Bazzite $Be_3(Sc,Fe)_2Si_6O_{18}$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Hexagonal prisms, to 2 cm, commonly barrel-like and in subparallel aggregation.

Physical Properties: Hardness = 6.5–7 VHN = 851–897 D(meas.) = 2.77–2.85 D(calc.) = n.d. Electromagnetic.

Optical Properties: Semitransparent. *Color:* Light to dark sky-blue. *Optical Class:* Uniaxial (–). *Pleochroism:* O = pale greenish yellow; E = intense sky-blue. $\omega = 1.622–1.637$ $\epsilon = 1.602–1.622$

Cell Data: *Space Group:* $P6/mcc$. $a = 9.521(5)$ $c = 9.165(5)$ Z = 2

X-ray Powder Pattern: Synthetic $Be_3(Sc_{1.75}Fe^{3+}_{0.25})_{\Sigma=2.00}Si_6O_{18}$. 3.306 (100), 8.27 (89), 2.960 (75), 4.006 (48), 4.578 (24), 2.577 (17), 1.761 (15)

Chemistry:

	(1)	(2)		(1)	(2)
SiO_2	58.80	58.00	MgO	0.82	0.10
Al_2O_3	0.25	0.80	Li_2O	0.00	0.24
Fe_2O_3	2.21	5.70	Na_2O	2.82	1.60
Sc_2O_3	14.44	14.50	K_2O	0.22	0.13
FeO	3.68		Rb_2O	0.037	0.25
MnO	1.58	1.43	Cs_2O	0.31	2.93
BeO	12.90	14.50	H_2O^+	2.60	1.10
			Total	100.67	101.28

(1) Central Kazakhstan; corresponds to $Be_{3.06}(Sc_{1.26}Fe^{2+}_{0.31}Fe^{3+}_{0.17}Mn_{0.13}Mg_{0.12}Al_{0.03})_{\Sigma=2.02}(Si_{5.93}Be_{0.07})_{\Sigma=6.00}O_{18}\cdot 0.87H_2O$, with $(Na_{0.55}K_{0.03}Cs_{0.01})_{\Sigma=0.59}$ in the channels. (2) Heftetjern, Norway; by electron microprobe, average of three analyses; total Fe as Fe_2O_3, Be and Li by AA on bulk sample; corresponds to $Be_{3.1}(Sc_{1.24}Fe_{0.42}Mn_{0.12}Al_{0.10}Mg_{0.02})_{\Sigma=1.90}(Na_{0.30}Cs_{0.12}Li_{0.05}Rb_{0.02}K_{0.01})_{\Sigma=0.50}(Si_{5.7}Be_{0.3})_{\Sigma=6.00}O_{18}\cdot 0.36H_2O$.

Occurrence: In miarolitic cavities in granite (Baveno, Italy); in alpine veins (Switzerland); in granite pegmatite (Heftetjern, Norway).

Association: Quartz, orthoclase, muscovite, laumontite, albite (Baveno, Italy); quartz, hematite, calcite, chlorite, albite, fluorite (Switzerland); beryl, bavenite (Heftetjern, Norway).

Distribution: From Baveno, Piedmont, Italy. In Switzerland, at Val Strem and elsewhere in Graubünden; on the Witenalp; at Wiler, Reusstal; and on Stollen Oberaar, Grimsel Pass. Near Heiligenblut, Carinthia, Austria. Large crystals from Heftetjern, Tørdal, Norway. At an undisclosed locality in central Kazakhstan. On Mts. Antero and White, Chaffee Co., Colorado, USA.

Name: To honor Alessandro E. Bazzi, discoverer of the material from Baveno, Italy.

Type Material: Municipal Museum of Natural History, Milan; University of Milan, Milan, Italy; The Natural History Museum, London, England, 1925,534; Natural History Museum, Paris, France, 115.132.

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