Shannonite Pb$_2$O(CO$_3$)

Crystal Data: Orthorhombic. Point Group: 222. Anhedral to platy crystals, to 400 µm, aggregated into porcelaneous crusts.

D(meas.) = n.d. D(calc.) = 7.31–7.59

Optical Class: Biaxial. $n = [2.09]$ $\alpha = $ n.d. $\beta = $ n.d. $\gamma = $ n.d. 2V(meas.) = n.d.

Cell Data: Space Group: P$\overline{2_1}$$\overline{1}$$\overline{1}$$\overline{2}$ (synthetic). $a = 9.014(1)$ $b = 9.315(1)$ $c = 5.1465(7)$ $Z = 4$

X-ray Powder Pattern: Grand Reef mine, Arizona, USA.
3.215 (100), 3.181 (90), 4.02 (40), 2.858 (40), 2.564 (35), 6.49 (30), 4.14 (30)

Chemistry:
\begin{tabular}{ccc}
& (1) & (2) \\
CO$_2$ & 9.70 & 8.97 \\
PbO & 89.9 & 91.03 \\
Total & 99.6 & 100.00 \\
\end{tabular}

(1) Grand Reef mine, Arizona, USA; by electron microprobe, CO$_2$ by CHN analyzer; corresponding to Pb$_{1.91}$O(C$_{1.05}$O$_3$)$_3$. (2) Pb$_2$O(CO$_3$)$_3$.

Occurrence: A rare secondary mineral formed in the oxidation zone, probably by acidic groundwater reacting with cerussite, in a lead ore deposit (Grand Reef mine, Arizona, USA).

Association: Cerussite, litharge, massicot, minium, hydrocerussite, fluorite, plumbojarosite, hematite, manganese oxides, quartz, muscovite (Grand Reef mine, Arizona, USA).

Distribution: From the Grand Reef mine, about six km northeast of Klondyke, Aravaipa district, Graham Co., Arizona, USA.

Name: Honors David Michael Shannon (1942–2003??ck??), mineral dealer and collector, Mesa, Arizona, USA, who provided the original material.
