$\odot$ 2001-2005 Mineral Data Publishing, version 1

Crystal Data: Orthorhombic. Point Group: 222. As subhedral grains, to 150  $\mu$ m.

**Physical Properties:** Cleavage: Fair on  $\{0kl\}$ . Hardness = 4.5–5 VHN = n.d. D(meas.) = n.d. D(calc.) = 4.966

**Optical Properties:** Opaque. *Color:* Gray, presumably. *Luster:* Metallic. *Pleochroism:* In shades of greenish gray to gray. *Anisotropism:* Strong, with very pale blue to intense yellowish pink tints.

 $\begin{array}{l} R_1-R_2: \ (400) \ 33.4-32.1, \ (420) \ 34.0-32.2, \ (440) \ 34.6-32.5, \ (460) \ 34.9-33.3, \ (480) \ 34.8-34.5, \ (500) \ 34.5-35.8, \ (520) \ 34.1-36.5, \ (540) \ 33.9-36.8, \ (560) \ 34.1-36.7, \ (580) \ 34.3-36.7, \ (600) \ 34.3-36.8, \ (620) \ 34.4-37.0, \ (640) \ 34.8-37.3, \ (660) \ 35.6-37.8, \ (680) \ 36.6-38.6, \ (700) \ 37.8-39.5 \end{array}$ 

**Cell Data:** Space Group:  $P2_12_12_1$ . a = 7.422(2) b = 12.508(3) c = 4.900(1) Z = 4

**X-ray Powder Pattern:** Lapie River, Canada. 2.959 (100), 3.178 (90), 1.837 (90), 1.855 (60), 1.601 (30), 2.769 (20), 2.637 (20)

(1)

	(1)	(2)	(3)
Cu	18.5	18.45	18.68
Ni	17.1	17.17	17.26
Fe	0.1	0.14	
$\operatorname{Sb}$	35.0	35.23	35.79
As	0.1	0.15	
$\mathbf{S}$	27.7	28.00	28.27
Total	98.5	99.14	100.00

 $(\mathbf{n})$ 

 $(\mathbf{2})$ 

(1) Lapie River, Canada; by electron microprobe, average of four grains; corresponding to  $Cu_{1.01}(Ni_{1.01}Fe_{0.01})_{\Sigma=1.02}(Sb_{1.00}As_{0.01})_{\Sigma=1.01}S_{3.00}$ . (3) Tyrnyauz deposit, Russia; by electron microprobe, corresponding to  $Cu_{1.00}(Ni_{1.00}Fe_{0.01})_{\Sigma=1.01}(Sb_{0.99}As_{0.01})_{\Sigma=1.00}S_{3.00}$ . (4) CuNiSbS<sub>3</sub>.

Occurrence: In a highly altered and mineralized glacial erratic (Lapie River, Canada).

**Association:** Nickelian pyrite, gersdorffite, polydymite, millerite, marcasite, tetrahedrite, chalcopyrite, spinel, magnetite, mica, quartz (Lapie River, Canada); zinkenite, ullmannite, chalcostibite (Tyrnyauz deposit, Russia); mückeite, millerite, bismuthinite, sphalerite, aikinite, polydymite (Grüne Au mine, Germany).

**Distribution:** From near the confluence of Glacier Creek and the Lapie River, St. Cyr Ranges, Yukon Territory, Canada [TL]. In the Tyrnyauz deposit, left bank of the Baksan River Valley, northern Caucasus Mountains, Russia. At the Grüne gold mine, Schutzbach, 15 km southwest of Siegen, North-Rhine-Westphalia, Germany.

Name: For the Lapie River, Canada.

Type Material: Canadian Geological Survey, Ottawa, Canada, 63844, 63845, and 63846.

**References:** (1) Harris, D.C., A.C. Roberts, R.I. Thorp, I.R. Jonasson, and A.J. Criddle (1984) Lapieite CuNiSbS<sub>3</sub>, a new mineral species from the Yukon Territory. Can. Mineral., 22, 561–564. (2) (1985) Amer. Mineral., 70, 1329–1330 (abs. ref. 1).