

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Prismatic, pseudo-hexagonal crystals, to 0.3 mm, may have spearhead-shaped terminations.

Physical Properties: *Tenacity:* Brittle. Hardness = 8.5 VHN = 1885 (100 g load). D(meas.) = n.d. D(calc.) = 6.64

Optical Properties: Opaque. *Color:* Pale brownish yellow; pale violet in reflected light. *Streak:* Dark gray. *Luster:* Strong metallic.

Optical Class: Biaxial. *Pleochroism:* Distinct. *Anisotropism:* Strong; purplish yellow to yellow-orange. *Birefractance:* Distinct.

R₁–R₂: (405) 46.54–49.10, (436) 48.50–51.28, (480) 51.14–53.86, (526) 53.72–55.94, (546) 54.68–56.89, (578) 57.07–57.51, (589) 57.38–57.82, (622) 58.72–57.68, (644) 60.33–59.02, (656) 61.50–59.97, (664) 61.56–59.97, (700) 61.35–59.20

Cell Data: *Space Group:* $Pnma$. $a = 5.57(5)$ $b = 11.47(8)$ $c = 2.816(8)$ $Z = 4$

X-ray Powder Pattern: China.

2.30 (100), 2.23 (80), 1.193 (70), 1.70 (40), 1.164 (40), 1.94 (30), 1.86 (30)

Chemistry:

	(1)	(2)
Cr	84.26	86.66
Fe	1.18	
Ni	1.25	
C	13.37	13.34
Total	100.06	100.00

(1) China; by electron microprobe, average of four analyses; corresponding to (Cr_{2.91}Fe_{0.04}Ni_{0.04})_{Σ=2.99}C_{2.00}. (2) Cr₃C₂.

Occurrence: In ultramafic rocks (China).

Association: Magnesiochromite, pyrrhotite, pentlandite, pyrite, chalcopyrite, cubanite, magnetite, ilmenite, altaite, violarite, awaruite, bismutohauchecornite, lead, chromium, gold, copper, platinum, iron, forsterite, phlogopite, apatite, diopside, enstatite, hydrogrossular (Liu Zhuang, China); iron sulfides, iron oxides, platinum-group minerals, copper, diamond, moissanite, olivine, pyroxene, pyrope (Hong district, Tibet, China).

Distribution: In China, from Liu Zhuang, Tongbai Co., Henan Province, and in the Hong district, Tibet.

Name: For Tongbai Co., China, where the mineral occurs.

Type Material: n.d.

References: (1) Tian Peixue, Fang Qingsong, Chen Keqiao, and Peng Zhizhong (1983) A study on tongbaite – a new mineral. *Acta Mineralogica Sinica*, 4, 241–245 (in Chinese with English abs.). (2) Chen Keqiao, Tian Peixue, Shi Nicheng, and Peng Zhizhong (1983) A study on tongbaite, Cr₃C₂ – a new mineral. *Ziran Zazhi*, 6, 478–479 (in Chinese). (3) (1985) *Amer. Mineral.*, 70, 218 (abs. refs. 1 and 2). (4) Rundqvist, S. and G. Runnsjö (1969) Crystal structure refinement of Cr₃C₂. *Acta Chem. Scand.*, 23, 1191–1199.