

Iraqite-(La)**K(Ca, Na)₄(La, Ce, Th)₂(Si, Al)₁₆O₄₀**

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Crystal Data: Tetragonal. *Point Group:* 4/m 2/m 2/m. Anhedronal, massive.**Physical Properties:** *Cleavage:* Three orthogonal, two good and one poor. *Fracture:* Uneven. Hardness = 4.5 VHN = 245–314 D(meas.) = [3.27] (slightly corrected for impurities). D(calc.) = 3.28**Optical Properties:** Semitransparent. *Color:* Pale greenish yellow; in thin section, colorless. *Streak:* Whitish. *Luster:* Dull to pearly. *Optical Class:* Uniaxial (-); anomalously biaxial. *Orientation:* Extinction angles to 7°. $\omega = 1.590$ $\epsilon = 1.585$ **Cell Data:** *Space Group:* [P4/mcc] (by analogy to ekanite). $a = 7.61(1)$ $c = 14.72(2)$ Z = 1**X-ray Powder Pattern:** Shakhi-Rash Mountain, Iraq. 5.28 (100), 3.31 (100), 2.64 (100), 7.36 (80), 3.38 (80), 3.40 (60), 2.17 (40)

Chemistry:	(1)	(1)
	SiO ₂ 51.7	CaO 12.00
	ZrO ₂ 0.17	Na ₂ O 0.27
	ThO ₂ 9.54	K ₂ O 2.76
	UO ₂ 0.65	F 0.07
	Al ₂ O ₃ 0.77	H ₂ O ⁺ 3.51
	RE ₂ O ₃ 15.06	H ₂ O ⁻ 0.90
	Fe ₂ O ₃ 0.22	CO ₂ 1.00
	CuO 0.07	P ₂ O ₅ 0.01
	PbO 0.35	S 0.14
	MgO 0.02	-O = F ₂ 0.03
		Total 99.18

(1) Shakhi-Rash Mountain, Iraq; Zr, Th, RE by XRF, U by delayed neutron activation; RE₂O₃ = La₂O₃ 6.78%, Ce₂O₃ 6.44%, Pr₂O₃ 0.44%, Nd₂O₃ 0.88%, Sm₂O₃ 0.17%, Gd₂O₃ 0.10%, Yt₂O₃ [sic] 0.25%; after deduction of calcite 2.27% and pyrite 0.26%, corresponds to K_{1.07}[Ca_{3.49}(La, Ce)_{0.35}Na_{0.16}]_{Σ=4.00}[(La, Ce)_{1.33}Th_{0.66}]_{Σ=1.99}(Si_{15.69}Al_{0.27})_{Σ=15.96}(O_{39.93}F_{0.07})_{Σ=40.00}.

Occurrence: In granite in contact with dolomitic marble containing olivine and diopside.**Association:** n.d.**Distribution:** At Shakhi-Rash Mountain, Hero Town, Qala-Diza, Iraq.**Name:** For the country of origin, *Iraq*, and *lanthanum* in the composition.**Type Material:** The Natural History Museum, London, England, 1973,481; National School of Mines, Paris, France.**References:** (1) Livingstone, A., D. Atkin, D. Hutchison, and H.M. Al-Hermezi (1976) Iraqite, a new rare-earth mineral of the ekanite group. *Mineral. Mag.*, 40, 441–445. (2) (1976) *Amer. Mineral.*, 61, 1054 (abs. ref. 1).