Phuralumite  \( \text{Al}_2(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_6 \cdot 10\text{H}_2\text{O} \)

Crystal Data: Monoclinic.  
Point Group: 2/m. As prismatic crystals, elongated along [001], flattened on [010], with \{110\}, \{010\}, \{001\}, to 0.5 mm, in crystalline veinlets and crusts.

Physical Properties: Cleavage: On \{010\}, perfect. Hardness = \(\sim 3\)  
D meas. = 3.5  
D calc. = 3.52  
Radioactive.

Optical Properties: Semitransparent.  
Color: Lemon-yellow.  
Optical Class: Biaxial (-).  
Pleochroism: X = bright yellow; Y = Z = pale yellow.  
Orientation: X = b; Y \& c = 0°–8°.  
\(\alpha = 1.559\)  
\(\beta = 1.616\)  
\(\gamma = 1.624\)  
\(2V\) meas. = 40°

Cell Data:  
Space Group: \(\text{P}2_1/\text{a}\).  
a = 13.836(6)  
b = 20.918(6)  
c = 9.428(3)  
\(\beta = 112.44(3)°\)  
Z = 4

X-ray Powder Pattern: Kobokobo pegmatite, Congo.  
10.4 (100), 3.08 (80), 5.17 (70), 3.40 (50), 3.47 (40), 8.0 (20), 2.95 (20)

Chemistry:  
|  \(\text{UO}_3\) | (1) | 65.9 |
|  \(\text{P}_2\text{O}_5\) | (2) | 10.3 |
|  \(\text{Al}_2\text{O}_3\) | | 7.6 |
|  \(\text{H}_2\text{O}\) | (16.2) | 17.53 |
| Total | 100.0 |

(1) Kobokobo pegmatite, Congo; by electron microprobe, \(\text{H}_2\text{O}\) by difference.  
(2) \(\text{Al}_2(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_6 \cdot 10\text{H}_2\text{O}\).

Occurrence: A rare secondary mineral in the oxidized uraniferous zone of a complex granite pegmatite.

Association: Meta-autunite, phosphuranylite, threadgoldite, upalite.

Distribution: From the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire).

Name: For PHosphorus, URanium, and ALUMinum in the composition.

Type Material: Royal Museum of Central Africa, Tervuren, Belgium, RMG6201, RMG6195, RMG6197, RMG9852.

References:  
(1) Deliens, M. and P. Piret (1979) Les phosphates d’uranyle et d’aluminium de Kobokobo. II. La phuralumite \(\text{Al}_2(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_6 \cdot 10\text{H}_2\text{O}\) et l’upalite \(\text{Al}(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_3\), nouveaux minéraux. Bull. Minéral., 102, 333–337 (in French with English abs.).  