

GARNET, PHENGITE AND PHLOGOPITE LAMELLAE IN CLINOPYROXENE FROM UHP DOLOMITIC MARBLES, KOKCHETAV MASSIF, KAZAKHSTAN.

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Diamondiferous dolomitic marbles occur as separate band and lenses in biotite gneisses of Kumdy-Kol microdiamonds deposit. The new types of lamellae have been observed in pyroxenes from this type of rocks. One of the sample(94-275) of such a rock contains pyroxene grains with garnet lamellae along with grains containing K-feldspar and phlogopite lamellae and no lamellae at all. The prograde zonation is typical of garnets from matrix. Grossular and pyrope components increase from core (Grs 32, Pyr 29) to rim (Grs 36.5, Prp 37.9) with decreasing almandine content (from 35.6 to 18.5). Composition of garnet lamellae are very similar to garnet rims (Grs 31.8 -33.2; Prp 38.3-45.7 and Alm 19.5-15.9). All Cpx both with and without lamellae are diopside with low FeO (2 wt.%), Al₂O₃ (1.32-1.89 wt.%) and Na₂O (0.11-0.16 wt.%). No detectable K₂O was found. The calibration of Ellis and Green (1979) yields peak temperature of 870-970°C at pressure 40 kbar. It is suggested that garnet lamellae exsolved at elevated pressure during prograde metamorphism. Another type of lamellae was found in Cpx from sample 98-6. Cpx from this sample contain lamellae of phengite (3.42 Si pfu) and K-feldspar. K content in Cpx varies from 0.05 to 0.54 wt. %. On the basis of textural grounds it is concluded that topotaxial growth of mica lamellae in the Cpx are best explained by exsolution from K and OH⁻-bearing Cpx stabilized at UHP conditions.