

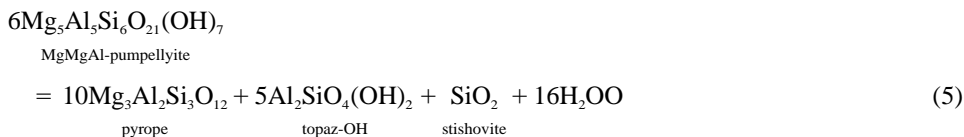
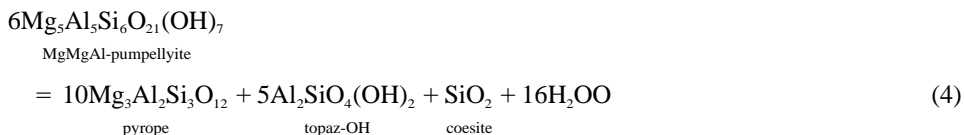
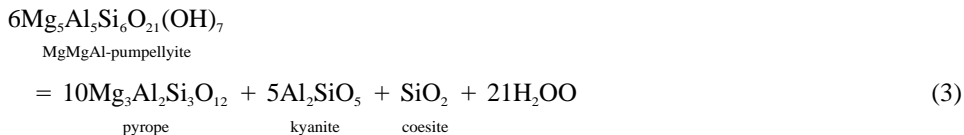
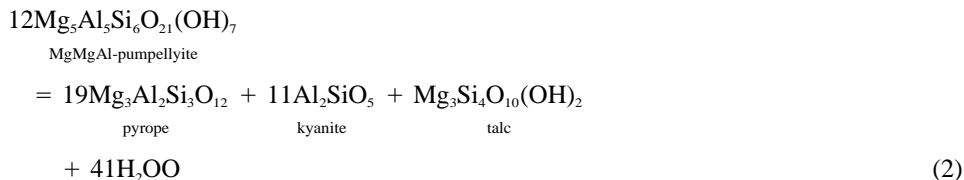
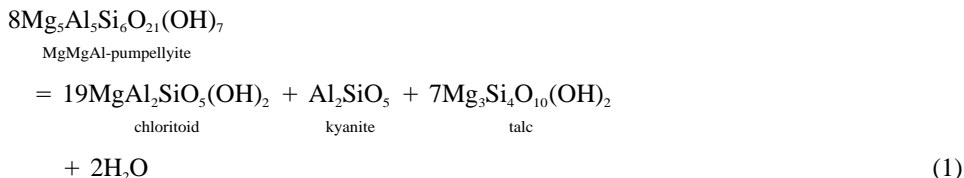
An experimental study of the pressure-temperature stability of MgMgAl-pumpellyite in the system MgO-Al₂O₃-SiO₂-H₂O

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ABSTRACT

The stability field of MgMgAl-pumpellyite, Mg₅Al₅Si₆O₂₁(OH)₇, was determined in the system MgO-Al₂O₃-SiO₂-H₂O in reversal experiments at pressures between 34 and 100 kbar and temperatures in the range of 597 to 1050 °C. Brackets were obtained on five breakdown reactions (in order of increasing pressure):



This phase becomes stable only at pressures of more than 34 kbar and temperatures up to 820 °C. Thus, MgMgAl-pumpellyite may be an H₂O-containing phase at depths greater than 100 km in the coldest parts of subduction zones.