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SGL041-02

Room:203

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## Application of the finer-separated illite in fault gouge for K-Ar dating

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Direct dating of fault gouges can be critical for the age determination of brittle deformation when the timing is difficult to constrain from stratigraphical and geomorphological methods. We present the K-Ar age data for two fault gouge samples corrected from the Mizunami Underground Research Laboratory. The gouge samples were separated into four grain-size fractions of <0.1, <0.4, <2, 2-6 micrometer by using high speed centrifuge. The finer-size fractions yield younger K-Ar ages, suggesting that the finer-size fractions contain a high degree of authigenic illite. And, the K-Ar ages of the finer-size fractions were bracket by fission track ages of zircon and apatite separated from the wall rocks, indicating the illite grew at temperatures in the range about 100-250 degree Celsius, consistent with the stability of illite. These observations demonstrate the applicability of this method for direct dating of brittle deformation.