Ammoniotinsleyite $(NH_4)Al_2(PO_4)_2(OH)\cdot 2H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As globular, porous, polycrystalline aggregates to 3 mm comprised of individual crystals to ~15 μm.

Physical Properties: Cleavage: None. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 4
D(meas.) = 2.42(2) D(calc.) = 2.451

Optical Properties: Translucent to transparent. *Color*: Pink to pale violet. *Streak*: White.
Luster: Vitreous.
Optical Class: Biaxial (+). α = 1.557(2) β = 1.559 (calc.) γ = 1.563(2) 2V(meas.) = 75(10)°

Cell Data: *Space Group*: $P2_1/n$. a = 9.5871(1) b = 9.6089(1) c = 9.6467(1) β = 103.446(1)° Z = 4

X-ray Powder Pattern: Pabellón de Pica Mountain, Iquique Province, Tarapacá Region, Chile.
5.947 (100), 6.71 (79), 4.676 (36), 2.635 (29), 3.032 (28), 2.958 (25), 7.50 (23)

Chemistry:

	(1)	(2)
$(NH_4)_2O$	7.25	8.27
K_2O	1.50	
MgO	0.42	
CaO	0.34	
Al_2O_3	29.91	32.37
Fe_2O_3	2.36	
P_2O_5	43.97	45.06
H_2O	14.89	14.30
Total	100.64	100.00

(1) Pabellón de Pica Mountain, near Chanabaya village, Iquique Province, Tarapacá Region, Chile; average electron microprobe and IR spectroscopic analyses; H, C, and N measured by gas chromatography on products of ignition at 1200 °C, no CO_2 detected; corresponds to $[(NH_4)_{0.88}K_{0.10}Ca_{0.02}]_{\Sigma=1.00}(Al_{1.86}Fe^{3+}_{0.09}Mg_{0.03})_{\Sigma=1.98}(PO_4)_{1.96}(OH)_{1.05}\cdot 2.11H_2O$.
(2) $(NH_4)Al_2(PO_4)_2(OH)\cdot 2H_2O$.

Mineral Group: Leucophosphite group.

Occurrence: In a guano deposit in a desert.

Association: Halite, gypsum, salammoniac, clay minerals.

Distribution: From the lower part of the southern slope of Pabellón de Pica Mountain, near Chanabaya village, Iquique Province, Tarapacá Region, Chile.

Name: The prefix identifies the ammonium analogue of *tinsleyite*.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5510/1).

References: (1) Chukanov, N.V., G. Möhn, I.V. Pekov, N.V. Zubkova, D.A. Ksenofontov, D.I. Belakovskiy, S.A. Vozchikova, S.N. Britvin, and J. Desor (2020) Ammoniotinsleyite, $(NH_4)Al_2(PO_4)_2(OH)\cdot 2H_2O$, a new mineral species from the guano deposit at Pabellón de Pica, Iquique Province, Chile. Mineral. Mag., 84, 705-711.