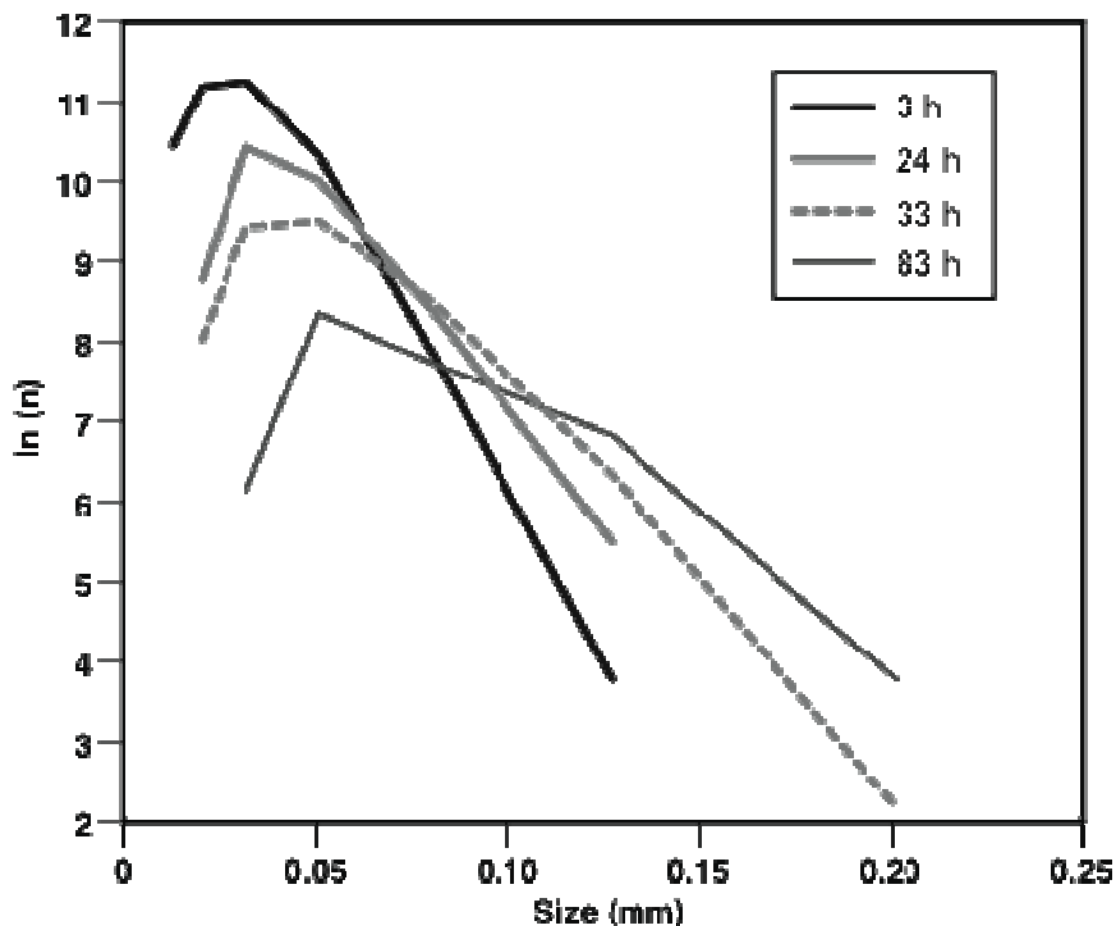


Figure DR2. CSD plot for four different still frames from the experiment discussed in Figure 3 and Movie DR2. Touching crystals in the images were dissected using a thin black line in order to analyze each individual crystal. After cutting apart touching crystal images the entire images were then analyzed using the CSD Corrections software (Higgins, 2000). We calculated CSDs using a shape of 5:1:1. The number of crystals analyzed in each frame is: 580 (3 hrs), 444 (24 hrs), 302 (33 hrs) and 163 (83 hrs). Later images show significant dissolution of small crystals and continual growth of larger crystals. All four distributions have a hump toward the low crystal size, which probably relates to the lack of new nucleation in our experiments after the condensation into blobs from the dendritic mass.

Movie DR1. Animation of still frames from an experiment observed through plane polarized light at 10x (width of view is ~1mm). Temperature of experiment is  $47 \pm 0.3$  °C when static and  $47 \pm 3$  °C when oscillating (period of 12 minutes). Frame rate is 24 frames per second, which equals 4 hours of experimental time per second in the movie. Temperature begins to oscillate ~18 seconds into movie and is noticeable because the picture capture interval and temperature oscillation cycle are out of phase. The shaking is related to the flex in the glass as the temperature changes. At 20 seconds there is a shift that relates to ~7 hours of missing data.

Movie DR2. Animation of still frames from an experiment observed through circularly cross-polarized light at 4x (width of view is ~2.5 mm). Temperature of experiment is  $52 \pm 0.3$  °C when static and  $52 \pm 2$  °C when oscillating (period of 10 minutes). Frame rate is 24 frames per second, which equals 4 hours of experimental time per second in the movie. Temperature begins to oscillate ~6 seconds into movie and is difficult to notice because the image capture is in phase with the temperature oscillation cycle. However, the texture dramatically changes when the temperature is cycled.

### **Reference Cited**

Higgins, M.D., 2000, Measurement of crystal size distributions: *The American Mineralogist*, v. 85, p. 1105–1116.