Kolwezite  

\[(\text{Cu, Co})_2(\text{CO}_3)(\text{OH})_2\]

Crystal Data: Triclinic.  
Point Group: \(\overline{1}\) or \(1\). In spherical aggregates, to 1 cm, and microcrystalline crusts.

Physical Properties:  
Hardness = \(\sim 4\)  
\(D(\text{meas.}) = 3.97(1)\)  
\(D(\text{calc.}) = 3.94\)

Optical Properties:  
Semitransparent.  
Color: Blackish brown to pale beige, greenish.  
Streak: Beige.  
Optical Class: Biaxial.  
\(\alpha = 1.688(2)\)  
\(\beta = \text{n.d.}\)  
\(\gamma = 1.90\)  
\(2V(\text{meas.}) = \text{n.d.}\)

Cell Data:  
Space Group: \(P\overline{1}\) or \(P1\).  
\(a = 9.50\)  
\(b = 12.15\)  
\(c = 3.189\)  
\(\alpha = 93.32^\circ\)  
\(\beta = 90.74^\circ\)  
\(\gamma = 91.47^\circ\)  
\(Z = 4\)

X-ray Powder Pattern: Musonoi mine, Congo.  
3.69 (100), 6.08 (80), 5.08 (80), 2.599 (70), 3.02 (40), 2.958 (40), 2.531 (40)

Chemistry:  
\[
\begin{array}{l}
\text{CO}_2 & 19.44 \\
\text{CoO} & 22.98 \\
\text{CuO} & 48.40 \\
\text{H}_2\text{O} & 8.78 \\
\hline
\text{Total} & 99.60 \\
\end{array}
\]

(1) Musonoi mine, Congo; by X-ray fluorescence, \(\text{CO}_2\) by gas evolution, \(\text{CO}_2 + \text{H}_2\text{O}\) by TGA; corresponding to \((\text{Cu}_{1.33}\text{Co}_{0.67})\Sigma=2.00(\text{CO}_3)_{0.98}(\text{OH})_{2.07}\).

Mineral Group: Rosasite group.

Occurrence: An uncommon secondary mineral in the oxidation zone of some Cu–Co hydrothermal ore deposits.

Association: Cobaltian malachite, cobaltian dolomite, heterogenite.

Distribution: From the Musonoi and Kamoto Cu–Co mines, near Kolwezi, and the Mupine, and Mashamba West mines, Katanga Province, Congo (Shaba Province, Zaire).

Name: For its occurrence at Kolwezi, Congo.

Type Material:  