Zanazziite \[ \text{Ca}_2(\text{Mg}, \text{Fe}^{2+})(\text{Mg}, \text{Fe}^{2+}, \text{Al})_4\text{Be}_4(\text{PO}_4)_6(\text{OH})_4\cdot6\text{H}_2\text{O} \]

Crystal Data: Monoclinic. Point Group: 2/m. In barrel-shaped pseudohexagonal crystals, to 4 mm, showing \{100\}, \{110\}, and \{001\}, in subparallel groups and divergent hemispherical sprays, with mosaic terminations; rarely as bladed crystals.

Physical Properties: Cleavage: \{100\}, good; \{010\}, distinct. Hardness = \( \sim 5 \)


Optical Class: Biaxial (+). Orientation: \( X = b; Z \wedge a = 3^\circ \quad \alpha = 1.606(2) \quad \beta = 1.610(2) \quad \gamma = 1.620(2) \quad 2V(\text{meas.}) = 72^\circ \quad 2V(\text{calc.}) = 65^\circ \)

Cell Data: Space Group: \( \text{C}2/c \). \( a = 15.874(4) \quad b = 11.854(3) \quad c = 6.605(1) \quad \beta = 95.34^\circ \quad Z = 2 \)

X-ray Powder Pattern: Lavra da Ilha pegmatite, Brazil; close to roscherite. 5.91 (100), 9.50 (90), 3.16 (70), 3.05 (50), 2.766 (50b), 1.642 (50b), 2.682 (40b)

Chemistry: \[ \begin{array}{lcc}
\text{SiO}_2 & 0.36 \\
\text{P}_2\text{O}_5 & 39.27 \\
\text{Al}_2\text{O}_3 & 1.54 \\
\text{Fe}_2\text{O}_3 & 0.76 \\
\text{FeO} & 9.63 \\
\text{MnO} & 1.77 \\
\text{BeO} & 9.81 \\
\text{MgO} & 11.66 \\
\text{CaO} & 10.65 \\
\text{H}_2\text{O} & 13.32 \\
\end{array} \]

Total 98.77

(1) Lavra da Ilha pegmatite, Brazil; by electron microprobe, average of 25 analyses on four grains, \( \text{Fe}^{2+}:\text{Fe}^{3+} \) from titrimetric analysis, \( \text{Be} \) by AA, \( \text{H}_2\text{O} \) by H analyzer; corresponds to \( \{\text{Ca}_{1.95}\text{Mn}_{0.05}\Sigma=2.00(\text{Mg}_{0.61}\text{Fe}_{2+}^{2+})\Sigma=1.01(\text{Mg}_{2.38}\text{Fe}_{1.08}^{2+}\text{Al}_{0.31}\text{Mn}_{0.23}\text{Fe}_{3+}^{3+})\Sigma=4.10^3\text{Be}_4(\text{P}_{0.96}\text{Be}_{0.01})\Sigma=0.98^3\text{Si}_{0.01}\Sigma=0.98^3\text{O}_{4.60}(\text{OH})_{3.4} \cdot 6.6\text{H}_2\text{O} \).

Occurrence: In a simply zoned granite pegmatite with other phosphates (Lavra da Ilha pegmatite, Brazil).

Association: Quartz, albite, muscovite, wardite, eosphorite, whiteite, apatite, pyrite, manganese oxides (Lavra da Ilha pegmatite, Brazil); fluorapatite, albite (Martin prospect, Newry, Maine, USA).

Distribution: From the Lavra da Ilha pegmatite, in the Jequitinhonha River, three km north of Taquaral, Minas Gerais, Brazil. In the Bell pit and from the Martin prospect, Newry, Oxford Co., Maine, USA.

Name: To honor Dr. Pier Francesco Zanazzi (1939– ), Professor of Mineralogy, University of Perugia, Perugia, Italy, for his structural studies of many minerals, including this one.


All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.