Hydrombobomkulite \( (\text{Ni, Cu})\text{Al}_4[(\text{NO}_3)_2, \text{SO}_4](\text{OH})_{12} \cdot 13-14\text{H}_2\text{O} \)

Crystal Data: [Monoclinic.] (by analogy to mbobomkulite). Point Group: n.d. As powdery nodules and microcrystalline coatings; on dehydration exfoliates into “tiny” hexagonal plates.


Optical Properties: Translucent. Color: Blue; colorless in transmitted light. Optical Class: [Biaxial, weakly birefringent.] \( \alpha = \text{n.d.} \quad \beta = \text{n.d.} \quad \gamma = \text{n.d.} \quad 2V(\text{meas.}) = \text{n.d.} \)

Cell Data: Space Group: n.d. \( a = 10.145 \quad b = 17.155 \quad c = 20.870 \quad \beta = 90.55^\circ \quad Z = 8 \)

X-ray Powder Pattern: Mbobo Mkulu Cave, South Africa.
10.45 (100), 5.229 (50), 3.485 (30), 2.489 (15), 6.233 (10), 4.899 (10), 4.172 (10)

Chemistry: (1) Mbobo Mkulu Cave, South Africa; desiccation of hydrombobomkulite with 32.10% weight loss of \( \text{H}_2\text{O} \), then identity of X-ray pattern with that of mbobomkulite establishes the formula.

Occurrence: By the interaction of solutions of nickel sulfate from weathering Cu–Ni-bearing sulfides with aluminosilicate minerals and nitrate derived from bat guano (Mbobo Mkulu Cave, South Africa); in a sedimentary U–V deposit (Jomac mine, Utah, USA).

Association: Allophane, mbobomkulite, chalcoalumite (Mbobo Mkulu Cave, South Africa); oswaldpeetersite, cuprite, antlerite, goethite, lepidocrocite, mbobomkulite, sklodowskite, gypsum (Jomac mine, Utah, USA).

Distribution: From the Mbobo Mkulu Cave, near Ngodwana, Eastern Transvaal, South Africa. At the Jomac mine, White Canyon district, San Juan Co., Utah, USA.

Name: As the hydrated equivalent of mbobomkulite.
