

# Aristarainite

# $\text{Na}_2\text{MgB}_{12}\text{O}_{16}(\text{OH})_8 \cdot 4\text{H}_2\text{O}$

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**Crystal Data:** Monoclinic. Point Group:  $2/m$ . As tabular {100} or elongated [010] crystals, to 0.4 mm, comprised of {100}, {001}, {110}, {210}, and several less common forms. As rosettelike aggregates and efflorescent crusts.

**Physical Properties:** Cleavage: {001} and {100}, perfect; {110}, fair. Fracture: Splintery || [010]. Tenacity: Brittle. Hardness = 3.5 D(meas.) = 2.027(5) D(calc.) = 2.005 Moderate cream-white fluorescence under SW UV; weak phosphorescence.

**Optical Properties:** Transparent to translucent. Color: Colorless to white. Luster: Vitreous. Optical Class: Biaxial (+). Orientation:  $X = b$ ;  $Y \wedge c = -38^\circ$ ;  $Z \wedge a = 46^\circ$ . Dispersion:  $r > v$ , weak.  $\alpha = 1.484(1)$   $\beta = 1.498(1)$   $\gamma = 1.523(1)$  2V(meas.) =  $70^\circ$

**Cell Data:** Space Group:  $P2_1/a$ .  $a = 18.886(4)$   $b = 7.521(2)$   $c = 7.815(1)$   $\beta = 97.72(1)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Tincalayu deposit, Argentina.  
7.74 (100), 2.579 (19), 3.037 (13), 3.869 (12), 5.40 (11), 2.400 (10), 3.782 (9)

## Chemistry:

	(1)	(2)
$\text{B}_2\text{O}_3$	59.5	62.90
MgO	5.65	6.07
$\text{Na}_2\text{O}$	7.3	9.33
$\text{K}_2\text{O}$	1.05	
$\text{H}_2\text{O}$	25.7	21.70
insol.	0.5	
Total	99.7	100.00

(1) Tincalayu deposit, Argentina; with  $(\text{OH})^{1-}$  calculated for charge balance, corresponds to  $(\text{Na}_{1.65}\text{K}_{0.16})_{\Sigma=1.81}\text{Mg}_{0.98}\text{B}_{12.00}\text{O}_{16.00}(\text{OH})_{7.76} \cdot 6.14\text{H}_2\text{O}$ . (2)  $\text{Na}_2\text{MgB}_{12}\text{O}_{16}(\text{OH})_8 \cdot 4\text{H}_2\text{O}$ .

**Occurrence:** In a playa evaporite sequence (Tincalayu deposit, Argentina); at a desert borax spring (Eagle Borax Spring, California, USA).

**Association:** Borax, kernite, rivadavite, ezcurrense, ameghinite, mcallisterite, kurnakovite, searlesite, probertite, gonorite, tincalconite, ulexite, halite, magnesite (Tincalayu deposit, Argentina); thénardite, blödite, mcallisterite, santite, hexahydrite, halite, gypsum (Eagle Borax Spring, California, USA).

**Distribution:** From the Tincalayu borax deposit, Salar del Hombre Muerto, Salta Province, Argentina. In the USA, on the South Meridian claim and at Eagle Borax Spring, Furnace Creek district, Death Valley, Inyo Co., California.

**Name:** Honors Professor Lorenzo Francisco Aristarain (1926– ), Argentine mineralogist specializing in borate deposits, La Plata University, Buenos Aires, Argentina.

**Type Material:** Natural History Museum, Paris, France; Harvard University, Cambridge, Massachusetts, 109679; National Museum of Natural History, Washington, D.C., USA, 136046, 137296.

**References:** (1) Hurlbut, Jr., C.S. and R.C. Erd (1974) Aristarainite,  $\text{Na}_2\text{O} \cdot \text{MgO} \cdot 6\text{B}_2\text{O}_3 \cdot 10\text{H}_2\text{O}$ , a new mineral from Salta, Argentina. Amer. Mineral., 59, 647–651. (2) Ghose, S. and Che'ng Wan (1977) Aristarainite:  $\text{Na}_2\text{Mg}[\text{B}_6\text{O}_8(\text{OH})_4]_2 \cdot 4\text{H}_2\text{O}$ : a sheet structure with chains of hexaborate polyanions. Amer. Mineral., 62, 979–989.