Leisingite  \((\text{Cu, Mg, Zn})_2(\text{Mg, Fe}^{2+})\text{Te}^{6+}\text{O}_6\cdot6\text{H}_2\text{O}\)

\(\odot2001-2005~\text{Mineral Data Publishing, version 1}\)

**Crystal Data:** Hexagonal. \(\text{Point Group: } 3m\). Hexagonal plates, to 0.2 mm, prominent \{0001\} and \{000\(\overline{1}\)\}, with \{10\(\overline{1}\)0\}, \{11\(\overline{2}\)0\}; may be isolated or in clusters.


**Optical Properties:** Transparent to translucent. Color: Pale yellow to pale yellow-orange. Streak: Pale yellow. Luster: Vitreous, may be satiny or frosted.

**Optical Class:** Uniaxial (−). \(\omega = 1.803(3)\) \(\epsilon = [1.581]\) calculated by Gladstone-Dale relation.

**Cell Data:** \(\text{Space Group: } P\overline{3}1m.\) \(a = 5.316(1)\) \(c = 9.719(2)\) \(Z = 1\)

**X-ray Powder Pattern:** Centennial Eureka mine, Utah, USA. 9.70 (100), 4.834 (80), 2.556 (70), 2.326 (70), 4.604 (60), 2.655 (60), 1.789 (40)

**Chemistry:**

\[
\begin{array}{cc}
\text{Component} & \text{Mol. Percent} \\
\text{TeO}_3 & 36.94 \\
\text{FeO} & 6.86 \\
\text{CuO} & 24.71 \\
\text{ZnO} & 0.45 \\
\text{MgO} & 6.19 \\
\text{H}_2\text{O} & 21.55 \\
\text{Total} & 96.70 \\
\end{array}
\]

(1) Centennial Eureka mine, Utah, USA; by electron microprobe, total Fe as Fe\(^{2+}\) [although the crystal-structure analysis indicates a probability of Fe\(^{3+}\)], H\(_2\)O confirmed as present by IR; corresponds to \((\text{Cu}^{2+}\text{Mg}_{0.56}\text{Zn}_{0.03})\Sigma=1.84(\text{Mg}_{0.52}\text{Fe}_{0.48})\Sigma=1.00\text{Te}^{6+}\text{O}_6\cdot6\text{H}_2\text{O} \cdot 5.98\text{H}_2\text{O}.

**Occurrence:** A very rare secondary mineral in dump material from the oxidized zone of a tellurium-bearing Cu–Au–Ag deposit.

**Association:** Quartz, jensenite, cesbronite, hematite.

**Distribution:** From the Centennial Eureka mine, Tintic district, Juab Co., Utah, USA.

**Name:** Honoring Joseph F. Leising (1949– ), Reno, Nevada, USA, geologist and mineral collector, who helped collect the material.

**Type Material:** Canadian Geological Survey, Ottawa, Canada, 67882.


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.