

Cheremnykhite

$\text{Pb}_3\text{Zn}_3\text{Te}^{6+}\text{O}_6(\text{VO}_4)_2$

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$, $mm2$, or 222 . Crystals are tabular, elongate, to 0.5 mm, showing $\{100\}$ and $\{010\}$.

Physical Properties: *Cleavage:* One, perfect. *Fracture:* Brittle. Hardness = n.d. VHN = 673 (10 g load). D(meas.) = 6.44 D(calc.) = [6.39]

Optical Properties: Transparent. *Color:* Greenish yellow. *Streak:* White. *Luster:* Adamantine.

Optical Class: Biaxial (-). *Orientation:* $X = a$; $Y = b$; $Z = c$. *Dispersion:* $r > v$. $\alpha = 1.986(5)$
 $\beta = \text{n.d.}$ $\gamma = 1.997(5)$ $2V(\text{meas.}) = 20^\circ$

Cell Data: *Space Group:* $Cmmm$, $Cmm2$, $Cm2m$, or $C222$. $a = 8.58(3)$ $b = 14.86(5)$
 $c = 5.18(3)$ $Z = 2$

X-ray Powder Pattern: Kuranakh deposit, Russia.
3.30 (10), 3.00 (9), 1.607 (6), 1.903 (5), 2.470 (4), 3.66 (3), 2.120 (3)

Chemistry:	(1)	(2)
TeO_3	13.76	13.81
P_2O_5	0.06	
As_2O_5	2.02	
V_2O_5	9.25	14.31
Sb_2O_5	0.06	
SiO_2	2.16	
ZnO	18.89	19.21
PbO	53.04	52.67
Total	99.24	100.00

(1) Kuranakh deposit, Russia; by electron microprobe, average of 10 analyses, corresponds to $\text{Pb}_{3.03}\text{Zn}_{2.97}\text{Te}_{1.00}\text{O}_{5.77}[(\text{V}_{0.65}\text{Si}_{0.23}\text{As}_{0.11})_{\Sigma=0.99}\text{O}_4]_2$. (2) $\text{Pb}_3\text{Zn}_3\text{TeO}_6(\text{VO}_4)_2$.

Occurrence: A late-stage mineral in the oxidized zone of a tellurium-bearing gold deposit.

Association: Kuksite, Si-rich dugganite, yafsoanite, descloizite, calcite.

Distribution: In the Kuranakh gold deposit, near Aldan, Sakha, Russia.

Name: To honor I.M. Cheremnykh (1928–), geologist, a discoverer of the Kuranakh deposit.

Type Material: Institute of Geosciences, Yakutsk Scientific Center, Academy of Sciences, Yakutsk, Russia, mk-113.

References: (1) Kim, A.A., N.V. Zayakina, and V.F. Makhotko (1990) Kuksite $\text{Pb}_3\text{Zn}_3\text{TeO}_6(\text{PO}_4)_2$ and cheremnykhite $\text{Pb}_3\text{Zn}_3\text{TeO}_6(\text{VO}_4)_2$ – new tellurates from the Kuranakh gold deposit (central Aldan, southern Yakutia [Sakha]). *Zap. Vses. Mineral. Obshch.*, 119(5), 50–57 (in Russian). (2) (1992) *Amer. Mineral.*, 77, 446 (abs. ref. 1).