

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As octahedral or cuboctahedral crystals, to 0.20 mm, some with a pseudododecahedral faces {110}. *Twinning:* Polysynthetic and simple twinning on {111} (Spinel law) common.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Very brittle. Hardness = 4.5-5 VHN = 396 (20-30 g load). D(meas.) = n.d. D(calc.) = 4.16 Slightly electromagnetic.

Optical Properties: Opaque. *Color:* Black with dark-bronze tint, pale cream in reflected light. *Streak:* Black. *Luster:* Submetallic.

Optical Class: Isotropic.

R: (400) 34.30, (420) 34.10, (440) 33.90, (460) 33.70, (480) 33.5, (500) 33.2, (520) 33.00, (540) 32.80, (560) 32.30, (580) 32.20, (600) 31.90, (620) 31.60, (640) 31.20, (660) 30.90, (680) 30.60, (700) 30.40

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 9.814(2)$ $Z = 8$

X-ray Powder Pattern: Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia.

2.94 (100), 1.73 (100), 1.00 (100), 1.88 (90), 3.44 (60), 2.44 (60), 1.13 (60)

Chemistry:	(1)
Cu	21.03
Fe	0.47
Zn	0.17
Cr	29.01
V	5.85
As	0.21
Sb	0.08
<u>S</u>	<u>43.25</u>
Total	100.07

(1) Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia; average of 202 electron microprobe analyses; corresponding to $(\text{Cu}_{0.98}\text{Fe}_{0.02}\text{Zn}_{0.01})_{\Sigma=1.01}(\text{Cr}_{1.65}\text{V}_{0.34}\text{As}_{0.01})_{\Sigma=2.00}\text{S}_{3.99}$.

Mineral Group: Thiospinel group.

Occurrence: As disseminated inclusions in quartz from Cr-V-bearing quartz-diopside granulite facies metamorphic rocks.

Association: Cr-V-tremolite and mica, calcite, Cr-V spinels, V-titanite, pyrite, plagioclase, a mineral of the natlyite-kosmochlor series, goldmanite-uvarovite, dravite-chromdravite, karelianite-eskolaite.

Distribution: In the Sludyanka complex, South Baikal region, Russia.

Name: For its essential copper content and structural identity with *kalininitite*, ZnCr_2S_4 .

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (3886/1-3).

References: (1) Reznitsky, L.Z., E.V. Sklyarov, Z.F. Ushchapovskaya, L.F. Suvorova, Yu.S. Polekhovsky, P. Dzerzanovsky, and I.G. Barash (2010) Cuprokalinitite, CuCr_2S_4 - a new sulfospinel from metamorphic rocks of Sludyanka complex, South Baikal region. *Zap. Ross. Mineral. Obshch.*, 139(6), 39-49 (in Russian with English abstract). *Geol. Ore Deposits*, 53(8), 758-766 (in English). (2) (2012) *Amer. Mineral.*, 97, 1527-1528 (abs. ref. 1).