Clays and Clay Minerals, 1970, Vol. 18, p. 67. Pergamon Press. Printed in Great Britain

LETTERS TO THE EDITOR

ON POTASSIUM RELEASE FROM MICAS

A Comment to Reichenbach, H. and Rich C. I. (1969) Potassium release from muscovite, *Clays and Clay Minerals* **17**, 23–29.

THE EFFECT of grinding on muscovite has been studied by Mackenzie and Meldau (1956) and Bartha and Bruthans (1961). In careful wet-grinding experiments (Lodding, 1967), I found that the silica content of the solid muscovite stays essentially constant, but potash is reduced considerably. Grinding for 90 min reduced the K_2O content from 10·05 to 8·50 per cent, and wet-grinding for 24 hr reduced it to 5·30 per cent. Reichenbach and Rich do not mention how long they ground the muscovite before fractionation. Their "untreated" $< 0{\cdot}08\,\mu$ fraction (in Fig. 3) clearly shows the presence of a large low-angle shoulder, indicative of hydrated or altered muscovite. The authors' finding that more K is released by $BaCl_2$ treatment from coarse muscovite than from fine fractions is probably the result of alteration and partial K-removal by wet-grinding. That more K is removed by subsequent treatment with $BaCl_2$ can be explained by the removal of strain during grinding (Lodding, 1967), and the introduction of new structure dislocations. It stands to reason that potential energy and, therefore, chemical reactivity in such a system are larger in the larger size fractions regardless of the smaller surface area. In order to obtain meaningful data on the K-removal from muscovite by $BaCl_2$ one would have to first separate this mineral from other minerals present and then one would have to fractionate the purified muscovite into size fractions without any grinding.

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Reply to William Lodding's comment on Reichenbach, H. G. von, and Rich, C. I.: Potassium release from muscovite as influenced by particle size. *Clays and Clay Minerals*, **17**, 23–29.

THE K analyses of the "untreated" muscovite fractions were as follows:

Fraction [microns] $< 0{\cdot}08$	Total K [Meq/100g (300°C wt. basis)] Not analyzed
0·08–0·2	175
0·2–2	206
2–5	222
5–20	223

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