(that is, all the phases in the above equation) were sealed in small capsules with water and allowed to react for 30–80 days at 2,000 bars pressure and then examined by X-rays and microscope. With a mixture of epidote and decomposed epidote, it was found that epidote formed strongly at 505° and 630° C. while at 715° C. anorthite, garnet and magnetite were the dominant products. A mixture of clinozoisite and decomposed clinozoisite produced clinozoisite at 605° C. and anorthite and garnet (from refractive index and X-ray measurement close to grossularite) at 740° C. At 605° a few grains of garnet could be recognized, but growth of clinozoisite was spectacular. In two runs with epidote composition excess quartz was added and at 465° and 605° C. strong growth of epidote occurred.

These results indicate clearly that, relative to the normal products of synthesis, the epidote minerals are stable at moderate temperatures and water pressures. Thermodynamic consideration of entropy and changes in volume involved indicates that little pressure would be needed for their formation at low temperatures from suitable compositions. At temperatures around 300° C. and below, present results[4] indicate that zeolites will become stable. Work on other reactions involving calcium aluminosilicates in progress also demonstrates that this method of mixtures may be of value in proving relative stability of phases whenever it is suspected that the slow step in the reaction kinetics is nucleation.

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