Metazellerite $Ca(UO_2)(CO_3)_2 \cdot 3H_2O$

Crystal Data: Orthorhombic. *Point Group:* $mm2$ or $2/m\ 2/m\ 2/m$. A topotactic replacement of fibrous zellerite.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.414 Radioactive.

Optical Properties: Translucent. *Color:* Pale yellow. *Luster:* Chalky.
Optical Class: Biaxial (–). *Orientation:* $Z = c$. $n = 1.626$ α = n.d. β = n.d. γ = n.d.
2V(meas.) = n.d.

Cell Data: *Space Group:* $Pbn2_1$ or $Pbnm$. $a = 9.718(5)$ $b = 18.226(9)$ $c = 4.965(4)$
Z = 4

X-ray Powder Pattern: Lucky Mc mine, Wyoming, USA.
9.10 (100), 3.794 (50), 4.695 (36), 4.296 (36), 4.552 (18), 4.412 (18), 3.978 (18)

Chemistry: (1) No analysis could be performed; crystal chemical considerations indicate dehydration from $5H_2O$ in zellerite to $3H_2O$ in metazellerite.

Occurrence: A dehydration product of zellerite.

Association: Zellerite, gypsum, "limonite", iron sulfides, schoepite, meta-autunite, uranophane, voglite, "opal".

Distribution: In the USA, from the Lucky Mc mine, Wind River Basin, Fremont Co., Wyoming; in the White Canyon # 1 mine, Frey Point, San Juan Co., Colorado. At Jáchymov (Joachimsthal), Czech Republic. Other zellerite localities must also have this species.

Name: From the Greek *meta*, for a lower hydrate of *zellerite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 112827.

References: (1) Coleman, R.G., D.R. Ross, and R. Meyrowitz (1966) Zellerite and metazellerite, new uranyl carbonates. Amer. Mineral., 51, 1567–1578.