Phase diagram of NaAlSiO4 and NaAlSi2O6 by Calorimetry and High Temperature and High Pressure Experiment

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NaAlSiO4 with the calcium ferrite structure is thought to be the most probable Na-bearing phase in the transition zone. Some experiments which determined the boundary of NaAlSi2O6(Jadeite)=>NaAlSiO4(CaFe2O4-type)+SiO2(Stishovite) have been performed by high temperature high pressure experiments. Here we made the calorimetric measurement to determine the phase boudary of this system by using the thermodynamic calculation. In addition,we determined the phase boundary of NaAlSi2O6(Jadeite)+NaAlO2(alpha-type)=>2NaAlSiO4(CaFe2O4-type) by using the multi-anvil apparatus at high pressures and high temperatures.