

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Euhedral prismatic crystals, elongated along [010], and flattened and striated || [001] on {100}, terminated by {010}, to 3 mm.

Physical Properties: *Cleavage:* {010}, distinct. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 4.5–5 VHN = 396 (50 g load). D(meas.) = n.d. D(calc.) = 5.54

Optical Properties: Transparent. *Color:* Bright yellow-orange; yellow in transmitted light. *Optical Class:* Biaxial. *Orientation:* $X = c$; $Y = b$; $Z = a$. *Dispersion:* Extreme. $\alpha = [2.14(2)]$ $\beta = \text{n.d.}$ $\gamma = [2.315(2)]$ $2V(\text{meas.}) = \text{Large}$.

Cell Data: *Space Group:* $Pnmb$. $a = 11.065(2)$ $b = 7.527(1)$ $c = 5.343(1)$ $Z = 4$

X-ray Powder Pattern: Orcesco, Italy.

3.036 (100), 2.974 (100), 4.821 (90), 3.784 (80), 1.6018 (70), 1.7128 (60), 2.864 (40)

Chemistry:

| | (1) | (2) |
|--------------------------------|-------|------|
| Nb ₂ O ₅ | 31.0 | 73.8 |
| Ta ₂ O ₅ | 36.0 | 6.4 |
| TiO ₂ | 10.5 | 4.2 |
| La ₂ O ₃ | | 0.2 |
| Ce ₂ O ₃ | 10.5 | 0.6 |
| FeO | | 0.4 |
| CaO | 12.0 | 14.2 |
| Total | 100.0 | 99.8 |

(1) Orcesco, Italy; by electron microprobe, average of 12 analyses; corresponds to (Ca_{0.82}Ce_{0.24})_{Σ=1.06}(Nb_{0.90}Ta_{0.62}Ti_{0.50})_{Σ=2.02}O₆. (2) Kola Peninsula, Russia; by electron microprobe, average of three analyses; corresponding to (Ca_{0.83}Fe_{0.02}La_{0.01})_{Σ=0.86}(Nb_{1.82}Ti_{0.17}Ta_{0.09})_{Σ=2.08}O₆.

Occurrence: In miarolitic cavities in an albitized pegmatite in amphibolite and biotite gneiss (Orcesco, Italy).

Association: Pyrochlore, columbite, fersmite (Orcesco, Italy).

Distribution: From near Orcesco, on Alpe Rosso, Val Vigizzo, Piedmont, Italy. At the Kovdor massif, Kola Peninsula, Russia.

Name: For Val Vigizzo, Italy, where the mineral occurs.

Type Material: Mineralogical Institute, University of Basel, Basel; Natural History Museum, Basel, Switzerland, MB27:336.

References: (1) Graeser, S., H. Schwander, H. Hänni, and V. Mattioli (1979) Vigezzite, (Ca, Ce)(Nb, Ta, Ti)₂O₆, a new aeschynite-type mineral from the Alps. *Mineral. Mag.*, 43, 459–462. (2) (1980) *Amer. Mineral.*, 65, 811–812 (abs. ref. 1). (3) Giuseppetti, G. and C. Tadini (1990) The crystal structure of vigezzite, (Ca, Ce)(Nb, Ta, Ti)₂O₆, intermediate term [*sic*] of the aeschynite series. *Neues Jahrb. Mineral., Monatsh.*, 301–308. (4) Zhuravleva, L.N., Y.G. Ryabeva, K.V. Yurkina, and L.S. Solntseva (1989) First discovery of vigezzite in the USSR, Kola Peninsula. *Izv. Akad. Nauk SSSR, Ser. Geol.*, 1989(8), 134–136 (in Russian).