

Quartz+Ti-pargasite+Na₂O-Al₂O₃-SiO₂ minerals in clinopyroxene from Horoman Lower Zone plagioclase lherzolite

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Clinopyroxene porphyroclasts in plagioclase lherzolite from Lower Zone of the Horoman complex contain tiny inclusions, such as quartz+Ti-pargasite+Na₂O-Al₂O₃-SiO₂ minerals. These inclusions occur always coexisting with orthopyroxene blebs in the core region. Host clinopyroxene exhibits distinctive M-shaped Al₂O₃ zoning pattern. The Na₂O content of clinopyroxene decreases monotonously from the core (1.5 wt%) to the rim (0.5 wt%). Na₂O-Al₂O₃-SiO₂ mineral could be a mixture of jadeite and quartz. Euhedral K₂O-free Ti-pargasite grains have TiO₂-rich core (more than 2.3 wt%) and TiO₂-poor rim (less than 1.2 wt%). The origin of the quartz and Na₂O-Al₂O₃-SiO₂ mineral may be explained by exsolution from the host clinopyroxene at the more than 2.7 GPa condition. Ti-pargasite may have been formed from a metasomatic fluid, during the orthopyroxene blebs were exsolved from the host clinopyroxene. There is a possibility that the fluid is a different from that of formation of secondary phlogopite and amphibole at the latest intrusive stage of the Horoman complex.