Yedlinite $Pb_6CrCl_6(O,OH)_8$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}$. As prismatic hexagonal crystals, to 1 mm, with dominant $\{11\overline{2}0\}$ and $\{1101\}$, and $\{0001\}$, $\{10\overline{1}0\}$, $\{20\overline{2}1\}$.

Physical Properties: *Cleavage:* $\{11\overline{2}0\}$, distinct. *Tenacity:* Somewhat sectile. Hardness = ∼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), 1.787 (19)

Chemistry:

	(1)	(2)
Pb	79.4	75.81
Mn	0.7	
Cr	3.8	3.17
Cl	7.5	12.97
H		0.25
O	[8.6]	7.80
Total	[100.0]	100.00

(1) Mammoth-St. Anthony mine, Arizona, USA; by electron microprobe, average of ten analyses, O by difference. (2) $Pb_6CrCl_6O_4(OH)_4$.

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

Association: Diaboleite, phosgenite, matlockite, wherryite, wulfenite, dioptase, 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.

Type Material: Mineral Museum, University of Arizona, Tucson, Arizona, X5562; National Museum of Natural History, Washington, D.C., USA, R8171.

References: (1) McLean, W.J., R.A. Bideaux, and R.W. Thomssen (1974) Yedlinite, a new mineral from the Mammoth mine, Tiger, Arizona. Amer. Mineral., 59, 1157–1159. (2) Wood, M.M., W.J. McLean, and R.B. Laughon (1974) The crystal structure and composition of yedlinite. Amer. Mineral., 59, 1160–1165.