
Infrared Spectroscopy Study of Tetrahedral and Octahedral Substitutions in an Interstratified Illite-Smectite Clay

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Abstract: Infrared spectroscopy is used to distinguish between octahedral and tetrahedral substitutions in an interstratified illite-smectite clay. The Hofmann-Klemen (Li) test suggests that the AlMg and FeMg octahedral vacancies are preferentially occupied by Li after thermal treatment at 250° C. The ammonium (Chourabi-Fripiat) test reveals the beidellitic character by the formation of two OH stretching modes upon deammonation. The illitic layers are not affected since K is not exchangeable.

Key Words: Chourabi-Fripiat test • Hofmann-Klemen effect • Illite • Infrared spectroscopy • Interstratified • Smectite • Tetrahedral substitution

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