Nisbite $NiSb_2$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As irregular grains, to 20 μm.

Physical Properties: Hardness = n.d. VHN = 420–513, 479 average (5 g load).
D(meas.) = n.d. D(calc.) = 8.0

Optical Properties: Opaque. *Color:* White in reflected light. *Luster:* Metallic.
Pleochroism: Weak. *Anisotropism:* Weak. *Bireflectance:* Very weak.
R_1–R_2: n.d.

Cell Data: *Space Group: Pnnm* (synthetic). $a = 5.178(3)$ $b = 6.319(3)$ $c = 3.832(3)$
Z = 2

X-ray Powder Pattern: Synthetic.
2.761 (10), 2.689 (9), 2.0301 (8), 1.8427 (7), 0.9045 (7), 1.5611 (6), 1.1683 (6)

Chemistry:

	(1)	(2)
Ni	19.15	19.43
Sb	80.43	80.57
Total	99.58	100.00

(1) Trout Bay, Canada; by electron microprobe, average of four grains. (2) $NiSb_2$.

Mineral Group: Löllingite group.

Occurrence: Very rare in a high-grade base-metal sulfide deposit in altered mafic rock (Trout Bay, Canada); in Pb–Zn–Cu–Ag ore deposits remobilized by hydrothermal solutions from younger granite emplacement (Bergslagen, Sweden).

Association: Chalcopyrite, breithauptite, pyrargyrite, galena, pyrrhotite, tetrahedrite (Trout Bay, Canada); costibite, paracostibite, oenite, allargentum, bismuth, breithauptite, gudmundite, chalcopyrite, bornite, tetrahedrite, pyrrhotite, galena, sphalerite, gersdorffite, ullmannite (Bergslagen, Sweden).

Distribution: From Trout Bay, 32 km west of Red Lake, Kenora district, Ontario, Canada [TL]. At the Festivalnoe Cu–Sn mine, Magadan region, Sakha, and from Zolotaya Gora, Ural Mountains, Russia. In the Gruvåsen and Getön deposits, and at Tunaberg, Bergslagen metallic province, Sweden. From Sulitjelma, northern Norway.

Name: For the composition, NIckel and SB, from the chemical symbol for antimony, *stibium*.

Type Material: Canadian Geological Survey, Ottawa, 12162; Canadian Museum of Nature, Ottawa, Canada.

References: (1) Cabri, L.J., D.C. Harris and J.M. Stewart (1970) Paracostibite (CoSbS) and nisbite ($NiSb_2$), new minerals from the Red Lake area, Ontario, Canada. Can. Mineral., 10, 232–246. (2) (1971) Amer. Mineral., 56, 631–632 (abs. ref. 1). (3) Zakrzewski, M.A., E.A.J. Burke, and H.W. Nugteren (1980) Cobalt minerals in the Hallëfors area, Bergslagen, Sweden: new occurrences of costibite, paracostibite, nisbite and cobaltian ullmannite. Can. Mineral., 18, 165–171.