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Inclusions of α - quartz, albite and olivine in a mantle diamond

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Abstract

Mineral inclusions in diamonds have been used to track potential information on the Earth's deep mantle. Here we report results from a detailed study on the mineral inclusions in a ca. 0.28 ct diamond from the Shengli No.1 kimberlite in Mengyin County, Shandong Province, eastern China. Our study reveals the presence of α -quartz, albite and olivine in the diamond. At an inferred depth of ca. 165 km for the diamond crystallization, the inclusions of α - quartz and albite suggest the possible involvement of deep subducted crustal material, traces of which were captured during the diamond growth and magma migration.

Key words α - quartz, albite, olivine; Mantle diamond; Deep subduction; Tectonics

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