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## CHANGES IN K-FELDSPAR STAINING METHODS AND ADAPTATIONS FOR FIELD USE

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This note describes changes found useful in staining methods for differentiation of K-feldspar and plagioclase, and adaptations of the changes for use in the field. The method used is the hydrofluoric acid etch and staining of K-feldspar with sodium cobaltinitrite.

Staining of K-feldspar with sodium cobaltinitrite was proposed by Gabriel and Cox (1929), and further developed by Keith (1939), Chayes (1952), Jackson and Ross (1956), Rosenblum (1956), and Bailey and Stevens (1960).

It has been found that etching hand specimens and rock slabs by submerging a portion of them in concentrated hydrofluoric acid gives good K-feldspar staining on all rock samples (granitic to dioritic igneous rocks and many types of gneisses and schists). The rock is put into the acid for 15–20 seconds, dipped into water to remove the acid, and while still wet, put into the saturated sodium cobaltinitrite solution for 1–2 minutes. After the specimen is rinsed in tap water and allowed to dry, the K-feldspar is stained bright yellow, the plagioclase is chalky white, and the quartz is a dull gray. The advantages of this method are that it allows many specimens to be stained in a short time and that a close visual estimation of the amounts of K-feldspar and plagioclase may be obtained by staining only the K-feldspar.

The method has been adapted to field use with a small plastic squeeze bottle of hydrofluoric acid and a dropper bottle of sodium cobaltinitrite solution. Several drops of acid are applied to the surface of the hand specimen and spread with the tip of the bottle. After 15–20 seconds, the specimen is rinsed with any handy supply of water, the sodium cobaltinitrite is applied, and after one minute, again rinsed. K-feldspar, plagioclase, and quartz may be differentiated as explained above.

Information gained by using staining in the field has been found to be

very useful while doing geologic mapping in remote areas. During mapping, the staining has been carried out on individual specimens during traverses or, more commonly, several specimens were stained at the end of a day at a base camp.


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## THE CRYSTAL STRUCTURE OF FLUELLITE: A CORRECTION

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In a recent X-ray single-crystal study of a specimen of the mineral fluellite, $Al_2PO_4F_2OH \cdot 7H_2O$, from Cornwall, England, Guy and Jeffrey (1966) determined the presence of the phosphate ion in the structure, although some previous investigations had suggested the composition was that of an aluminum hydroxy-fluoride monohydrate. Two publications, one by Van Tassel (1959) and the other published by the USSR Academy of Science (1963), also indicating the presence of phosphate in this mineral, have been noted by one of us (RVT).

Since reference to these publications was overlooked in the crystal structure paper, a summary of the chemical composition data from them is presented in Table 1.


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