Yukonite \( \text{Ca}_7\text{Fe}^{3+}_{12}(\text{AsO}_4)_{10}(\text{OH})_{20} \cdot 15\text{H}_2\text{O}(?) \)

(C)2001-2005 Mineral Data Publishing, version 1

Crystal Data:  Amorphous, gellike to very poorly crystalline.  *Point Group*: n.d.
As irregular concretionary masses, typically strongly crackled.

Hardness = 2–3  \( D(\text{meas.}) = 2.65; 2.86 \) after gas evolution.  \( D(\text{calc.}) = \text{n.d.} \)
May decrepitate when fresh, on exposure to air, \( \text{H}_2\text{O} \), or warmth, with evolution of primarily \( \text{CO}_2 \).

*Optical Class*: Isotropic.  \( n = \text{n.d.} \)

Cell Data:  *Space Group*: n.d.  \( Z = \text{n.d.} \)

X-ray Powder Pattern:  Tagish Lake, Canada.
14.1 (100), 2.79 (60), 3.25 (57), 5.58 (37), 2.61 (20), 1.63 (20), 2.24 (11)

Chemistry:  

\[
\begin{array}{cccc}
\text{SO}_3 & \text{PO}_4 & \text{P}_2\text{O}_5 & \text{Fe}_2\text{O}_3 \\
0.12 & 0.09 & 0.22 & 36.6 \\
\text{As}_2\text{O}_5 & \text{SiO}_2 & \text{Fe}_2\text{O}_3 & \text{MnO} \\
39.68 & 0.21 & 30.25 & 0.44 \\
\text{CaO} & \text{H}_2\text{O}^+ & \text{H}_2\text{O}^- & \text{H}_2\text{O} \\
10.6 & 0.21 & 32.48 & 0.44 \\
\text{ZnO} & \text{MgO} & \text{H}_2\text{O} & \text{H}_2\text{O} \\
0.56 & 0.41 & 17.9 & 15.27 \\
\text{MgO} & \text{CaO} & \text{Total} & \text{Total} \\
0.41 & 10.6 & 101.4 & 100.00 \\
\end{array}
\]

(1) Tagish Lake, Canada; by electron microprobe, total Fe as \( \text{Fe}_2\text{O}_3 \), \( \text{H}_2\text{O} \) by TGA.
(2) Rødziny, Poland; by electron microprobe, total Fe as \( \text{Fe}_2\text{O}_3 \), \( \text{H}_2\text{O} \) calculated for charge balance; corresponds to \( (\text{Ca}_{0.64}\text{Mg}_{0.29}\text{Zn}_{0.19}\text{Mn}_{0.17})_{\Sigma=7.13}\text{Fe}_{10.70}\text{(AsO}_4)_{9.75}\text{(SiO}_4)_{0.10} \)
\( (\text{PO}_4)_{0.09}(\text{SO}_4)_{0.04})_{\Sigma=9.98}(\text{OH})_{16.37}\cdot 15.72\text{H}_2\text{O} \).  (3) \( \text{Ca}_7\text{Fe}_{12}(\text{AsO}_4)_{10}(\text{OH})_{20}\cdot 15\text{H}_2\text{O} \).

Occurrence:  A secondary mineral typically altered from arsenopyrite.

Association:  Symplectite, argentian galena, pyrargyrite, argentite, chalcopyrite, arsenopyrite, quartz (Tagish Lake, Canada); parasymplesite, köttigite, ogdensburgite, pharmacosiderite, legrandite, willemite, franklinite, sphalerite (Sterling Hill, New Jersey, USA); arsenopyrite, arseniosiderite, arsenolite, barian pharmacosiderite (Trout Creek, Colorado, USA); arsenopyrite, pharmacosiderite (Rødziny, Poland).

Distribution:  Found on the west side of Windy Arm, Tagish Lake, Yukon Territory, Canada.  In the USA, from Sterling Hill, Ogdensburg, Sussex Co., New Jersey, and the Crystal No. 8 mine, Trout Creek pegmatites, Chaffee Co., Colorado.  In Germany, from Saalfeld, Thuringia; at Graulai mountain, near Lammersdorf, Eifel district; from Hasseroode, near Wernigerode, Harz Mountains; and at Heubachtal, Black Forest.  From Rødziny, Poland.

Name:  For Yukon Territory, Canada, within which the mineral was first found.


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.