

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Rare euhedral crystals, equant to prismatic [001], showing {110}, {120}, {130}, {140}, {111}, {121}, {112}, {132}, {101}, {011}, {021}, {001}, to 2 cm; anhedral grains.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = 6.5–7 D(meas.) = 3.47–3.50 D(calc.) = 3.446

**Optical Properties:** Transparent. *Color:* Colorless, pale yellow, yellow, greenish brown, dark brown; brownish pink, pale pink if chromian; colorless in transmitted light. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Pleochroism:* Weak;  $X$  = brown, pale yellow;  $Y$  = green, pale brown, bluish gray;  $Z$  = paler brown, pale greenish brown, pale pinkish gray. *Orientation:*  $X = b$ ;  $Y = c$ ;  $Z = a$ . *Absorption:*  $X > Y > Z$ .  $\alpha = 1.667$ – $1.676$   $\beta = 1.697$ – $1.704$   $\gamma = 1.705$ – $1.712$   $2V(\text{meas.}) = 55^\circ$   $2V(\text{calc.}) = 55.6(8)^\circ$

**Cell Data:** *Space Group:*  $Pbnm$ .  $a = 4.3320(4)$   $b = 9.8819(5)$   $c = 5.6813(4)$   $Z = 4$

**X-ray Powder Pattern:** Sri Lanka.

2.14 (vvs), 1.621 (vs), 3.24 (s), 2.62 (s), 4.93 (ms), 2.38 (ms), 2.30 (ms)

**Chemistry:**

	(1)	(2)	(3)
B <sub>2</sub> O <sub>3</sub>	24.2	[27.70]	27.61
Al <sub>2</sub> O <sub>3</sub>	41.0	41.91	40.43
Fe <sub>2</sub> O <sub>3</sub>	2.0		
FeO		2.10	
MgO	32.3	29.24	31.96
H <sub>2</sub> O	0.3		
Total	99.8	[100.95]	100.00

(1) Sri Lanka; corresponds to Mg<sub>1.02</sub>(Al<sub>1.03</sub>Fe<sub>0.03</sub><sup>3+</sup>)<sub>Σ=1.06</sub>B<sub>0.89</sub>O<sub>3.94</sub>. (2) Do.; by electron microprobe, average of ten analyses, total Fe as FeO, B<sub>2</sub>O<sub>3</sub> calculated from stoichiometry; corresponds to (Mg<sub>0.91</sub>Fe<sub>0.04</sub><sup>2+</sup>Al<sub>0.04</sub>)<sub>Σ=0.99</sub>Al<sub>1.00</sub>BO<sub>4</sub>. (3) MgAlBO<sub>4</sub>.

**Occurrence:** A rare accessory mineral formed in boron-rich skarns at the contact of limestones with granite or gneiss.

**Association:** Spinel, serendibite, ludwigite, warwickite.

**Distribution:** From Sri Lanka, in gem gravels, in the Ratnapura district, at Nivitigala, Balangoda, Nirialla; around Elahera and Eheliyagoda; and elsewhere. From Mogok, Myanmar, in gem gravels. In the USA, at Johnsbury, Warren Co., New York, and in the Bodnar quarry, near Hamburg, Sussex Co., New Jersey. Found near Bancroft, Ontario, Canada. From the Kwakonje area, Handeni district, Tanzania. In the Tayozhnoye iron deposit, 550 km south of Yakutsk, and the Taiga boron–iron deposit, Sakha, Russia. From the Huayuangou boron deposit, Liaoning Province, China.

**Name:** From *Sinhala*, the Sanskrit name for Ceylon.

**Type Material:** The Natural History Museum, London, England, 1952,36–1952,37 and other earlier museum specimens.

**References:** (1) Claringbull, F.A. and M.H. Hey (1952) Sinhralite (MgAlBO<sub>4</sub>), a new mineral. Mineral. Mag., 29, 841–849. (2) Payne, C.J. (1958) A crystal of sinhralite from Mogok, Burma. Mineral. Mag., 31, 978–978. (3) Hayward, C.L., R.J. Angel, and N.L. Ross (1994) The structural redetermination and crystal chemistry of sinhralite, MgAlBO<sub>4</sub>. Eur. J. Mineral., 6, 313–321. (4) Pitman, L.C., C.S. Hurlbut, Jr., and C.A. Francis (1995) Euhedral sinhralite crystals from Sri Lanka. Mineral. Record, 26, 91–94.

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