Mroseite $CaTe^{4+}O_2(CO_3)$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals may show poorly developed {100}, with elongation parallel [001], very small, commonly with a crude radiating structure; typically massive.

Physical Properties: Hardness = ∼4 D(meas.) = 4.35 D(calc.) = 4.171

Optical Properties: Semitransparent. *Color:* Colorless to white. *Streak:* White. *Luster:* Adamantine.
Optical Class: Biaxial (–). *Orientation:* $X = a$; $Y = c$; $Z = b$. *Dispersion:* $r \ll v$. $\alpha = 1.79$ $\beta = 1.85$ $\gamma = 1.89$ 2V(meas.) = 74°

Cell Data: *Space Group: Pbca.* $a = 6.988(15)$ $b = 11.201(10)$ $c = 10.566(10)$ Z = 8

X-ray Powder Pattern: Moctezuma mine, Mexico.
3.14 (10), 5.14 (9), 4.20 (8), 1.97 (8), 3.35 (7), 3.02 (7), 2.39 (7)

Chemistry:

	(1)	(2)
TeO_2	61.3	61.46
CO_2	16.8	16.95
CaO	22.4	21.59
Total	100.5	100.00

(1) Moctezuma mine, Mexico; by neutron activation, CO_2 by TGA; corresponds to $Ca_{1.03}Te_{0.99}O_{2.00}(C_{0.99}O_3)$. (2) $CaTeO_2(CO_3)$.

Occurrence: Very rare in a hydrothermal Au–Te deposit (Moctezuma mine, Mexico).

Association: Spiroffite, tellurium, tellurite, denningite, zemannite, quartz (Moctezuma mine, Mexico); oboyerite, choloalite, gold (Tombstone, Arizona, USA).

Distribution: From the Moctezuma (Bambolla) mine, 12 km south of Moctezuma, Sonora, Mexico. In the Tombstone Exploration open pit, Tombstone, Cochise Co., Arizona, USA.

Name: To honor Mary Emma Mrose (1910–2003), American mineralogist, U.S. Geological Survey, Washington, D.C.

Type Material: Royal Ontario Museum, Toronto, Canada, M33757.

References: (1) Mandarino, J.A., R.S. Mitchell, and R.G.V. Hancock (1975) Mroseite, a calcium tellurite-carbonate from Moctezuma, Sonora, Mexico. Can. Mineral., 13, 286–288. (2) (1976) Amer. Mineral., 61, 339 (abs. ref. 1). (3) Fischer, R., F. Pertlik, and J. Zemann (1975) The crystal structure of mroseite, $CaTeO_2(CO_3)$. Can. Mineral., 13, 383–387.