the Fe_2O_3 content (fig. 2). The sample from Aggeneys has a shorter b_0 unit cell length than the sample from Cruz del Sur and the iron content of the two samples are inversely proportional to the unit cell lengths.

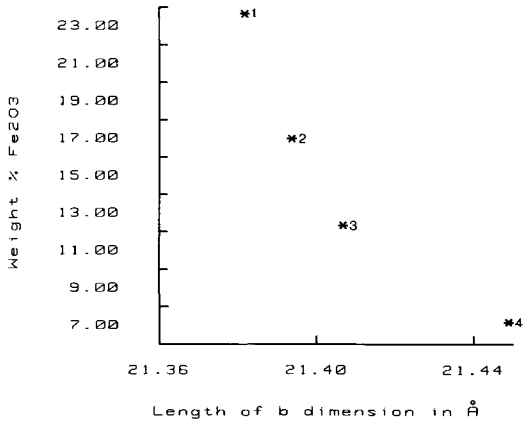

FIG. 2. Relationship between Fe_2O_3 and the b_0 unit cell length of creaseyite. The unit cell parameters of samples described by previous authors were recalculated according to the method of Appleman *et al.* (1972).

Infra-red spectroscopy. An infra-red absorption spectrum of creaseyite from Aggeneys was obtained with a Hitachi model 270-50 spectrometer with a wavenumber of 250-4000 cm^{-1}, using KBr as reference material (fig. 3). Absorption peaks from 900 cm^{-1} to 1200 cm^{-1} are attributed to stretching of Si–O–*M* and H–O–*M* (*M* = Pb, Cu and Fe). The peak at 550 cm^{-1} may represent Si–O stretching whilst the peak at 3200 cm^{-1} is regarded as a hydroxyl stretching band.

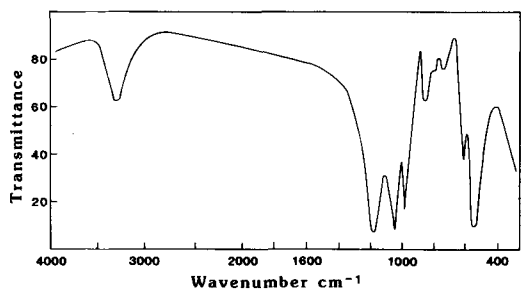

FIG. 3. Infra-red absorption spectrum of creaseyite.

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REFERENCES

Appleman, D. E., Evans, H. T., and Handwerker, D. S. (1972) *Geol. Surv. Computer Contribution*, 20, Geol. and Comp. Centre Divisions, Washington, DC. Program no. W9214, 26 pp.

Hayase, K., and Dristas, J. A. (1978) *Rev. Bras. Geosci.* **8**, 134-41.

Hiemstra, S. A. (1956) *Am. Mineral.* **41**, 519-21.

Williams, S. A., and Bideaux, R. A. (1975) *Mineral. Mag.* **40**, 227-31.

KEYWORDS: creaseyite, copper silicates, Aggeneys Mountains, South Africa.

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A note on strontian chabazite from Kaiserstuhl, Baden, West Germany

A SMALL specimen labelled 'ittnerite' (number 680) in the Marquis of Breadalbane's collection consists of amphibole, aegirine, melanite, perovskite, sphene, phlogopite, magnetite, hauyne, calcite, and minor strontian chabazite. X-ray fluorescence and electron probe analysis revealed that the chabazite contained high levels of strontium. The analyses shown in Table I were obtained by crystal spectrometry using a Cambridge Instruments

TABLE I

Analyses of strontian chabazite from Kaiserstuhl, Baden

	1	2	3	4	5	6
SiO_2	42.35	43.25	42.64	41.20	39.33	42.09
Al_2O_3	25.86	21.50	21.55	19.40	19.69	19.47
CaO	6.96	6.51	6.48	5.86	5.89	6.52
SrO	6.39	7.16	6.94	8.08	7.98	7.26
Na_2O	1.69	0.05	0.05	0.13	0.18	0.07
K_2O	0.47	2.66	2.22	8.65	5.35	4.14
MgO	1.06	0.11	0.20	0.08	0.08	0.11
BaO	-	0.01	0.05	0.05	0.03	0.16
	84.78	81.25	80.11	83.45	78.53	79.82

1-3 and 5. single spot per grain.

4. potassium-rich area, approximately 30-40 microns across, in grain from which analysis 3 was obtained (see text).

6. second spot in same grain from which analysis 5 was obtained.

Geoscan V utilizing wollastonite, orthoclase, jadeite, corundum, periclase, celestite, and baryte as standards. Although the SrO content of 6–8% is low compared with a theoretical value of 18.7% SrO in 'strontium chabazite' i.e. $SrAl_2Si_4O_{12} \cdot 6H_2O$, the high levels in the Kaiserstuhl material clearly presages discovery of a natural strontium analogue of chabazite.

Chabazites high in strontium have been reported by Černý and Povondra, 1965 (3% SrO) and Barbieri and Penta, 1969 (3.9% SrO), whereas Passaglia (1970) reported SrO values up to 5.69%. The latter author also noted that potassium-rich chabazites can also contain a high strontium content and this is borne out by analysis no. 4 (Table I) of a potassium-rich inclusion. Although the area from which this analysis was obtained is too small to separate for X-ray diffraction identification, the Si/Al ratio is similar to that of chabazite as opposed to that of a strontium-exchanged willhendersonite (the potassium analogue of chabazite).

REFERENCES

Barbieri, M., and Penta, A. (1969) *Periodico Min. (Roma)*, **38**, 447.

Černý, P., and Povondra, P. (1965) *Acta Univ. Carolinae. Geol.* **2**, 163.

Passaglia, E. (1970) *Am. Mineral.* **55**, 1278.

KEYWORDS: chabazite, zeolite, strontium, Kaeiserstuhl, West Germany.

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