Erssonite $CaMg_7Fe^{3+}_2(OH)_{18}(SO_4)_2 \cdot 12H_2O$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$ 2/*m*. As platy hexagonal crystals flattened on [0001], to 0.5 mm across and 10 μm thick, mainly as aggregates to a few mm. Displays {0001} dominant with narrow lateral faces.

Physical Properties: *Cleavage*: Perfect, mica-like on {0001}. *Tenacity*: Malleable; crystals are flexible and non-elastic. *Fracture*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.02

Optical Properties: Transparent. *Color*: Colorless. *Streak*: n.d. *Luster*: Vitreous. *Optical Class*: Uniaxial (+). $\omega = 1.556$ $\varepsilon = 1.540$

Cell Data: *Space Group: P*$\bar{3}$ *c*1. $a = 9.3550(6)$ $c = 22.5462(14)$ $Z = 2$

X-Ray Diffraction Pattern: Långban mine, Filipstad district, Värmland county, Sweden. 4.670 (100), 11.22 (90), 2.435 (66), 5.63 (64), 2.626 (64), 1.951 (45), 2.193 (40)

Chemistry:

	(1)
MgO	28.67
CaO	2.76
Al_2O_3	0.23
Cr_2O_3	0.23
Fe_2O_3	16.00
SiO_2	0.48
SO_3	14.80
H_2O	[35.58]
Total	98.75

(1) Långban mine, Filipstad district, Värmland county, Sweden; average electron microprobe analysis supplemented by Raman spectroscopy, H_2O calculated from structure, Fe_2O_3 from structure and for charge balance; corresponds to $H_{41.48}Ca_{0.52}Mg_{7.47}Fe^{3+}_{2.11}Al_{0.05}Cr_{0.03}S_{1.94}Si_{0.08}O_{38}$.

Mineral Group: Hydrotalcite supergroup, wermlandite group.

Occurrence: In a late-stage, low-temperature assemblage likely formed by hydrothermal alteration in cavities of magnetite-bearing dolomitic rock.

Association: Dolomite, calcite, members of the magnetite-magnesioferrite solid solution series, phlogopite, chrysotile, pyroaurite, norbergite.

Distribution: From the dumps of the Långban mine, Filipstad district, Värmland county, Sweden.

Name: Honors chemist and amateur mineralogist, Dr. Anders *Ersson* (b. 1971), Senior Engineer, Materials Technology section at Scania AB, Södertälje, Sweden, who collected the studied material.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5669/1) and the Swedish Museum of Natural History (Naturhistoriska Riksmuseet), Stockholm, Sweden (GEO-NRM #20210001).

References: (1) Zhitova, E.S., N.V. Chukanov, E. Jonsson, I.V. Pekov, D.I. Belakovskiy, M.V. Vigasina, N.V. Zubkova, K.V. Van, and S.N. Britvin (2021) Erssonite, $CaMg_7Fe^{3+}_2(OH)_{18}(SO_4)_2 \cdot 12H_2O$, a new hydrotalcite-supergroup mineral from Långban, Sweden. Mineral. Mag. 85, 817-826. (2) (2022) Amer. Mineral., 107, 319 (abs. ref. 1).