

Gadolinite-(Ce)**(Ce, La, Nd, Y)₂Fe²⁺Be₂Si₂O₁₀**

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Crystal Data: Metamict; monoclinic after recrystallization. *Point Group:* 2/m. As irregular highly-fractured masses, to 2 cm.

Physical Properties: *Fracture:* Conchoidal. Hardness = [6.5–7] (by analogy to the gadolinite group). D(meas.) = 4.20 D(calc.) = 4.90

Optical Properties: Translucent. *Color:* Black; in thin section, olive-green.

Luster: Vitreous.

Optical Class: Isotropic. $n = 1.78$

Cell Data: *Space Group:* P2/c after recrystallization by heating at 700 °C. $a = 4.82(2)$
 $b = 7.58(2)$ $c = 10.01(3)$ $\beta = 90^\circ 28(16)'$ $Z = [2]$

X-ray Powder Pattern: Buer, Norway; hydrothermally recrystallized at 700 °C and 2 kb for 48 hours. (ICDD 29-1409).

2.88 (100), 4.81 (90), 2.60 (80), 2.59 (80), 3.18 (70), 3.00 (70), 3.59 (60)

Chemistry:

	(1)		(1)
SiO ₂	23.17	FeO	10.03
TiO ₂	0.14	MnO	1.33
B ₂ O ₃	0.55	BeO	8.83
Al ₂ O ₃	0.05	MgO	0.33
Y ₂ O ₃	6.78	CaO	2.67
La ₂ O ₃	14.00	Na ₂ O	0.10
Ce ₂ O ₃	21.25	K ₂ O	0.53
RE ₂ O ₃	12.05	Total	[101.81]

(1) Buer, Norway; by a combination of wet chemical analysis, electron microprobe, and emission spectroscopy; RE₂O₃ = Pr₂O₃ 2.95%, Nd₂O₃ 4.36%, Sm₂O₃ 0.39%, Eu₂O₃ 0.07%, Gd₂O₃ 0.92%, Tb₂O₃ 0.29%, Dy₂O₃ 1.01%, Ho₂O₃ 0.39%, Er₂O₃ 0.76%, Tm₂O₃ 0.13%, Yb₂O₃ 0.65%, Lu₂O₃ 0.13%; corresponds to (Ce_{0.68}La_{0.45}Y_{0.32}RE_{0.71})_{Σ=2.16}(Fe_{0.74}²⁺Mn_{0.10}Mg_{0.04}Ti_{0.01})_{Σ=0.89}(Be_{1.86}B_{0.08}Al_{0.01})_{Σ=1.95}Si_{2.04}O₁₀.

Mineral Group: Gadolinite group.

Occurrence: In syenite pegmatite veins along a contact between basalt and monzonite.

Association: Aegirine, pyrochlore, zircon, apatite, titanite, pyrophanite, magnetite, loparite, chevkinite, biotite, microcline, helvite, molybdenite, albite, apophyllite, quartz, calcite.

Distribution: From a dump at Buer, nine km southeast of Skien, Bjørkedalen region, and in the Bakken quarry, Tvedalen, Norway.

Name: For its *cerium* content and relation to *gadolinite*-(Y).

Type Material: n.d.

References: (1) Segalstad, T.V. and A.O. Larsen (1978) Gadolinite-(Ce) from Skien, southwestern Oslo region, Norway. *Amer. Mineral.*, 63, 188–195.