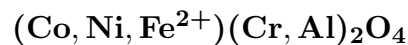


Cochromite



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Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As grains, to about 20 μm .

Physical Properties: *Fracture:* Conchoidal. Hardness = n.d. VHN = 1218(100) (50 g load).
D(meas.) = n.d. D(calc.) = ~ 4.99

Optical Properties: Opaque. *Color:* [Black.] *Streak:* Greenish gray. *Luster:* Metallic.
Optical Class: Isotropic.

R: (480) 14.3, (546) 13.7, (589) 14.0, (656) 13.9

Cell Data: *Space Group:* $[Fd\bar{3}m]$ (by analogy to spinel). $a = \sim 8.29$ $Z = 8$

X-ray Powder Pattern: n.d.

Chemistry:	(1)	(2)
SiO ₂	0.11	
TiO ₂	1.26	0.67
Al ₂ O ₃	9.11	49.61
Fe ₂ O ₃	4.14	
Cr ₂ O ₃	50.38	11.57
FeO	7.45	9.55
MnO	0.84	
CoO	17.45	22.38
NiO	7.67	
ZnO	0.59	
MgO	0.95	6.04
Total	99.95	99.82

(1) Bon Accord, South Africa; by electron microprobe, Fe²⁺:Fe³⁺ calculated from stoichiometry; corresponds to (Co_{0.50}Ni_{0.22}Fe_{0.22}²⁺Mg_{0.05}Mn_{0.03}Zn_{0.02})_{Σ=1.04}(Cr_{1.43}Al_{0.38}Fe_{0.11}³⁺Ti_{0.03})_{Σ=1.95}O₄.

(2) Bo Phloi, Thailand; by electron microprobe, total Fe as FeO; corresponds to (Co_{0.52}Mg_{0.26}Fe_{0.23}²⁺)_{Σ=1.01}(Al_{1.70}Cr_{0.27}Ti_{0.02})_{Σ=1.99}O₄.

Mineral Group: Spinel group.

Occurrence: Replacing chromite in a small tabular nickel deposit at the contact between quartzite and serpentinized ultramafics; it appears to have formed at ~ 730 °C and < 2 kbar during thermal metamorphism, possibly of a nickel-rich meteorite (Bon Accord, South Africa); an inclusion in corundum from alkalic basalts (Bo Phloi, Thailand).

Association: Trevorite, nichromite, liebenbergite, bunsenite (Bon Accord, South Africa); corundum, albite (Bo Phloi, Thailand).

Distribution: In the Bon Accord deposit, Barberton, Transvaal, South Africa. From Bo Phloi, 40 km north of Kanchanaburi, Thailand.

Name: For a *chromite* with essential cobalt, Co.

Type Material: n.d.

References: (1) De Waal, S.A. (1978) Nickel minerals from Barberton, South Africa: VIII. The spinels cochromite and nichromite, and their significance to the origin of the Bon Accord nickel deposit. Bull. Bur. Rech. Geol. Minières, Sec. II, Géol. Gîtes Minéraux, 1978, no. 3, 225–230. (2) (1980) Amer. Mineral., 65, 811 (abs. ref. 1). (3) Guo, J., W.L. Griffen, and S.Y. O'Reilly (1994) A cobalt-rich spinel inclusion in a sapphire from Bo Phloi *sic*, Thailand. Mineral. Mag., 58, 247–258.

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