Knorringite $Mg_3Cr_2^{3+}(SiO_4)_3$

Crystal Data: Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. Massive and as minute grains.

Physical Properties: Hardness = ∼7 D(meas.) = 3.756 D(calc.) = 3.852

Optical Properties: Semitransparent. *Color:* Bluish green, greenish. *Luster:* Vitreous. *Optical Class:* Isotropic. $n = 1.803$

Cell Data: *Space Group: Ia3d.* $a = 11.65$ Z = 8

X-ray Powder Pattern: Kao kimberlite pipe, Lesotho.
2.92 (100), 2.61 (100), 2.382 (80), 1.560 (80), 2.489 (60), 2.288 (60), 1.894 (60)

Chemistry:

	(1)	(2)
SiO_2	39.92	39.78
TiO_2	0.11	
Al_2O_3	9.74	
Cr_2O_3	17.47	33.54
Fe_2O_3	1.20	
FeO	6.53	
MnO	0.60	
MgO	16.97	26.68
CaO	8.14	
Total	100.68	100.00

(1) Kao kimberlite pipe, Lesotho; by electron microprobe, corresponding to $(Mg_{1.90}Ca_{0.66}Fe^{2+}_{0.41}Mn_{0.17})_{\Sigma=3.14}(Cr_{1.04}Al_{0.86}Fe^{3+}_{0.07})_{\Sigma=1.97}Si_{3.01}O_{12}$. (2) $Mg_3Cr_2(SiO_4)_3$.

Polymorphism & Series: Forms a series with pyrope.

Mineral Group: Garnet group.

Occurrence: A rare component of ultramafic kimberlite nodules (Kao kimberlite pipe, Lesotho).

Association: Olivine, enstatite, chromian diopside, chromian pyrope, chromian spinel, ilmenite, perovskite, zircon, diamond, omphacite, rutile, carbonates, micas (Kao kimberlite pipe, Lesotho).

Distribution: In the Kao kimberlite pipe, Lesotho. From the Red Ledge mine, Nevada Co., California, USA.

Name: To honor Dr. Oleg von Knorring (1915–1994), Department of Earth Sciences, Leeds University, Leeds, England.

Type Material: n.d.

References: (1) Nixon, P.H. and G. Hornung (1968) A new chromium garnet end member, knorringite, from kimberlite. Amer. Mineral., 53, 1833–1840. (2) Nixon, P.H., O. von Knorring, and J.M. Rooke (1963) Kimberlites and associated inclusions of Basutoland: a mineralogical and geochemical study. Amer. Mineral., 48, 1090–1132.