Deltalumite $(Al_{0.67}\square_{0.33})Al_2O_4$

Crystal Data: Tetragonal. *Point Group*: $\bar{4}$ 2*m*. Forms roundish aggregates to 0.2 mm consisting of blocky prismatic crystals to 0.03 mm.

Physical Properties: *Cleavage*: n.d. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.663

Optical Properties: Translucent. *Color*: Pale yellowish, pale beige, white. *Luster*: Vitreous. *Optical Class*: Uniaxial (-). ω = 1.654(2) ε = 1.653(2)

Cell Data: *Space Group*: $P\bar{4}$ *m*2 (by analogy to synthetic δ-Al_2O_3). *a* = 5.608(1) *c* = 23.513(7) Z = 16

X-Ray Diffraction Pattern: Ploskiy Tolbachik volcano, Kamchatka peninsula, Russia. 1.396 (100), 1.993 (81), 2.728 (61), 2.424 (51), 2.408 (49), 1.954 (48), 2.281 (42)

Chemistry:

	(1)
Al_2O_3	99.74
SiO_2	0.04
Total	99.78

(1) Ploskiy Tolbachik volcano, Kamchatka peninsula, Far-Eastern Region, Russia; average electron microprobe analysis; corresponding to $(Al_{0.67}\square_{0.33})Al_2O_4$.

Polymorphism & Series: A dimorph of corundum.

Mineral Group: Spinel supergroup, oxyspinel group, spinel subgroup.

Occurrence: In pores of basaltic rock and scoria altered by volcanic fumarolic gas.

Association: n.d.

Distribution: Near Ploskiy Tolbachik volcano, Kamchatka peninsula, Far-Eastern Region, Russia.

Name: From the name of the synthetic compound δ-Al_2O_3 .

Type Material: A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (4767/1).

References: (1) Pekov, I.V., L.P. Anikin, N.V. Chukanov, D.I. Belakovskiy, V.O. Yapaskurt, E.G. Sidorov, S.N. Britvin, and N.V. Zubkova (2019) Deltalumite, a new natural modification of alumina with spinel-type structure. Zap. Ross. Mineral. Obshch., 148(5), 45-58 (in Russian with English abs.).