Schorlomite $\mathbf{Ca_3(Ti^{4+},Fe^{3+})_2(Si,Fe^{3+})_3O_{12}}$

Crystal Data: Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. As trapezohedra and dodecahedra, up to 2 cm; more commonly massive.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 7–7.5
D(meas.) = 3.69–3.88 D(calc.) = 3.77

Optical Properties: Translucent to nearly opaque. *Color:* Grayish black, black, may be tarnished blue; deep reddish brown. *Streak:* Grayish black to red-orange or orange-brown. *Luster:* Vitreous.
Optical Class: Isotropic. $n = 1.94$–1.98; increases with Ti content.

Cell Data: *Space Group: Ia3d.* a = 12.09–12.145 Z = 8

X-ray Powder Pattern: Magnet Cove, Arkansas, USA.
1.614 (100), 2.702 (80), 1.679 (70), 2.468 (60), 3.026 (50), 1.351 (50), 1.319 (50)

Chemistry:

	(1)	(2)
SiO_2	25.66	26.08
TiO_2	22.10	15.34
Al_2O_3		4.52
Fe_2O_3	21.58	17.24
FeO		2.54
MnO		0.29
MgO		1.19
CaO	29.78	31.03
Na_2O		0.17
K_2O		0.08
H_2O^+		0.25
P_2O_5		0.28
Total	99.12	99.01

(1) Magnet Cove, Arkansas, USA. (2) Fanshan complex, China; corresponds approximately to $(Ca_{2.80}Fe^{2+}_{0.18}Mg_{0.15}Na_{0.03}Mn_{0.02}K_{0.01})_{\Sigma=3.19}(Ti^{4+}_{0.69}Fe^{3+}_{0.66}Al_{0.46})_{\Sigma=1.81}(Si_{2.24}Fe^{3+}_{0.46}Ti^{4+}_{0.30})_{\Sigma=3.00}O_{12}$.

Polymorphism & Series: Forms a series with andradite.

Mineral Group: Garnet group.

Occurrence: In carbonatites, syenites, and phonolites; also in skarns.

Association: Leucite, brookite, nepheline, potassic feldspar (Magnet Cove, Arkansas, USA).

Distribution: From Magnet Cove, Hot Spring Co., Arkansas, and near the Gem mine, San Benito Co., California, USA. In the Jacupiranga mine, São Paulo, Brazil. At Camphouse, Ardnamurchan, Argyllshire, Scotland. On Alnö Island, Sweden. From Iivaara, Kuusamo, Finland. In the Tokatoka district, about 150 km north of Auckland, New Zealand. From Fuka, near Bicchu, Okayama Prefecture, Japan. At Morotu, Sakhalin, Russia. In the Fanshan ultramafic complex, Hebei Province, China.

Name: For its resemblance to schorl.

Type Material: National Museum of Natural History, Washington, D.C., USA, 128705.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 447–448. (2) Deer, W.A., R.A. Howie, and J. Zussman (1982) Rock-forming minerals, (2nd edition), v. 1A, orthosilicates, 622–628, 639–641. (3) Wu Gongbao and Mu Baolei (1986) The crystal chemistry and Mössbauer study of schorlomite. Phys. Chem. Minerals, 13, 198–205. (4) McConnell, D. (1942) Griphite, a hydrophosphate garnet. Amer. Mineral., 27, 452–461.