Hereroite $[Pb_{32}(O,\square)_{21}](AsO_4)_2[(Si,As,V,Mo)O_4]_2Cl_{10}$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As grains < 1 mm and in aggregates to 3 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Conchoidal. *Tenacity*: Brittle. *Hardness* = n.d. D(meas.) = n.d. D(calc.) = 8.15

Optical Properties: Transparent to translucent. *Color*: Bright orange, gray with a bluish tint in reflected light. *Streak*: White. *Luster*: Adamantine. *Bireflectance*: Masked by yellowish orange internal reflections.
Optical Class: n.d.
R: (470) 17.9, (546) 16.9, (589) 16.6, (650) 16.3

Cell Data: *Space Group*: *C*2/*c*. a = 23.139(4) b = 22.684(4) c = 12.389(2) β = 102.090(3)°
Z = 4

X-ray Powder Pattern: Kombat mine, Namibia.
2.982 (100), 2.795 (47), 1.986 (24), 1.641 (24), 3.512 (23), 3.901 (21), 1.7580 (14)

Chemistry:

	(1)	(2)
PbO	91.90	91.02
As_2O_5	3.81	2.93
SiO_2	0.74	1.53
V_2O_5	0.35	
MoO_3	0.31	
Cl	4.49	4.52
$-O=Cl_2$	1.01	.
Total	100.59	100.00

(1) Kombat mine, Namibia; average of 20 electron microprobe analyses; corresponding to $[Pb_{32}O_{20.70}](AsO_4)_2[(Si_{0.48}As_{0.29}V_{0.15}Mo_{0.09})_{\Sigma=1.01}O_4]_2Cl_{9.84}$.
(2) $[Pb_{32}(O,\square)_{21}](AsO_4)_2[(Si,As,V,Mo)O_4]_2Cl_{10}$.

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: Vladkrivovichevite, asisite, damaraite, kombatite, sahlinite, quartz, native copper, barysilite, hausmannite, jacobsite, manganite.

Distribution: From the Kombat mine, Grootfontein, Namibia.

Name: For the *Herero* people, one of the indigenous tribes in the region near the Kombat mine.

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 I. Crystal structure of hereroite, $[Pb_{32}O_{20}(O,\square)](AsO_4)_2[(Si,As,V,Mo)O_4]_2Cl_{10}$. Amer. Mineral., 98, 248-255.