

Grischunite**NaCa₂Mn₅²⁺Fe³⁺(AsO₄)₆•2H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As lathlike crystals, flattened on {100}, elongated along [010], with {100}, {010}, {101}, small {111}, to 1 mm; anhedral granular.

Physical Properties: *Cleavage:* On {010}, perfect. Hardness = ~5 VHN = 450–550 (50 g load). D(meas.) = 3.8(2) D(calc.) = [4.144]

Optical Properties: Semitransparent. *Color:* Dark red-brown. *Streak:* Yellow-brown to orange. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Pleochroism:* X = yellow-green; Y = yellow-brown; Z = dark red-brown. *Orientation:* X = b; Y = a; Z = c. *Dispersion:* r ≪ v. *Absorption:* Z ≈ Y ≫ X. α = 1.784(3) β = 1.785(3) γ = 1.790(3) 2V(meas.) = 40°–50° 2V(calc.) = 48°

Cell Data: *Space Group:* Pcab. a = 12.855(2) b = 13.487(2) c = 12.047(1) Z = 4

X-ray Powder Pattern: Falotta mine, Switzerland.

2.839 (100), 3.150 (90), 3.015 (80), 3.617 (70), 2.943 (60), 6.037 (30), 4.244 (30)

Chemistry:

	(1)	(2)
As ₂ O ₅	54.55	52.91
TiO ₂	0.08	
Fe ₂ O ₃	5.00	6.13
MnO	27.51	27.21
CaO	9.05	8.61
Na ₂ O	1.74	2.38
H ₂ O	[2.07]	2.76
Total	[100.00]	100.00

(1) Falotta mine, Switzerland; by electron microprobe, average of three analyses, total Fe as Fe₂O₃, total Mn as MnO, H₂O by difference; corresponds to (Na_{0.72}Ca_{0.07})_{Σ=0.79}Ca_{2.00}Mn_{5.04}²⁺Fe_{0.81}³⁺(AsO₄)_{6.12}•2H₂O. (2) NaCa₂Mn₅Fe(AsO₄)₆•2H₂O.

Occurrence: An alteration product of sarkinite in a manganese deposit.

Association: Sarkinite, brandtite, manganooan berzeliite, tilasite, rhodochrosite, braunite.

Distribution: In the Falotta mine, Oberhalbstein, Graubünden, Switzerland.

Name: From the former Romansch name *Grischun* for Graubünden Canton.

Type Material: Natural History Museum, Basel, Switzerland, MB19.295.

References: (1) Graeser, S., H. Schwander, and B. Suhner (1984) Grischunite (CaMn₂[AsO₄]₂), eine neue Mineralart aus den Schweizer Alpen. Schweiz. Mineral. Petrog. Mitt., 64, 1–10 (in German with English abs.). (2) (1986) Amer. Mineral., 71, 227–228 (abs. ref. 1). (3) Bianchi, R., T. Pilati, and G. Mannucci (1987) Crystal structure of grischunite. Amer. Mineral., 72, 1225–1229.