Jaguéite $Cu_2Pd_3Se_4$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As anhedral grains to 60 μm; in intimate intergrowths with chrisstanleyite to 500 μm. *Twinning*: Spindle-shaped deformation twins, common.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 5 VHN = 464-772, 612 average (25 g load). D(meas.) = n.d. D(calc.) = 7.96

Optical Properties: Opaque. *Color*: Creamy yellowish. *Streak*: Black. *Luster*: Metallic. *Optical Class*: Anisotropic. *Bireflectance*: Weak to moderate, brownish to bluish to greenish. *Pleochroism*: Slight, light buff to creamy buff.
R_1-R_2: (470) 41.0-50.1 (27.0-31.9)$_{oil}$, (546) 44.1-51.8 (29.2-33.8)$_{oil}$, (589) 44.6-51.7 (29.4-33.7)$_{oil}$, (650) 45.1-52.0 (30.2-34.1)$_{oil}$

Cell Data: *Space Group* $P2_1/c$. a = 5.672(5) b = 9.909(9) c = 6.264(6) β = 115.40(2)° Z = 2

X-ray Powder Pattern: Calculated pattern.
2.676 (100), 2.630 (64), 1.920 (36), 2.508 (31), 2.269 (27), 1.950 (27), 1.866 (24)

Chemistry:

	(1)	(2)
Cu	15.70	16.68
Ag	1.59	
Pd	42.04	41.88
Se	40.15	41.44
Total	99.48	100.00

(1) El Chire prospect, La Rioja Province, Argentina; average of 12 electron microprobe analyses; corresponds to $Cu_{1.91}Ag_{0.11}Pd_{3.05}Se_{3.93}$. (2) $Cu_2Pd_3Se_4$.

Polymorphism & Series: Forms a limited solid-solution series with chrisstanleyite.

Occurrence: In a telethermal selenide vein deposit hosted by highly altered sedimentary rocks.

Association: Chrisstanleyite, clausthalite, naumannite, tiemannite, klockmannite, berzelianite, umangite, aguilarite, mercurian silver, native gold, calcite.

Distribution: From the El Chire prospect, 30 km northwest of the village of Vinchina, Los Llantenes mining district, La Rioja Province, Argentina.

Name: After the village of *Jagué*, the closest settlement to the El Chire mine.

Type Material: Department of Geography, Geology and Mineralogy, Division of Mineralogy and Material Sciences, University of Salzburg, Austria (14938 and 14939 a, b).

References: (1) Paar, W.H., D. Topa, E. Makovicky, R. J. Sureda, M. K. de Brodtkorb, E. H. Nickel, and H. Putz (2004) Jaguéite, $Cu_2Pd_3Se_4$, A new mineral species from El Chire, La Rioja, Argentina. Can. Mineral., 42(6), 1745-1755. (2) Topa, D., E. Makovicky, and T. Balić-Žunić (2006) The crystal structures of jaguéite, $Cu_2Pd_3Se_4$, and chrisstanleyite, $Ag_2Pd_3Se_4$. Can. Mineral., 44, 497-505. (3) (2006) Amer. Mineral., 91(11), 1951 (abs. ref. 2).