Magnolite $Hg_2^{1+}Te^{4+}O_3$

Crystal Data: Orthorhombic. *Point Group:* $mm2$. Crystals bladed, showing {100} and {010}, striated on {001} ∥ [001], in parallel to subparallel groups, or acicular, elongated along [001], to 1 mm, in tufted aggregates.

Physical Properties: *Cleavage:* {001}, perfect; ⊥ {001}, good. *Tenacity:* Brittle. Hardness = "Soft". D(meas.) = n.d. D(calc.) = 8.12

Optical Properties: Transparent to opaque. *Color:* Colorless, creamy white, pale yellow-green; internally dark brown. *Streak:* Pale brown. *Luster:* Adamantine, silky in aggregates. *Optical Class:* Biaxial (+). *Orientation:* $X = b$; $Y = a$; $Z = c$. $n = > 2$ α = n.d. β = n.d. γ = n.d. 2V(meas.) = ≥45°

Cell Data: *Space Group:* $Pbm2$. $a = 5.958(1)$ $b = 10.576(2)$ $c = 3.749(1)$ $Z = 2$

X-ray Powder Pattern: Colorado, USA.
3.043 (100), 3.95 (70), 5.25 (50), 2.587 (50), 1.757 (50), 3.74 (40), 1.986 (40)

Chemistry:

	(1)	(2)
TeO_2	28.9	27.67
Hg_2O	72.3	72.33
Total	101.2	100.00

(1) Keystone mine, Colorado, USA; by electron microprobe, average of five analyses, valences from crystal-structure analysis; corresponds to $Hg_{1.94}Te_{1.01}O_3$. (2) Hg_2TeO_3.

Occurrence: A late alteration product of coloradoite, formed at low temperature and oxygen fugacity, in the oxidized zone of complex polymetallic hydrothermal mineral deposits.

Association: Mercury, coloradoite, tellurite, gold, tellurium, keystoneite, "limonite", manganese oxides, quartz.

Distribution: From the Keystone and Mountain Lion mines, Magnolia district, Boulder Co., Colorado, USA.

Name: For the Magnolia district, Colorado, USA, in which the species was first noted.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 65534; Harvard University, Cambridge, Massachusetts, 112683; National Museum of Natural History, Washington, D.C., USA, 165455.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 980. (2) Roberts, A.C., M. Bonardi, J.D. Grice, T.S. Ercit, and W.W. Pinch (1989) A restudy of magnolite, $Hg_2^{1+}Te^{4+}O_3$, from Colorado. Can. Mineral., 27, 129–131. (3) Grice, J.D. (1989) The crystal structure of magnolite, $Hg_2^{1+}Te^{4+}O_3$. Can. Mineral., 27, 133–136. (4) (1990) Amer. Mineral., 75, 437 (abs. refs. 2 and 3).