Metavandendriesscheite $PbU_7O_{22}\cdot nH_2O$ (n < 12)

Crystal Data: Orthorhombic. *Point Group:* [$2/m$ $2/m$ $2/m$ or $mm2$] (by analogy to vandendriesscheite). A very fine-grained alteration product, intergrown in parallel and threaded with minute tubes, within vandendriesscheite crystals.

Physical Properties: Hardness = n.d. D(meas.) = 5.45 D(calc.) = [5.71–5.79] Alters from vandendriesscheite by dehydration.

Optical Properties: Transparent. *Color:* [Amber-yellow, yellowish orange to orange] (by analogy to vandendriesscheite).
Optical Class: Biaxial (–) (optics given here are for vandendriesscheite). *Pleochroism:* X = nearly colorless; $Y = Z$ = yellow-orange to golden yellow. *Orientation:* $X = c$; $Y = b$; $Z = a$. *Dispersion:* $r > v$, strong. $\alpha = 1.780(5)$ $\beta = 1.850(10)$ $\gamma = 1.860(10)$ 2V(meas.) = 60(2)°

Cell Data: *Space Group:* [$Pmma$, $P2_1ma$, or $Pm2a$] (by analogy to vandendriesscheite).
$a = 14.07(30)$ $b = 41.31(30)$ $c = 43.33(30)$ Z = [35]

X-ray Powder Pattern: Shinkolobwe, Congo; pattern here identical to vandendriesscheite with which it is inextricably intergrown.
7.24 (100), 3.61 (100), 3.17 (75), 1.985 (40), 3.53 (25b), 2.522 (25), 2.034 (15)

Chemistry: An analysis of pure metavandendriesscheite has not been made; its hydration is variable, less than vandendriesscheite, from which it alters by dehydration.

Occurrence: In the oxidized zone of a uranium-bearing mineral deposit.

Association: Vandendriesscheite, fourmarierite, becquerelite, metatorbernite, rutherfordine, uraninite.

Distribution: From Shinkolobwe, Katanga Province, Congo (Shaba Province, Zaire). Presumably other vandendriesscheite localites are likewise localities for metavandendriesscheite.

Name: As a dehydration product of *vandendriesscheite*.

Type Material: Harvard University, Cambridge, Massachusetts, USA, 106523.

References: (1) Christ, C.L. and J.R. Clark (1960) Crystal chemical studies of some uranyl oxide hydrates [vandendriesscheite-II]. Amer. Mineral., 45, 1026–1061.