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Relict coesite exsolution in omphacite from Western Tianshan eclogites, China

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ABSTRACT

Exsolution rods of relict coesite together with quartz were identified in omphacite in eclogites from western Tianshan, China. They are oriented along the c-axis of the host clinopyroxenes and have grain size up to 30 μm long and 2–3 μm wide. Raman spectra of exsolved lamellae yield consistent but weak bands at 521, 270, 181, 151, and 118 cm^{-1}, typical for coesite, in addition to those of quartz and the host omphacite. Such occurrences together with textured observations suggest a two-stage evolution of SiO_2 exsolution rods in omphacite. Lamellae of coesite were apparently exsolved from supersilicic omphacite at $P \approx 5.0$ GPa and the transformation from coesite to quartz occurred during retrograde metamorphism.