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# SHRIMP U-Pb age dating and solid state NMR study for relationship between leucocratic granite and lepidolite deposit in Uljin area, Korea

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Leucocratic granite is exposed on a small scale about 3.5 km west from lepidolite deposit in Uljin area, Korea. We confirmed the boundary of leucocratic granite for the first time and performed the U-Pb age dating for zircons contained in leucocratic granite, leucocratic granitic gneiss, and Buncheon granitic gneiss which are distributed around the lepidolite deposit. We suggest that the leucocratic granite is the source granite of the lepidolite deposit considering the relatively high Li content. SHRIMP zircon U-Pb age determinations for leucocratic granite, leucocratic granitic gneiss, and Buncheon granitic gneiss yield about 197.5, 1978 and 1878 Ma, respectively. K-Ar age dating for mica contained in each sample was also performed. However, K-Ar age dating results show that K-Ar age dating is unreliable for igneous rocks and lepidolite ore in Uljin area due to the several times of thermal events in the study area. We also performed Li-7 and Al-27 solid-state NMR experiments for lepidolite, pegmatite containing lepidolite and leucocratic granite in Uljin area in order to check the feasibility of microscopic mineralogical study on genetic environment of lithium mica in Uljin area. Li-7 NMR results show that a peak around -1 ppm is observed in lepidolite and a very broad peak (FWHM: 20-30 ppm) is also observed in pegmatite containing lepidolite and leucocratic granite. The broad peak might be caused by paramagnetic contents in the samples. We determined four-coordinated Al and six-coordinated Al peaks in lepidolite and pegmatite and only six-coordinated Al peak in leucocratic granite from Al-27 NMR experiments and simulation results. We suggest that two different Li sites in lepidolite could be analyzed by 2D MQMAS NMR experiments in the future.