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NONFIBROUS ULEXITE FROM THE KRAMER DISTRICT, CALIFORNIA*

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Veinlets of a vitreous nonfibrous transparent mineral were observed on a specimen of bedded euhedral borax and clay from the Jenifer mine by Siegfried Muessig, U. S. Geological Survey. The vitreous mineral, first recognized after the enclosing vitreous borax had dehydrated to white tincalconite, was subsequently identified as strontium-bearing ulexite by chemical analysis and verified as ulexite by *x*-ray examination. The ulexite veins, which occur in a zone up to 10 mm. wide, are from less than 1 mm. to 4 or 5 mm. wide and irregularly separated by borax—now altered on exposed surfaces to tincalconite. Clay and disseminated realgar are associated with both borax and the ulexite.

The ulexite occurs in irregular or crudely radiating columnar to bladed masses and in prismatic crystals. Individual columns or blades are striated parallel to their length and are up to 5 mm. long and 1 mm. wide; they exhibit prominent cleavages parallel to their length—presumably the {010} and $\{1\bar{1}0\}$ cleavages of ulexite. Discrete crystals, some of which are doubly terminated, are usually not longer than 0.5 mm. or wider than 0.2 mm.

Microscopically, the ulexite grains are short prismatic crystals or nearly equant cleavage fragments (in crushed material). Some of the crystals exhibit a single twin plane. Neither the long prismatic habit nor polysynthetic twinning, both so characteristic of most ulexites, were observed. The optical properties of non-fibrous ulexite are as follows: α_{Na} 1.493 ± 0.001, β_{Na} 1.505 ± 0.001, γ_{Na} 1.526 ± 0.001, birefringence $(\gamma - \alpha)$ 0.033 ± 0.002, 2V (calculated) 75°.‡

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‡ According to W. T. Schaller (private communication) the published γ index of ulexite, 1.519 or 1.520, is in error and γ is actually near 1.530. He mentions various non-fibrous ulexites from the Kramer district whose indices lie in the following ranges: α, 1.490 to 1.493; β, 1.505 to 1.507; γ, 1.528 to 1.531.

The chemical analysis of nonfibrous ulexite is compared with the theoretical oxide percentages for ulexite in the columns below.

	Nonfibrous Ulexite	Theoretical Ulexite
Na_2O	7.85%	7.65%
CaO	13.51	13.85
SrO	1.06	—
B_2O_3	41.31	42.95
H_2O (+ and −)	36.41	35.55
Total	100.14	100.00

Two fibrous ulexite samples from the Kramer district were analyzed for strontium oxide with a spectrophotometer to evaluate the significance of the strontium oxide content found in nonfibrous ulexite. One contained 0.118 per cent, the other, 0.056 per cent—each considerably less than the 1.06 per cent found by the same method in nonfibrous ulexite.

X-ray powder patterns of nonfibrous and fibrous ulexites from the Kramer district are practically identical with respect to interplanar spacings and relative intensities.

The presence of strontium in the ulexite described may account for its nonfibrous character.

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MAGNETIC SUSCEPTIBILITIES OF MINERALS IN THE FRANTZ ISODYNAMIC MAGNETIC SEPARATOR[1]

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The following list (Table 1) and the accompanying chart (Fig. 1) of magnetic susceptibilities of minerals were compiled to fill the need for a guide in separating minerals in an isodynamic magnetic separator, and were especially designed for the occasional "do-it-yourself" user.

The magnetic susceptibilities on the chart are in terms of increasing amperages on the Frantz separator and are valid only for the tilts indicated: i.e., 15° side, 25° forward. For other settings of tilt, the amperages will serve as relative magnetic susceptibilities of the minerals, and the chart should then be used only as a guide.

The writer worked chiefly with grains in the 100–150 mesh size range, but found the same results are obtained with grains in the 65–100 mesh and 150–200 mesh ranges. No data are available for mesh ranges other

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