

at Bikita and King's Mountain. One cannot be certain that CO_2 or CO_3^{2-} are essential to the formation of bikitaite as in some capsules that leaked bikitaite was formed although the concentration of these components may have been considerably decreased. On the other hand, as noted above, gels with LiF and Li_2SiO_3 added, but without carbonate, failed to produce bikitaite. The production of quartz+bikitaite assemblages from quartz+spodumene core bulk compositions perhaps sets a lower limit to the pressure-temperature field for formation of quartz+spodumene cores. The syntheses reported raise difficulties for Brotzen's (1959) view that presence of CO_3^{2-} keeps silica in a non-crystalline gel form down to 270°C , so explaining the low temperature of crystallization of quartz cores. As Phinney and Stewart (1961) observe, natural spodumene remains unaffected at the pressure and temperature at which bikitaite decomposes, and they suggest that bikitaite is less stable than spodumene under almost all natural pegmatite conditions. On the other hand spodumene has not been reproducibly synthesized hydrothermally and the stability of this mineral plus water relative to bikitaite must still be regarded as uncertain.

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