Tashelgite $Ca_2Mg_2Fe^{2+}{}_2Al_{18}O_{32}(OH)_2$

Crystal Data: Monoclinic. *Point Group*: *m*. As prismatic or fibrous crystals or in parallel aggregates to 2 mm elongated along [100] and flattened on {001}; in felty aggregates to 10 mm. *Twinning*: Polysynthetic on {001}.

Physical Properties: *Cleavage*: None. *Fracture:* n.d. *Tenacity*: Brittle. Hardness = 7.5
D(meas.) = n.d. D(calc.) = 3.67

Optical Properties: Transparent to translucent. *Color*: Bluish green; white (felty aggregates).
Streak: n.d. *Luster*: Vitreous.
Optical Class: Biaxial (-). α = 1.736(2) β = 1.746(2) γ = 1.750(2) 2V(meas.) = 20(2)°
2V(calc.) = n.d. *Dispersion*: $r < v$, strong. *Orientation*: $X = a$, $Y \sim b$, $Z = c$. *Pleochroism*: Distinct, X = blue-green, Y = yellowish green, Z = almost colorless. *Absorption*: $X > Y > Z$.

Cell Data: *Space Group: Pc*. a = 5.6973(1) b = 17.1823(4) c = 23.5718(5) β = 90.046(3)° Z = 4

X-ray Powder Pattern: Tashelga River valley, Gorny Shoria, Kemerovo oblast, Russia.
2.616 (100), 2.584 (81), 2.202 (72), 2.406 (61), 11.79 (48), 2.437 (44), 2.845 (43)

Chemistry:	(1)
CaO	7.98
MgO	6.75
MnO	0.45
FeO	[11.32]
Fe_2O_3	[1.40]
Al_2O_3	70.70
H_2O	1.8
Total	100.40

(1) Tashelga River valley, Gorny Shoria, Kemerovo oblast, Russia; average of 5 electron microprobe analyses, supplemented by FTIR spectroscopy, Fe_2O_3/FeO estimated from peak heights in X-ray spectrum, H_2O by LOI; corresponds to $H_{1.27}Ca_{0.90}Mg_{1.06}Mn_{0.04}Fe^{+}_{21.00}Fe^{+}_{30.11}Al_{8.80}O_{17.00}$.

Occurrence: In skarn-like rocks anomalously enriched with Al_2O_3.

Association: Calcite, hibonite, grossular, vesuvianite, hercynite, magnetite, corundum, perovskite, scapolite, diopside, apatite.

Distribution: From near the mouth of the Tashelga River, between the Mras-Su and Tom rivers, Kuznetsky Alatau Mts., Gorny Shoria, Kemerovo oblast, Russia.

Name: For the *Taghelg*a River valley, in which the species was first collected.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (3983/1).

References: (1) Ananyev, S.A., S.I. Konovalenko, R.K. Rastsvetaeva, S.M. Aksenov, N.V. Chukanov, A.N. Sapozhnikov, V.E. Zagorsky, and A.A.Virus (2011) Tashelgite, $CaMgFe^{2+}Al_9O_{16}(OH)$, a new mineral species from Calc-Skarnoid in Gorny Shoria. Geology of Ore Deposits, 53(8), 751-757. (2) Rastsvetaeva, R.K., S.M. Aksenov, and N.V. Chukanov (2010) Structure of the tashelgite mineral $Ca_2Mg_2Fe^{2+}{}_2Al_{18}O_{32}(OH)_2$ from Western Siberia: A new structure type. Doklady Chem. (2010), 434(1), 233-236. (3) (2012) Amer. Mineral., 97, 2070-2071 (abs. ref. 2).