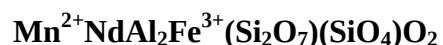


Åskagenite-(Nd)

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals prismatic, sometimes flattened with rectangular cross-sections, to 4 cm.

Physical Properties: *Cleavage:* None. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 6 D(meas.) = 3.737(5) (for metamict material) D(calc.) = 4.375 (sample heated at 600°C) Slightly radioactive.

Optical Properties: Translucent. *Color:* Black, brown in thin fragments. *Streak:* Brown.

Luster: Resinous.

Optical Class: Isotropic. *n* = 1.712(2)

Cell Data: *Space Group:* P2₁/m. *a* = 8.78(1) *b* = 5.710(6) *c* = 10.02(1) *β* = 114.6(2)° *Z* = 2

X-ray Powder Pattern: Near Åskagen quarry, Sweden. (amorphous until heated to 600°C) 2.897 (100), 2.850 (73), 2.687 (73), 1.630 (59), 3.22 (50), 2.121 (48), 3.50 (46)

Chemistry:	(1)		(1)
CaO	0.27	ThO ₂	0.72
Y ₂ O ₃	2.27	MnO	7.98
La ₂ O ₃	0.44	FeO	[7.75]
Ce ₂ O ₃	7.99	Fe ₂ O ₃	[9.16]
Pr ₂ O ₃	1.76	Al ₂ O ₃	15.85
Nd ₂ O ₃	11.21	SiO ₂	29.51
Sm ₂ O ₃	3.01	H ₂ O	0.55
Yb ₂ O ₃	0.21	Total	98.75

(1) Near Åskagen quarry, Värmland, Sweden; average of 4 electron microprobe analyses, H₂O by the Alimarin method, Fe⁺³/Fe⁺² calculated from Mössbauer spectrum, Mn⁺² confirmed by XANES spectroscopy; corresponding to (Mn²⁺_{0.69}Fe²⁺_{0.26}Ca_{0.03})_{Σ=0.98}(Nd_{0.41}Ce_{0.30}Y_{0.12}Sm_{0.10}Pr_{0.07}La_{0.02}Th_{0.02}Yb_{0.01})_{Σ=1.05}(Al_{1.90}Fe³⁺_{0.70}Fe²⁺_{0.40})_{Σ=3.00}Si_{2.99}O_{12.63}(OH)_{0.37}.

Mineral Group: Epidote group.

Occurrence: In a granite pegmatite.

Association: Potassic feldspar, quartz, bastnäsite, thorite, Nd-dominant analogue of allanite-(Ce), brookite, gadolinite-(Y), allophane.

Distribution: Near Åskagen quarry, mining village Torskebacken, about 12 km east of Filipstad, Värmland, Sweden.

Name: For the quarry that produced the first specimen and indicating the predominance of Nd over other REE in the A2 structural site.

Type Material: Technische Universität, Bergakademie, Freiberg, Germany (82194 and 82218).

References: (1) Chukanov, N.V., J. Göttlicher, S. Möckel, Z. Sofer, K.V. Van, and D.I. Belakovskiy (2010) Åskagenite-(Nd), Mn²⁺NdAl₂Fe³⁺(Si₂O₇)(SiO₄)O₂, a new mineral of the epidote supergroup. *Novye dannye o mineralakh*, 45, 17-22 (in Russian). New data on minerals, 45, 17-22 (in English). (2) (2012) *Amer. Mineral.*, 97, 1524 (abs. ref. 1).