

Rb-Sr geochronology of dioritic stock and lamprophyre dike of Tsagaan Tsahir Uul area, Mongolia.

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Dioritic stock and lamprophyre dike are distributed cutting the late Proterozoic granitic body.

Diorite is medium to coarse grained and composed of plagioclase, hornblende, clinopyroxene, and orthopyroxene, accompanying with a small amount of quartz, potassium feldspar and opaque minerals.

The lamprophyre is fine grained and composed of olivine, amphibole, and augite, potassium feldspar with small grains of biotites in ground mass.

On the N-MORB normalized spider diagram diorite and lamprophyre are similar to each other and show no Nb anomaly and enriched by LIL elements and HFS elements are similar to N-MORB.

As a result of this study the determined Rb-Sr ages are 260.6 Ma and 248.6 Ma, respectively for diorite and lamprophyre.

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The Tsagaan Tsahir Uul area is located at the southeastern part of the Mongolia. The area is composed of Proterozoic metamorphic rock, and Late Proterozoic granite intruded by small stock of diorite. NE striking lamprophyre and longitudinal striking quartz-porphyry dykes are also distributed cutting the granitic body.

Geochemical and geochronological investigations have been carried out for the dioritic stock and lamprophyre dike to investigate its origin and relationship with auriferous quartz veins. It is also one of the major purposes to date its solidification age by Rb-Sr method.

Dioritic stock locates at the south eastern part of the area. This is as small as 0.8 km in width and 2.0 km in length. Diorite is medium to coarse grained and composed of plagioclase, hornblende, clinopyroxene, and orthopyroxene, accompanying with a small amount of quartz, potassium feldspar and opaque minerals. It is monzodiorite in composition.

Fine grained dike of lamprophyre is intruded at the central and north-east part of the area. It is approximately 4 km long and its thickness ranges from 1 m to 3 m. At the north-eastern end the dike has some branches and maximum width reaches up to 10m. This rock contains many xenolithic fragments of the granite. Along the contact of the lamprophyre the granite altered and potassium feldsparization developed, and the xenoliths suffered from the same alterations. The lamprophyre is composed of olivine, amphibole, and augite, potassium feldspar, and amphibole as phenocrysts with small grains of biotites in ground mass.

On the N-MORB normalized spider diagram diorite and lamprophyre show similar patterns. They show no Nb anomaly and enriched by LIL elements and HFS elements are similar to N-MORB.

As a result of this study the determined Rb-Sr ages are 260.6 Ma and 248.6 Ma, respectively for diorite and lamprophyre.