

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As irregularly shaped blebs and stringers up to 25 μm .

Physical Properties: Hardness = > 5 VHN = 707–798 (25 g load). D(meas.) = n.d. D(calc.) = 8.13

Optical Properties: Opaque. *Color:* Brownish white to gray. *Pleochroism:* Distinct. *Anisotropism:* Distinct in air, orange brown and bluish in oil.

R_1 – R_2 : (400) 46.9–48.6, (420) 46.3–48.5, (440) 45.7–48.4, (460) 44.9–48.0, (480) 44.3–48.0, (500) 43.7–47.8, (520) 43.4–47.9, (540) 43.4–47.9, (560) 43.4–48.0, (580) 43.5–48.0, (600) 43.7–48.1, (620) 44.1–48.3, (640) 44.4–48.6, (660) 44.9–48.9, (680) 45.6–49.1, (700) 46.2–49.4

Cell Data: *Space Group:* $Pm\bar{c}n$. $a = 3.46(1)$ $b = 5.97(1)$ $c = 5.33(1)$ $Z = 4$

X-ray Powder Pattern: Synthetic FeAs.

2.588 (100), 1.996 (60), 2.635 (55), 2.076 (35), 2.019 (35), 1.725 (30), 2.116 (18)

Chemistry:

	(1)	(2)
Fe	26.6	30.1
Ni	17.4	13.9
Co	0.6	0.5
As	55.5	55.1
Sb		0.5
Total	100.1	100.1

(1) La Gallega mine, Spain; by electron microprobe, average of eight determinations on one grain, corresponding to $(\text{Fe}_{0.640}\text{Ni}_{0.400}\text{Co}_{0.015})_{\Sigma=1.055}\text{As}_{1.000}$. (2) Birchtree mine, Canada; by electron microprobe, average of 12 determinations, corresponding to $(\text{Fe}_{0.73}\text{Ni}_{0.32}\text{Co}_{0.01})_{\Sigma=1.06}\text{As}_{1.00}$.

Occurrence: As minute inclusions in maucherite which occurs in chromite-nickeline ores. The chromite ores and associated cordierite rock are schlieren veins through serpentinized ultramafic rocks (La Gallega mine, Spain).

Association: Maucherite, nickeline, cobaltite, nickeloan löllingite, Fe–Co-rich gersdorffite, rammelsbergite, antimony, serpentine.

Distribution: At the La Gallega mine, 3 km west of Ojén, Málaga Province, Spain. From the Ilímaussaq intrusion, southern Greenland. From Seinäjoki, Finland. At the Birchtree mine, near Thompson, Manitoba, Canada.

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Type Material: Geological Institute, University of Amsterdam, Amsterdam; Institute of Earth Sciences, Free University of Amsterdam, Amsterdam, The Netherlands.

References: (1) Oen, I.S., E.A.J. Burke, C. Kieft, and A.B. Westerhof (1972) Westerveldite (Fe, Ni, Co)As, a new mineral from La Gallega, Spain. *Amer. Mineral.*, 57, 354–363. (2) (1962) NBS Mono. 25, 1, 19. (3) Sizgoric, M.B. and C.M. Duesing (1973) Westerveldite, a Canadian occurrence. *Can. Mineral.*, 12, 137–138.