

$[(\text{Mg}, \text{Fe}^{2+})_5\text{Al}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_8] \cdot [(\text{Ca}_{0.5}, \text{Na})_{0.33}(\text{Al}, \text{Fe}, \text{Mg})_{2-3}(\text{Al}, \text{Si})_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}]$

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Crystal Data: Monoclinic. *Point Group:* 2. Microscopically crystalline, in aggregates.

Physical Properties: *Cleavage:* Perfect on {001}. *Hardness* = ~1 *D(meas.)* = 2.83 *D(calc.)* = n.d.

Optical Properties: Semitransparent. *Color:* Colorless, white, dark blue to azure.

Luster: Nonmetallic.

Optical Class: Biaxial (-). $\alpha = 1.564$ $\beta = 1.570$ $\gamma = 1.574$ $2V(\text{meas.}) = 59^\circ$

Cell Data: *Space Group:* *C*2. $a = 5.17$ $b = 8.97$ $c = 24.2$ $\beta = 94^\circ$ $Z = \text{n.d.}$

X-ray Powder Pattern: Takatama mine, Japan.

30.4 (100), 15.2 (75), 4.480 (30), 5.006 (20), 2.562 (12), 1.493 (12), 3.30 (8)

Chemistry:

	(1)
SiO ₂	41.60
Al ₂ O ₃	36.40
Fe ₂ O ₃	1.82
MgO	0.29
CaO	0.38
Li ₂ O	1.04
Na ₂ O	0.14
K ₂ O	0.38
H ₂ O ⁺	11.12
H ₂ O ⁻	6.87
rem.	0.37
Total	100.41

(1) Tooho mine, Japan.

Polymorphism & Series: A 1:1 regular interstratification of dioctahedral chlorite and smectite.

Occurrence: A hydrothermal alteration product of intermediate to felsic igneous rocks. From the alteration of sandstone by acidic pore waters.

Association: Rectorite, dickite, quartz, fluorite (Tooho mine, Japan).

Distribution: At Alushta, Crimea, Ukraine. From Huy, Belgium. At Ehrenfriedersdorf, Saxony, Germany. In Japan, in the Tooho mine, Aichi Prefecture; the Hokuno mine, Hokuno, Gifu Prefecture; the Takatama mine, Fukushima Prefecture; the Kurata mine, Yamaguchi Prefecture, and elsewhere. From the White Mountain gold mine, Cottonwood district, Washoe Co., Nevada, USA.

Name: Honors Professor Toshio Sudo (1911–), mineralogist and crystallographer, of the University of Tokyo, Tokyo, Japan.

Type Material: n.d.

References: (1) Frank-Kamenetskii, V.A., N.V. Logvinenko, and V.A. Drits (1963) A dioctahedral mixed-layer clay mineral, tosudite. *Zap. Vses. Mineral. Obshch.*, 92, 560–565 (in Russian). (2) (1964) *Amer. Mineral.*, 49, 816 (abs. ref. 1). (3) Korolev, Y.M. (1970) An electron-diffraction study of the polytypes of tosudite. *Kristallografiya (Sov. Phys. Crystal.)*, 15, 1152–1155 (in Russian). (4) Shimoda, S. (1969) New data for tosudite. *Clays and Clay Minerals*, 17, 179–184. (5) Nishiyama, T., S. Shimoda, K. Shimosaka, and S. Kanaoka (1975) Lithium-bearing tosudite. *Clays and Clay Minerals*, 23, 337–342. (6) Bailey, S.W. (1982) Nomenclature for regular interstratifications. *Amer. Mineral.*, 67, 394–398.

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