Mitridatite

\[
\text{Ca}_2\text{Fe}^{3+}_3\text{O}_2(\text{PO}_4)_3\cdot3\text{H}_2\text{O}
\]

Crystal Data:  Monoclinic.  Point Group:  \(m\).  Rarely as thin tabular pseudorhombohedral crystals, to 2 mm, comprised of \{100\}, \{001\}, \{T23\}; more commonly massive, as nodules, veins, and crusts.

Physical Properties:  Cleavage: Good on \{100\}.  Tenacity: Typically pulverulent, friable, gumlike.  Hardness = 2.5 if compact.  \(D(\text{meas.}) = 3.24(2)\)  \(D(\text{calc.}) = 3.249\)


2\(V(\text{meas.}) = 5^\circ–10^\circ\)

Cell Data:  Space Group: \(Aa\).  \(a = 17.553(2)\)  \(b = 19.354(3)\)  \(c = 11.248(2)\)  \(\beta = 95.84(1)^\circ\)  \(Z = 12\)

X-ray Powder Pattern:  White Elephant mine, South Dakota, USA.  
8.64 (10), 2.721 (7), 5.55 (6), 3.20 (4), 2.881 (4), 2.562 (4), 2.169 (4)

Chemistry:

\[
\begin{array}{ccc}
\text{P}_2\text{O}_5 & 31.5 & 34.41 \\
\text{Fe}_2\text{O}_4 & 35.6 & 38.72 \\
\text{Mn}_2\text{O}_3 & 2.7 & \\
\hline
\text{Total} & 100.0 & 100.00 \\
\end{array}
\]

(1) White Elephant mine, South Dakota, USA.  (2) \(\text{Ca}_2\text{Fe}_3\text{O}_2(\text{PO}_4)_3\cdot3\text{H}_2\text{O}\).

Occurrence:  A common stain or crust on minerals near oxidizing ferrous phosphate minerals, typically triphylite or vivianite in granite pegmatite; a component of cement or fossil replacements in some ferruginous oölitic sediments; in phosphatic soils.

Association:  Triphylite, vivianite, rockbridgeite, heterosite, luréaulite, fairfieldite, carylovite, jahnite, collinsite, apatite, iron hydroxides.

Distribution:  Probably more widespread than the literature suggests.  Well-studied material occurs at: the Kamysh-Burun iron deposit and numerous other localities near Kerch, Crimean Peninsula, Ukraine.  On the Taman Peninsula, and at the Voron’i massif, Kola Peninsula, Russia.  In South Africa, in the Boons and West Driefontein Caves, Transvaal.  In the USA, from the Tip Top, White Elephant, Bull Moose, and Linwood mines, near Custer, Custer Co., and the Gap Lode pegmatite, Pennington Co., South Dakota; in the Palermo #1 mine, near North Groton, Grafton Co., New Hampshire.  At Glen Chosaidh, Loch Quoich, Inverness-shire, Scotland.  In the Gunheath china clay pit, St. Austell, Cornwall, England.  From Hagendorf, Bavaria, Germany.  In the Manguela pegmatite, near Mesquitela, and in the Bendada pegmatite, near Guarda, Portugal.  At the Spring Creek mine, near Wilmington, South Australia.  From the Rubicon and Tsaboismund pegmatites, south of Karibib, Namibia.

Name:  For Mt. Mithridat [named for King Mithridates], within the city of Kerch, Ukraine, near which the first specimens were collected.

Type Material:  A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 87594.


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.