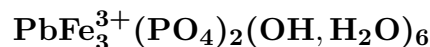


Kintoreite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Crystals are rhombohedral, $\{11\bar{2}2\}$, to 2 mm; as hemispheres and globular crusts.

Physical Properties: *Cleavage:* Good on $\{0001\}$. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 4 D(meas.) = > 4.2 D(calc.) = 4.34

Optical Properties: Transparent to translucent. *Color:* Cream to yellowish green. *Streak:* Pale yellowish green. *Luster:* Vitreous to adamantine (crystals); greasy to waxy (aggregates). *Optical Class:* Uniaxial (-). *Pleochroism:* Light yellowish green to medium yellow. $n = 1.935\text{--}1.955$

Cell Data: *Space Group:* $[R\bar{3}m]$ (by analogy to crandallite). $a = 7.3310(7)$ $c = 16.885(2)$ $Z = 3$

X-ray Powder Pattern: Kintore open cut, Broken Hill, Australia. 3.07 (100), 5.96 (90), 3.67 (60), 2.538 (50), 2.257 (50), 1.979 (50), 2.971 (40)

Chemistry:

	(1)
SO ₃	2.02
P ₂ O ₅	13.30
As ₂ O ₅	6.43
CO ₂	0.73
Al ₂ O ₃	0.02
Fe ₂ O ₃	34.01
CuO	0.25
ZnO	1.58
PbO	31.37
BaO	0.09
H ₂ O	9.0
Total	[98.80]

(1) Kintore open cut, Broken Hill, Australia; by electron microprobe, average of six analyses, original total given as 98.90%, total Fe as Fe₂O₃, H₂O and CO₂ by CHN analyzer; corresponding to Pb_{0.97}(Fe_{2.95}Zn_{0.13}Cu_{0.02})_{Σ=3.10}[(PO₄)_{1.30}(AsO₄)_{0.39}(SO₄)_{0.18}(CO₃)_{0.11}]_{Σ=1.98}(OH)_{5.45}•0.74H₂O.

Mineral Group: Crandallite group.

Occurrence: A rare secondary mineral in the oxidized zone of a Pb–Zn deposit.

Association: Segnitite, pyromorphite, mimetite, libethenite, hinsdalite, rockbridgeite–dufrénite, apatite, goethite.

Distribution: In Australia, from the Kintore and Block 14 open cuts, Broken Hill, New South Wales. In Germany, from the Clara mine, near Oberwolfach, and the Igelschlatt mine, near Grafenhausen, Black Forest.

Name: For the site from which the best specimens were first collected, the Kintore open cut, Broken Hill, Australia.

Type Material: The South Australia Museum, Adelaide, G14354; Museum Victoria, Melbourne, Australia, M42891.

References: (1) Pring, A., W.D. Birch, J. Dawe, M. Taylor, M. Deliens, and K. Walenta (1995) Kintoreite, PbFe₃(PO₄)₂(OH, H₂O)₆, a new mineral of the jarosite-alunite family, and lusungite discredited. *Mineral. Mag.*, 59, 143–148. (2) (1995) *Amer. Mineral.*, 80, 1073–1074 (abs. ref. 1). (3) Kharisun, M.R. Taylor, and D.J.M. Bevan (1997) The crystal structure of kintoreite, PbFe₃(PO₄)₂(OH, H₂O)₆. *Mineral. Mag.*, 61, 123–129.

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