Georgerobinsonite $Pb_4(CrO_4)_2(OH)_2FCl$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As minute intergrowths of thin tabular crystals < 0.1 mm with {001} dominant and {010} and {110}; as isolated crystals or fan-like sprays.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 2.5-3 D(meas.) = n.d. D(calc.) = 3.54 Nonfluorescent.

Optical Properties: Transparent. *Color*: Orange-red. *Streak*: Pale orange. *Luster*: Adamantine. *Optical Class*: Biaxial. $\alpha \approx 2.07$ $\beta > 2.11$ $\gamma > 2.11$ 2V(meas.) = 84(2)° *Pleochroism*: Strong, *X* = *Y* = orange, *Z* = yellow. *Dispersion*: Strong, *r* > *v*. *Orientation*: *X* = *a*, *Y* = *c*, *Z* = *b*.

Cell Data: *Space Group*: *Pmmn*. *a* = 7.613(2) *b* = 11.574(3) *c* = 6.883(2) Z = 2

X-Ray Diffraction Pattern: Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona. 2.131 (100), 3.308 (80), 3.195 (80), 6.371 (60), 3.357 (60), 3.143 (60), 4.445 (50)

Chemistry:

	(1)
CrO_3	14.79
PbO	77.99
SO_3	1.64
F	1.47
Cl	3.39
H_2O	[1.52]
Total	99.42

(1) Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona; average electron microprobe analysis supplemented by IR spectroscopy, H_2O calculated from structure; corresponds to $Pb_{4.09}(Cr^{6+}_{1.73}S_{0.24})_{\Sigma=1.97}O_8(OH)_{1.98}F_{0.90}Cl_{1.12}$.

Occurrence: In vugs in silicified rock in a deeply weathered gold-silver-molybdenum-lead-zinc-vanadium, hydrothermal mineral deposit.

Association: Caledonite, a cerchiaraite-related mineral, cerussite, diaboleite, Cr-bearing leadhillite, matlockite, murdochite, pinalite, wulfenite, yedlinite, quartz.

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

Name: Honors Dr. *George* Willard *Robinson* (b. 1946), mineral curator, researcher, teacher, and field collector.

Type Material: Royal Ontario Museum, Toronto, Ontario, Canada (M54947).

References: (1) Cooper, M.A., N.A. Ball, F.C. Hawthorne, W.H. Paar, A.C. Roberts, and E. Moffatt (2011) Georgerobinsonite, $Pb_4(CrO_4)_2(OH)_2FCl$, a new chromate mineral from the Mammoth-St. Anthony mine, Tiger, Pinal County, Arizona: Description and crystal structure. Can. Mineral., 49, 865-876.