Olkhonskite $(Cr^{3+}, V^{3+})_2Ti_3O_9$

Crystal Data: [Monoclinic] (by analogy to schreyerite). *Point Group:* $2/m$ or m. Platy crystals, to 150 μm, included in rutile.

Physical Properties: *Tenacity:* Brittle. Hardness = n.d. VHN = 1412 (65 g load). D(meas.) = n.d. D(calc.) = 4.48

Optical Properties: Opaque. *Color:* Black; light gray in reflected light. *Streak:* Black. *Luster:* Metallic.
Optical Class: Biaxial. *Pleochroism:* Weak; in browns. *Anisotropism:* Weak. *Bireflectance:* Noted.
R_1–R_2: (400) — , (420) — , (440) 22.5–19.6, (460) 21.1–18.2, (480) 20.1–18.2, (500) 20.3–18.2, (520) 19.8–18.4, (540) 20.0–18.5, (560) 20.3–18.5, (580) 20.2–18.4, (600) 20.1–18.4, (620) 20.5–18.4, (640) 21.0–18.5, (660) 21.3–19.5, (680) 22.4–20.7, (700) 22.6–20.8

Cell Data: *Space Group:* $C2/c$, Cc, $P2_1/c$, $P2/c$, or Pc. a = 7.03(1) b = 5.02(1) c = 18.83(1) β = 119.60(5)° Z = 4

X-ray Powder Pattern: Ol'khon Gate Strait, Lake Baikal, Russia.
2.75 (10), 1.386 (10), 2.88 (7), 2.43 (7), 1.426 (7), 2.14 (5), 1.660 (5)

Chemistry:

	(1)	(2)
TiO_2	60.83	61.35
Al_2O_3	0.63	
V_2O_3	16.17	19.19
Cr_2O_3	21.77	19.46
FeO	0.21	
Total	99.61	100.00

(1) Ol'khon Gate Strait, Lake Baikal, Russia; by electron microprobe, average of 12 analyses, total Fe as FeO; corresponding to $(Cr_{1.12}V_{0.85}Al_{0.05}Fe_{0.01})_{\Sigma=2.03}Ti_{2.98}O_{9.00}$. (2) $(Cr, V)_2Ti_3O_9$ with Cr:V = 1:1.

Occurrence: In quartzite schists, enriched in Cr–V–Ti, interbedded with carbonate-silicate rocks.

Association: Rutile, eskolaite, karelianite, schreyerite, vuorelainenite, quartz, oligoclase, orthoclase.

Distribution: On the western shore of Lake Baikal, 4.5 km south of Ol'khon Gate Strait, Siberia, Russia.

Name: For the Ol'khonskaya series of metamorphic rocks in which the mineral occurs.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, r1001.

References: (1) Koneva, A.A., L.F. Piskunova, Z.F. Ushchapovskaya, and A.A. Konev (1994) Olkhonskite $(Cr, V)_2Ti_3O_9$ – a new mineral from the Priolkhon'ye. Zap. Vses. Mineral. Obshch., 123(4), 98–103 (in Russian). (2) (1996) Amer. Mineral., 81, 251–252 (abs. ref. 1). (3) (1996) Mineral. Abs., 47, 110 (abs. ref. 1).