

An estimate of the heating and cooling rates was obtained by connecting the thermocouple output to an oscillograph. At 300 watts steady state was reached in about ten seconds when the sample was taken from room temperature to maximum temperature by sudden application of the power. When the sample was quenched by suddenly turning off the electrical power the temperature dropped to within a few degrees of room temperature in about six seconds.

An interesting result was obtained by measuring the maximum wall thickness of the coesite cylinder which forms around the graphite heater and plotting this thickness against the temperature. The maximum coesite thickness occurs midway between the ends of the cylinder. This correlation is shown in Figure 31 and was used to estimate the temperature of the runs made on the cubic press. All runs in this plot were of three minutes duration. Data from 50 of the synthesis runs are included in the correlation.