Aguilarite Ag$_4$SeS

Crystal Data: Orthorhombic. Point Group: n.d. In skeletal pseudododecahedral crystals, commonly elongated in the direction of a pseudocubic or pseudo-octahedral edge, to 3 cm; also massive and in intergrowths with acanthite or naumannite.

VHN = 20.5–23.8, 22.7 average (25 g load). D(meas.) = 7.40–7.53 D(calc.) = [7.65]

R$_1$–R$_2$: (400) 34.8–35.1, (420) 34.7–35.2, (440) 34.6–35.2, (460) 34.7–35.3, (480) 34.8–35.3, (500) 34.8–35.4, (520) 34.6–35.6, (540) 34.1–35.5, (560) 33.5–35.2, (580) 32.8–34.6, (600) 32.1–33.8, (620) 31.5–33.9, (640) 31.0–32.4, (660) 30.6–31.8, (680) 30.2–31.4, (700) 30.0–31.0

Cell Data: Space Group: n.d. $a = 4.33$ $b = 7.09$ $c = 7.76$ $Z = 2$

X-ray Powder Pattern: Guanajuato, Mexico.
2.43 (100), 2.88 (50), 1.48 (40), 2.23 (30), 1.73 (30), 2.67 (20), 2.59 (20)

Chemistry:

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<td>6.4</td>
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<td>99.80</td>
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</table>

(1) Silver City, Idaho, USA. (2) Guanajuato, Mexico. (3) San Carlos mine, Guanajuato, Mexico; by electron microprobe. (4) Ag$_4$SeS.

Polymorphism & Series: Inverted from a higher temperature cubic form.

Occurrence: An uncommon, relatively low-temperature, mineral in hydrothermal deposits rich in silver and selenium, but manifestly deficient in sulfur.

Association: Acanthite, naumannite, silver, stephanite, proustite, pearceite, calcite, quartz.

Distribution: In Mexico, from Guanajuato, in the San Carlos mine [TL] and others; at the Chontalpan mine, Taxco, Guerrero. In the USA, in Idaho, from Silver City, Owyhee Co., and at the 4th of July mine, Yankee Fork, Custer Co.; from the Comstock Lode, Virginia City, Storey Co., Nevada; in Washington, at the L-D mine, Wenatchee, Chelan Co. and the Knob Hill mine, Republic, Ferry Co.; and from Cuchillo, Winston district, Sierra Co., New Mexico. At the Maritoto mine, northeast of Paeroa, New Zealand. From the Woluma goldfield, New South Wales, Australia. In the Sanru mine, Hokkaido, Japan.

Name: After Ponciano Aguilar (1853–1935), Superintendent of the San Carlos mine, Guanajuato, Mexico, where the material was originally found.