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# COMMENT

# REPORT OF THE CLAY MINERALS SOCIETY NOMENCLATURE COMMITTEE FOR 1982 AND 1983[1]

## REGULAR INTERSTRATIFICATIONS

1. The report of this committee for 1980–81 (Bailey *et al.*, 1982) with respect to the recommended nomenclature for regular interstratifications of clay minerals has been approved without change by the International Mineralogical Association Commission on New Minerals and Mineral Names.

2. The committee recommends the name *hydrobiotite* for a regular 1:1 interstratification of biotite and vermiculite, as reported by Brindley *et al.* (1983).

3. The committee recommends that the approved species names for regular interstratifications should only be used by authors if the full requirements of the committee for regularity have been satisfied. For interstratified clays regular enough to meet the requirement that the coefficient of variation (CV) the $d(00l)$ values is equal to or less than 0.75, it is permissible to state that the clay is, for example, rectorite-like or of the rectorite type, if the following conditions are satisfied: (a) tests have been carried out to determine the nature of the component layers; and (b) at least three orders of a superlattice spacing (including two odd orders) have been observed.

Terminology of this sort may be useful for pure specimens where CV > 0.75 or for impure specimens where CV cannot be calculated due to overlap of peaks. Less regular specimens should be termed mica/smectite irregular interstratifications, etc. It is always desirable to characterize these clays in as much detail as possible.

4. Discussion is continuing as to the nomenclature of interstratifications that deviate by more than 5% from the ideal 1:1 ratio and as to criteria for regularity of interstratifications in other than 1:1 ratios (e.g., as in "tarasovite").

## ILLITE

The term illite was proposed by Grim *et al.* (1937) as a group name for the micaceous clay mineral constituents in argillaceous sediments. There is increasing evidence that an important constituent of such specimens is a diagenetic dioctahedral mica of composition sufficiently different from muscovite that a species name is now warranted. The eventual designation of a specific name was anticipated by Grim *et al.* (1937) in their original description. The wide acceptance of illite as a group name is noted, and continuation of such usage is considered desirable. It is recommended that the same name be retained for the species. Where reference is made to the *species* illite, a clear statement should be made to that effect in order to avoid confusion with the *group* usage.

It is expected that the definition of the species illite will evolve with time as our knowledge increases. The committee recommends that for the present the *species* illite meet the following requirements: (1) The micaceous layers are nonexpansible; (2) The octahedral sheet is dioctahedral; and (3) The composition deviates from that of muscovite in two main ways: (a) A phengitic component is present in which substitution of $R^{2+}$ cations for octahedral Al is balanced by addition of tetrahedral Si beyond the ideal Si : Al ratio of 3:1 for muscovite. This substitution gives the octahedral sheet an overall negative charge of about 0.2 to 0.3 per formula unit. (b) Interlayer vacancies or water molecules amounting to about 0.2 to 0.4 atoms per formula unit are compensated by additional tetrahedral Si cations beyond those required by the phengitic component. The maximum interlayer charge is about +0.8 according to Hower and Mowatt (1966). The minimum charge that is permissible without leading to expansibility is uncertain, but is probably near +0.06. A representative formula in which the octahedral charge is equal to the interlayer deficiency is $K_{0.75}(Al_{1.75}R^{2+}_{0.25})(Si_{3.50}Al_{0.50})O_{10}(OH)_2$. This formula is in general accord with the selected analyses of Weaver and Pollard (1973).

Although the original definition of the *group* name illite specified clay-size particles in argillaceous sediments, neither these restrictions nor the polytype designation are considered appropriate in the definition of a species.

## GLAUCONITE

The previous definition of the species glauconite by this committee (Bailey *et al.*, 1979) is modified here to incorporate the suggestion of Köster (1982) that an octahedral charge of +5.3 per formula unit serve as an additional boundary between glauconite and celadonite. The committee agrees that the *species* glauconite and the 10-Å micaceous layers in glauconite pellets do not have interlayer charges of +1.0. A maximum value of +0.9 is consistent with the studies of Cimbálniková (1971), Kohler and Köster (1976), Buckley *et al.* (1978), and Köster (1982). The lower limit of interlayer charge in non-expansible specimens is uncertain, but is probably near +0.8.

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[1] As amended by the 1983–1984 committee.

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