Fergusonite-beta-(Nd)  
(Nd, Ce)NbO₄

Crystal Data:  Monoclinic, metamict.  Point Group:  n.d.  As prismatic dipyramidal crystals, to 0.25 mm, also as irregular grains.


Cell Data:  Space Group: n.d.  a = 5.07  b = 5.62  c = 5.41  β = 93.0°  Z = [2]

X-ray Powder Pattern:  Bayan Obo, China; untreated material.  3.2064 (10), 3.0253 (10), 1.8832 (9), 2.7976 (5), 2.6961 (5), 2.0648 (5), 1.9549 (5)

Chemistry:  (1)  Nb₂O₅  41.00  Al₂O₃  0.12  Ta₂O₅  0.11  RE₂O₃  55.00  SiO₂  0.29  FeO  0.27  TiO₂  0.17  MnO  0.30  ThO₂  1.09  MgO  0.07  ZrO₂  0.19  CaO  0.29  UO₂  1.46  Total  100.36

(1) Bayan Obo, China; RE₂O₃ = La₂O₃ 2.05%, Ce₂O₃ 14.62%, Pr₂O₃ 4.28%, Nd₂O₃ 21.25%, Sm₂O₃ 4.53%, Eu₂O₃ 0.21%, Gd₂O₃ 1.37%, Tb₂O₃ 0.71%, Dy₂O₃ 0.98%, Ho₂O₃ 0.56%, Er₂O₃ 0.51%, Tm₂O₃ 0.36%, Yb₂O₃ 0.45%, Lu₂O₃ 0.29%, Y₂O₃ 2.83%; corresponds to (Nd₀.₃₈Ce₀.₂₇Pr₀.₉₉Sm₀.₀₈Y₀.₀₈La₀.₀₄Gd₀.₀₂Dy₀.₀₂Tb₀.₀₁Ho₀.₀₁Er₀.₀₁Tm₀.₀₁Yb₀.₀₁)Σ=1.₀₂(U, Th, Ca, Fe)Σ=0.₀₆(Nb, Ta, Ti)Σ=0.₉₆O₄.

Polymorphism & Series:  Dimorphous with fergusonite-(Nd).

Occurrence:  In sodium-metasomatized carbonatite-derived dolomitic marble.

Association:  Riebeckite, ferroan dolomite, biotite, magnetite, monazite, bastnäsite, aeschynite-(Nd), ilmenite, pyrite, fergusonite-(Ce), fergusonite-(Nd).

Distribution:  From the Bayan Obo Fe–Nb–RE deposit, 130 km north of Baotou, Inner Mongolia, China.

Name:  In allusion to its dimorphous relation to fergusonite-(Nd).

Type Material:  n.d.