Ezcurrite $Na_4B_{10}O_{17}\cdot 7H_2O$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$. As bladed to fibrous prismatic crystals, moderately striated and elongated along [001], may be bent, to 7.5 cm; as intergrown cleavable masses.

Physical Properties: *Cleavage:* {110}, excellent; {010}, good; {100}, {$\overline{12}$6}, fair; {1$\overline{1}$0}, {$\overline{1}$01}, poor. *Tenacity:* Brittle. Hardness = 3 (‖ {001}), 3.5 (⊥ {001}). D(meas.) = 2.053 D(calc.) = 2.049 Soluble in H_2O.

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous to satiny. *Optical Class:* Biaxial (–). *Orientation:* X (177°,86°); Y (–90°,47°); Z (82°,43°) [using (ϕ,ρ)]. *Dispersion:* $r > v$. $\alpha = 1.468(1)$ $\beta = 1.507(1)$ $\gamma = 1.529(1)$ 2V(meas.) = 73.5°

Cell Data: *Space Group:* $P\overline{1}$. $a = 8.598(2)$ $b = 9.570(2)$ $c = 6.576(2)$ $\alpha = 102°45(3)'$ $\beta = 107°30(3)'$ $\gamma = 71°31(3)'$ Z = 1

X-ray Powder Pattern: Tincalayu deposit, Argentina.
6.936 (100), 3.074 (38), 4.494 (29), 3.135 (19), 2.780 (19), 2.039 (10), 3.302 (8)

Chemistry:

	(1)	(2)
B_2O_3	59.4	58.20
Na_2O	19.8	21.08
K_2O	0.18	
H_2O^+	20.4	20.72
Total	99.78	100.00

(1) Tincalayu deposit, Argentina; $(OH)^{1-}$ and H_2O confirmed by DTA; corresponds to $Na_{3.98}B_{10.54}O_{17}\cdot 7H_2O$. (2) $Na_4B_{10}O_{17}\cdot 7H_2O$.

Occurrence: Probably formed from solutions derived from dehydration of borax in a discordant deposit in folded playa siltstones and sandstones.

Association: Borax, kernite, halite.

Distribution: From the Tincalayu borax deposit, Salar del Hombre Muerto, Salta Province, Argentina.

Name: Honors Juan Manuel de Ezcurra (1900–1970), Manager of the Compania Productora de Boratos, S.A., owner of the Tincalayu deposit, Argentina.

Type Material: National Museum of Natural History, Washington, D.C., USA, 123927.

References: (1) Muessig, S. and R.D. Allen (1957) Ezcurrite ($2Na_2O\cdot 5B_2O_3\cdot 7H_2O$), a new sodium borate from Argentina: occurrence, mineralogy, and associated minerals. Econ. Geol., 52, 426–437. (2) Hurlbut, C.S., Jr., and L.F. Aristarain (1967) Ezcurrite, $2Na_2O\cdot 5B_2O_3\cdot 7H_2O$: a restudy. Amer. Mineral., 52, 1048–1059. (3) Cannillo, E., A. Dal Negro, and L. Ungaretti (1973) The crystal structure of ezcurrite. Amer. Mineral., 58, 110–115.