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

©2001-2005 Mineral Data Publishing, version 1

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

**Physical Properties:**  
**Cleavage:** [On \{001\}, perfect.]  
**Tenacity:** Friable in aggregates.  
**Hardness:** [“Very soft.”]  
D(meas.) = n.d.  
D(calc.) = n.d.  
Dehydrates readily to mbobomkulite.

**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*.

**Type Material:**  

**References:**  

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.