## Zincochromite $ZnCr_2^{3+}O_4$



**Crystal Data:** Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. Crystals euhedral, showing hexagonal sections of dodecahedra, to 50 $\mu$m, strongly zoned.

**Physical Properties:** Hardness = 5.8 VHN = 620 D(meas.) = n.d. D(calc.) = 5.434
Weakly paramagnetic.

**Optical Properties:** Opaque, translucent in thin slivers. *Color:* Brownish black; brown in transmitted light; brownish gray in reflected light, with rare brown internal reflections. *Streak:* Brown. *Luster:* Semimetallic.
*Optical Class:* Isotropic.
R: (400) —, (420) —, (440) 13.0, (460) 12.4, (480) 12.1, (500) 12.0, (520) 11.9, (540) 11.8, (560) 11.7, (580) 11.6, (600) 11.6, (620) 11.6, (640) 11.6, (660) 11.6, (680) 11.6, (700) 11.6

**Cell Data:** *Space Group: Fd3m* (synthetic). $a = 8.3271(2)$ $Z = 8$

**X-ray Powder Pattern:** Onega Lake, Russia.
2.519 (100), 2.954 (50), 1.476 (35), 1.607 (30), 2.088 (25), 4.822 (15), 1.705 (15)

**Chemistry:**

| | (1) | (2) |
|---|---|---|
| $SiO_2$ | 2.82 | |
| $TiO_2$ | 0.14 | |
| $Al_2O_3$ | 1.14 | |
| $Fe_2O_3$ | 2.03 | |
| $V_2O_3$ | 3.52 | |
| $Cr_2O_3$ | 53.30 | 65.13 |
| ZnO | 37.05 | 34.87 |
| Total | 100.00 | 100.00 |

(1) Onega Lake, Russia; by electron microprobe, weighted average of four zones in six grains; total Fe as $Fe_2O_3$, total Cr as $Cr_2O_3$, total V as $V_2O_3$; corresponding to $Zn_{1.04}(Cr_{1.61}V_{0.11}Si_{0.11}Fe_{0.06}Al_{0.05})_{\Sigma=1.94}O_4$. (2) $ZnCr_2O_4$.

**Mineral Group:** Spinel group.

**Occurrence:** Replacing chromian aegirine in micaceous metasomatites.

**Association:** Quartz, chromian aegirine, and its amorphous breakdown products.

**Distribution:** From the Velikaya Guba uranium deposit, near Onega Lake, Padma, Zaonezhskii Peninsula, southern Karelia, Russia.

**Name:** For ZINC and CHROMium in the composition.

**Type Material:** Mining Institute, St. Petersburg, Russia, 1238/1.

**References:** (1) Nesterov, A.R. and Y.V. Rumyantseva (1987) Zincochromite $ZnCr_2O_4$ – a new mineral from Karelia. Zap. Vses. Mineral. Obshch., 116, 367–371 (in Russian with English abs.). (2) (1988) Amer. Mineral., 73, 931–932 (abs. ref. 1). (3) (1988) Mineral. Abs., 39, 122–123 (abs. ref. 1). (4) O'Neill, H.St.C. and W.A. Dollase (1994) Crystal structures and cation distributions in simple spinels from powder XRD structural refinements: $MgCr_2O_4$, $ZnCr_2O_4$, $Fe_3O_4$ and the temperature dependence of the cation distribution in $ZnAl_2O_4$. Phys. Chem. Minerals, 20, 541–555. (5) (1971) NBS Mono. 25, 9, 59.

; zinchögbomite-8H = zinchögbomite-2N2S; zinchögbomite-16H = zinchögbomite-2N6S; [full list given under högbohmite];