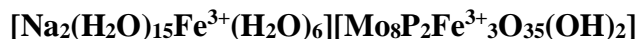


**Mendozavilite-NaFe****Crystal Data:** Monoclinic. *Point Group:* 2/m. As crystals, to 20 μm, in masses.**Physical Properties:** Hardness = 1.5 D(meas.) = 3.85 D(calc.) = 2.948**Optical Properties:** Semitransparent. *Color:* Empire yellow to orange. *Streak:* Bright yellow. *Luster:* Vitreous.*Optical Class:* Biaxial (+). *Pleochroism:* In pale yellows. *Dispersion:* r > v, very strong.*Absorption:* Z > Y > X. α = 1.762 β = 1.763 γ = 1.766 2V(meas.) = 5°-15° 2V(calc.) = 60.1°**Cell Data:** *Space Group:* C2/m. a = 18.82(12) b = 11.03(14) c = 15.18(12) β = 129.8(3)° Z = 2**X-ray Powder Pattern:** Cumobabi deposit, Mexico.

8.77 (10), 9.46 (8), 3.676 (5), 1.820 (5), 3.118 (4), 1.552 (4), 11.56 (3)

**Chemistry:**

	(1)	(2)		(1)	(2)
Na <sub>2</sub> O	1.78	1.04	SiO <sub>2</sub>	0.15	0.01
K <sub>2</sub> O	2.54	0.23	P <sub>2</sub> O <sub>5</sub>	6.52	6.18
CaO	3.83	0.05	MoO <sub>3</sub>	52.81	55.25
CuO	0.12	0.03	Cl	0.14	
MgO	0.13	1.01	- O = Cl	0.04	
Fe <sub>2</sub> O <sub>3</sub>	12.73	17.28	H <sub>2</sub> O	[18.93]	[18.90]
Al <sub>2</sub> O <sub>3</sub>	0.36	0.02	Total	100.00	100.00

(1) Cumobabi deposit, Mexico; normalized electron microprobe analysis, H<sub>2</sub>O calculated, corresponds to [(Na<sub>1.22</sub>K<sub>1.14</sub>Ca<sub>1.01</sub>)<sub>Σ=3.37</sub>(H<sub>2</sub>O)<sub>13.63</sub>(Fe<sup>3+</sup><sub>0.53</sub>Ca<sub>0.44</sub>Cu<sup>2+</sup><sub>0.03</sub>)<sub>Σ=1.00</sub>(H<sub>2</sub>O)<sub>6</sub>][Mo<sub>7.77</sub>(P<sub>1.95</sub>Si<sub>0.05</sub>)<sub>Σ=2.00</sub>(Fe<sup>3+</sup><sub>2.85</sub>Al<sub>0.15</sub>)<sub>Σ=3.00</sub>O<sub>31.62</sub>(OH)<sub>5.29</sub>Cl<sub>0.09</sub>]. (2) Lomas Bayas mine, Antofagasta Province, Chile; normalized electron microprobe analysis, H<sub>2</sub>O calculated, corresponds to[(Na<sub>0.70</sub>Mg<sub>0.52</sub>Fe<sup>3+</sup><sub>0.51</sub>K<sub>0.10</sub>Ca<sub>0.02</sub>Cu<sup>2+</sup><sub>0.01</sub>Al<sub>0.01</sub>)<sub>Σ=1.87</sub>(H<sub>2</sub>O)<sub>15.13</sub>Fe<sup>3+</sup>(H<sub>2</sub>O)<sub>6</sub>][Mo<sub>8</sub>P<sub>1.81</sub>Fe<sup>3+</sup><sub>3</sub>O<sub>35.52</sub>(OH)<sub>1.48</sub>].**Mineral Group:** Betpakdalite supergroup, mendozavilite group.**Occurrence:** In the oxidized zone of some molybdenum-bearing hydrothermal mineral deposits.**Association:** Quartz, paramendozavilite (Cumobabi deposit, Mexico).**Distribution:** From the San Judas mine, Cumobabi molybdenum deposit, southwest of Cumpas, Sonora, Mexico. At the Lomas Bayas mine, 93 km east northeast of Antofagasta, Antofagasta Province, Chile.**Name:** Honors Heriberto *Mendoza Avila* (b. 1924), Phelps Dodge exploration geologist, who found the first specimen. Two suffixes correspond to the dominant cations in the two different types of non-framework cation sites.**Type Material:** The Natural History Museum, London, England, 1984,475.**References:** (1) Williams, S. A. (1986) Mendozavilite and paramendozavilite, two new minerals from Cumobabi, Sonora. *Boletín de Mineralogía*, 2(1), 13-19. (2) (1988) *Amer. Mineral.*, 73, 193 (abs. ref. 1). (3) Kampf, A.R., S.J. Mills, M.S. Rumsey, M. Dini, W.D. Birch, J. Spratt, J.J. Pluth, I.M. Steele, R.A. Jenkins, and W.W. Pinch (2012) The heteropolymolybdate family: structural relations, nomenclature scheme and new species. *Mineral. Mag.*, 76(5), 1175-1207.