Miyahisaite $(Sr,Ca)_2Ba_3(PO_4)_3F$

Crystal Data: Hexagonal. *Point Group*: 6/*m*. As irregular grains to 10 μm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = 5
D(meas.) = n.d. D(calc.) = 4.511

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous.
Optical Class: n.d.

Cell Data: *Space Group*: $P6_3/m$. a = 9.921(2) c = 7.469(3) Z = 2

X-ray Powder Pattern: Shimoharai mine, Oita Prefecture, Japan.
2.981 (100), 1.976 (23), 3.248 (22), 2.865 (21), 1.864 (17), 3.427 (16), 1.874 (16)

Chemistry:

	(1)	(2)
CaO	4.69	
SrO	16.51	23.25
BaO	52.05	51.62
P_2O_5	24.85	23.89
F	1.99	2.13
Cl	0.06	
-O = Cl+F	0.85	-0.90
H_2O	[0.09]	.
Total	99.39	100.00

(1) Shimoharai mine, Oita Prefecture, Japan; average of 4 electron microprobe analyses, H_2O calculated for charge balance; corresponding to $(Sr_{1.366}Ca_{0.717})_{\Sigma=2.083}Ba_{2.991}P_{3.002}O_{12}(F_{0.898}OH_{0.088}Cl_{0.014})_{\Sigma=1}$. (2) $Sr_2Ba_3(PO_4)_3F$.

Mineral Group: Hedyphane subgroup of the apatite group.

Occurrence: In a metamorphosed (low grade) bedded Mn and chert deposit.

Association: Fluorapatite, namansilite, quartz.

Distribution: From the Shimoharai mine, Yayoi Udoki area, Saiki City, Oita Prefecture, Japan.

Name: Honors Michitoshi Miyahisa (1928-1983) for his contribution to the study of ore deposits on Kyushu.

Type Material: National Museum of Nature and Science, Tokyo, Japan (NSMM-41299).

References: (1) Nishio-Hamane, D., Y. Ogoshi, and T. Minakawa (2012) Miyahisaite, $(Sr,Ca)_2Ba_3(PO_4)_3F$, a new mineral of the hedyphane group in the apatite supergroup from the Shimoharai mine, Oita Prefecture, Japan. Journal of Mineralogical and Petrological Sciences, 107, 121-126. (2) (2014) Amer. Mineral., 99, 1516-1517 (abs. ref. 1).