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LETTER

Identification of randomly interstratified illite/smectite with basal peak widths

IL MO KANG,[1,*] MYUNG HUN KIM,[2] YUNGOO SONG,[3] AND HI-SOO MOON[3]

[1]Korea National Oil Corporation, 1588-14, Gwanyang-dong, Dongan-gu, Anyang, Gyeonggi-do, 431-711, Korea
[2]Department of Chemistry, Yonsei University, 134, Shinchon-dong, Seodaemun-ku, Seoul, 120-749, Korea
[3]Department of Earth System Sciences, Yonsei University, 134, Shinchon-dong, Seodaemun-ku, Seoul, 120-749, Korea

ABSTRACT

This study formulates the following relationship for identifying randomly interstratified illite/smectite using the integrated peak widths (β) for the first-order reflections after ethylene-glycolation (EG) and thermal dehydration (TD) treatments:

$$p_i = -\frac{\beta_{EG} - 0.589\beta_{TD}}{1.324\beta_{TD} - 3.911}$$

where p_i is the proportion of interstratified illite layers. The relationship minimizes the effect of crystallite thickness on the evaluation of p_i, which has been a critical source of error in the previous methods using peak position and intensity.

Keywords: Illite/smectite, interstratifications, peak width, crystallite thickness