Tosudite

$[(Mg, Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8]\cdot$
$[(Ca_{0.5}, Na)_{0.33}(Al, Fe, Mg)_{2-3}(Al, Si)_4O_{10}(OH)_2\cdot nH_2O]$

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(meas.) = 59°

Cell Data: *Space Group:* $C2$. $a = 5.17$ $b = 8.97$ $c = 24.2$ $\beta = 94°$ Z = 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_2O_3	36.40
Fe_2O_3	1.82
MgO	0.29
CaO	0.38
Li_2O	1.04
Na_2O	0.14
K_2O	0.38
H_2O^+	11.12
H_2O^-	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.