

Vladkrivovichevite**[Pb₃₂O₁₈][Pb₄Mn₂O]Cl₁₄(BO₃)₈•2H₂O**

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As grains < 0.1 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Conchoidal. *Tenacity:* Brittle. *Hardness* = n.d. D(meas.) = n.d. D(calc.) = 7.40

Optical Properties: Transparent to translucent. *Color:* Pale greenish yellow, gray with a bluish tint and colorless internal reflections in reflected light. *Streak:* White. *Luster:* Adamantine.

Optical Class: n.d.

R₁-R₂: (470) 17.2-17.9, (546) 15.7-16.3, (589) 15.5-16.1, (650) 15.4-16.1

Cell Data: *Space Group:* Pmmn. *a* = 12.759(1) *b* = 27.169(4), *c* = 11.515(1) *Z* = 2

X-ray Powder Pattern: Kombat mine, Namibia.

2.860 (100), 2.733 (84), 3.707 (49), 3.068 (37), 2.075 (32), 1.601 (32), 1.5950 (28)

Chemistry:	(1)
PbO	91.15
MnO	1.34
B ₂ O ₃	[3.13]
Cl	5.59
H ₂ O	[0.84]
<u>-O=Cl₂</u>	<u>1.29</u>
Total	100.76

(1) Kombat mine, Namibia; average of 15 electron microprobe analyses, B₂O₃ and H₂O calculated from structural analysis; corresponding to Pb_{36.32}O₁₉Mn_{1.68}Cl_{13.99}(BO₃)₈•2H₂O.

Occurrence: Most likely a late-stage, low-temperature hydrothermal (epigenetic) reworking of primary Pb-Cu-Zn-Ag sulfides. Known from a single specimen purchased commercially.

Association: Hereroite, asisite, damaraite, kombatite, sahlinite, quartz, native copper, barysilite, hausmannite, jacobsonite, manganite.

Distribution: From the Kombat mine, Grootfontein, Namibia.

Name: Honors Professor Vladimir Gerasimovich Krivovichev (b. 1946), Head of the Mineralogy Department, Geological Faculty, St. Petersburg State University, Russia.

Type Material: Natural History Museum, London, England (BM2010, 101).

References: (1) Turner, R., O.I. Siidra, M.S. Rumsey, S.V. Krivovichev, C.J. Stanley, and J. Spratt (2012) Hereroite and vladkrivovichevite: two novel lead oxychlorides from the Kombat mine, Namibia. *Mineral. Mag.*, 76(4), 883-890. (2) (2015) *Amer. Mineral.*, 100, 1325-1326 (abs. ref. 1). (3) Siidra, O.I., S.V. Krivovichev, R.W. Turner, M.S. Rumsey, and J. Spratt (2013) Crystal chemistry of layered Pb oxychloride minerals with PbO-related structures: Part II. Crystal structure of vladkrivovichevite, [Pb₃₂O₁₈][Pb₄Mn₂O]Cl₁₄(BO₃)₈•2H₂O. *Amer. Mineral.*, 98, 256-261.