

Organic matter derived from sediments during generation and ascent of magma: What types remain in granitoids and xenoliths?

Yoshihiro Sawada[1], Yoshikazu Sampei[1], Junji Akai[2], Minako Imai[3]

[1] Geoscience, Shimane Univ, [2] Departm. Geol. Fac. Sci. Niigata Univ., [3] Dept. Geosci, Fac. Sci. and Eng., Shimane Univ.

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Organic matter occurs in Miocene S-type, and in their gneiss and igneous xenoliths. Analysis shows that: (1) Amorphous material in biotite (by TEM and EDS) consists mainly of C, with minor elements; (2) Methane, benzene and toluene were identified from biotite and bulk rocks by PY-GC at 800deg C, suggesting that high molecular organic alkyl may have been present originally. Hydrocarbon-C is concentrated in biotite, at levels 5-10 times of those in bulk rock; (3) $\delta^{13}C$ values of organic matter are -15.9 per mil (bulk rock) and -24.1 (biotite) in granitoids; -19.5 (bulk) and -24.7 (biotite) in gneiss xenoliths; and -14.5 (bulk) and -16.8 (biotite) in igneous xenoliths.