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# Illite Crystallinity and Fluid Inclusion Analysis across a Paleozoic Disconformity in Central Korea

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**Abstract:** Illite crystallinity and fluid inclusion techniques are used to understand the thermal histories of rocks on either side of the disconformity between the Lower and Upper Paleozoic strata in South Korea. Illite crystallinity studies show that the metamorphic grade of the upper strata of the Lower Paleozoic Joseon Supergroup, platform carbonates with subordinate siliciclastics, belongs to the epizone and that of the lowermost strata of the Upper Paleozoic Pyeongan Supergroup, paralic to nonmarine clastics, belongs to the anchizone. The maximum mode of homogenization temperature for fluid inclusion of the uppermost strata of the Joseon Supergroup is 260 to 270 ° C and that of the lowermost strata of the Pyeongan Supergroup is 240 to 250 ° C. These data reveal a difference in thermal histories of strata below and above the unconformity, suggesting that, in contrast to the previous supposition of a period of non-deposition, at least a 1-km thick section of sediment was removed by erosion during development of the unconformity. Burial and heat flux from a proposed hot spot are suggested as the dominant factors causing differences in a metamorphic grade for the Joseon Supergroup before the deposition of the Upper Paleozoic strata.

**Key Words:** Disconformity • Illite Crystallinity • Korea • Low-grade Metamorphism • Paleozoic Strata • Thermal History

*Clays and Clay Minerals*; April 1997 v. 45; no. 2; p. 147-157; DOI: [10.1346/CCMN.1997.0450203](https://doi.org/10.1346/CCMN.1997.0450203)

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