

SCG067-02

Room:105

Time:May 26 08:45-09:00

## Phase equilibria and mineral paragenesis on crustal materials under ultrahigh-pressure metamorphic conditions

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We carried out the ultrahigh-pressure experiments at 8.0 GPa under dry condition on the pelitic granulite from Hidaka metamorphic belt, Hokkaido to clarify the phase changes.

We found the assemblage of the Al<sub>2</sub>O<sub>3</sub>-deficient garnet with pyroxene components, significantly SiO<sub>2</sub>-oversaturated clinopyroxene containing a large amount of jadeite, kyanite and coesite in the charges. We obtained the following results from chemical and microscopic analyses of these minerals:

1. Contents of Na<sub>2</sub>O and K<sub>2</sub>O in clinopyroxene at UHP conditions should be constrained by the bulk composition of the system.
2. The amount of clinopyroxene increases with increasing SiO<sub>2</sub>, simultaneously with decreasing Na<sub>2</sub>O and K<sub>2</sub>O.
3. The tschermak content in clinopyroxene depends on the amount of kyanite in the system.
4. Coesite and kyanite buffer the solubility of Na<sub>2</sub>O and K<sub>2</sub>O in clinopyroxene at ultrahighpressure metamorphic conditions.

Keywords: ultrahigh-pressure metamorphism, garnet-clinopyroxene-kyanite-coesite coexistence, Al<sub>2</sub>O<sub>3</sub>-deficient garnet, SiO<sub>2</sub>-oversaturated clinopyroxene