Yedlinite Pb\textsubscript{6}CrCl\textsubscript{6}(O, OH)\textsubscript{8}

Crystal Data: Hexagonal. Point Group: 3. As prismatic hexagonal crystals, to 1 mm, with dominant \{1\overline{2}0\} and \{1101\}, and \{0001\}, \{10\overline{1}0\}, \{20\overline{2}1\}.

Physical Properties: Cleavage: \{1\overline{2}0\}, distinct. Tenacity: Somewhat sectile. Hardness = \sim 2.5 \ D(meas.) = 5.85(4) \ D(calc.) = 5.80

Optical Properties: Transparent to translucent. Color: Red-violet, may be zoned. Streak: White. Optical Class: Uniaxial (−). Pleochroism: Moderate; \(O\) = pale Cobalt blue; \(E\) = lavender. \(\omega = 2.125\) \(\epsilon = 2.059\)

Cell Data: Space Group: \(R\overline{3}\). \(a = 12.868(2)\) \(c = 9.821(2)\) \(Z = 3\)

X-ray Powder Pattern: Mammoth-St. Anthony mine, Arizona, USA. 2.952 (100), 2.622 (68), 4.506 (65), 6.44 (32), 2.473 (27), 3.879 (23), 3.178 (19)

Chemistry:
\[
\begin{array}{lcc}
\text{Pb} & 79.4 & 75.81 \\
\text{Mn} & 0.7 & \\
\text{Cr} & 3.8 & 3.17 \\
\text{Cl} & 7.5 & 12.97 \\
\text{H} & 0.25 & \\
\text{O} & [8.6] & 7.80 \\
\hline
\text{Total} & [100.0] & 100.00
\end{array}
\]

(1) Mammoth-St. Anthony mine, Arizona, USA; by electron microprobe, average of ten analyses, \(O\) by difference. (2) \(\text{Pb}_6\text{CrCl}_6\text{O}_4(\text{OH})_4\).

Occurrence: A very rare late-stage secondary mineral in an oxidized polymetallic hydrothermal ore deposit.

Association: Diaboleite, phosgenite, matlockite, wherryite, wulfenite, diopside, cerussite, mimetite, willemite, hemimorphite, fluorite, quartz.

Distribution: From the Mammoth-St. Anthony mine, Tiger, Pinal Co., Arizona, USA.

Name: To honor Leo Neal Yedlin (1908–1977), American mineral collector of microscopic specimens, of New Haven, Connecticut, USA, who first noted the mineral.
