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Geochemistry and Nd, Sr Isotopes of the Pohrenk Fluorites (Kırsehir-Turkey)

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The Pohrenk fluorite mineralization, which makes up Central Anatolia's most extensive fluorite region, is Lutetian aged and hosted in carbonate rocks that have undergone occasional karstification and silicification along an N-S fault trend. Fluid inclusion values and the position of fluorites in the Tb/La-Tb/Ca diagram show that mineralization occurred in a hydrothermal environment with homogenization temperatures ranging from 78.1° to 363°C. The presence of fluorite as a space filler in carbonate rocks and its association with silicification indicate that the solutions contained considerable amounts of Si alongside F. The Pohrenk fluorite samples have $^{143}Nd/^{144}Nd$ values of between 0.512349 and 0.512497, while $^{87}Sr/^{86}Sr$ values vary between 0.708161 and 0.708772. These values indicate a mantle origin where continental contamination could occur. When the Nd-Sr values are compared to those of magmatic and young volcanic rocks, the Pohrenk fluorites are seen to be enriched and exhibit isotopic signatures similar to Upper Cretaceous magmatic, early-middle Miocene volcanic, and Mio-Quaternary volcanic rocks.