

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As platy crystals to 0.4 mm, flattened on {010}, that display {010}, {001}, {100}, {110}, {01 $\bar{1}$ }, {1 $\bar{2}$ 0}, {2 $\bar{1}$ 0}, {123}, { $\bar{1}$ 23}, { $\bar{1}$ 31}, and {1 $\bar{3}$ 1}.

Physical Properties: *Cleavage:* Good on {010}, {001}, and {201}. *Tenacity:* Brittle. *Fracture:* n.d. Hardness = 2.5 D(meas.) = 2.13(2) D(calc.) = 2.129

Optical Properties: Transparent. *Color:* Colorless. *Streak:* n.d. *Luster:* Vitreous. *Optical Class:* Biaxial (-). $\alpha = 1.513(2)$ $\beta = 1.522(2)$ $\gamma = 1.526(2)$ $2V(\text{meas.}) = 62(1)^\circ$ $2V(\text{calc.}) = 67^\circ$ *Orientation:* $X \wedge b = 41^\circ$, $Y \wedge c = 45^\circ$, $Z \wedge a = 44^\circ$. *Dispersion:* Weak, $r > v$.

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.600(2)$ $b = 7.450(3)$ $c = 7.671(3)$ $\alpha = 74.785(7)^\circ$ $\beta = 86.042(7)^\circ$ $\gamma = 75.810(7)^\circ$ $Z = 1$

X-ray Powder Pattern: La Vendida mine, Antofagasta Region, Atacama Desert, Chile. 6.975 (100), 4.391 (72), 4.459 (40), 3.766 (31), 3.695 (29), 2.552 (26), 3.491 (24)

Chemistry:	(1)	(2)
Al ₂ O ₃	24.36	26.26
SO ₃	40.69	41.24
H ₂ O	34(2)	32.50
Total	99.05	100.00

(1) La Vendida mine, Antofagasta Region, Atacama Desert, Chile; average of 7 electron microprobe analyses supplemented by IR spectroscopy, H₂O by gas chromatography, OH/H₂O calculated for charge balance; corresponds to Al_{0.93}(SO₄)_{0.99}(OH)_{0.81}·3.25H₂O. (2) Al(SO₄)(OH)·3H₂O.

Occurrence: A secondary mineral in fissures cutting highly-altered volcanic breccia.

Association: Vendidaite, eriochalcite, Mg-rich aubertite, magnesioaubertite, belloite, alunite, kaolinite, halloysite.

Distribution: From La Vendida mine (before 1990 known as the Rio Tinto mine), near Sierra Gorda, Antofagasta Region, Atacama Desert, Chile.

Name: For the former (before 1990) name of the mine, *Rio Tinto*, that produced the first samples.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4774/1) and Natural History Museum of Los Angeles County, Los Angeles, USA (65628).

References: (1) Chukanov, N.V., S.M. Aksenov, R.K. Rastsvetaeva, A.R. Kampf, G. Möhn, D.I. Belakovskiy, and J.A. Lorenz (2016) Riotintoite, Al(SO₄)(OH)·3H₂O, a new mineral from La Vendida copper mine, Antofagasta Region, Chile. *Can. Mineral.*, 54, 1293-1305. (2) (2018) *Amer. Mineral.*, 103, 335-336 (abs. ref. 1).