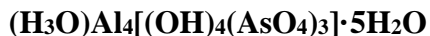


Hydroniumpharmacoalumite**Crystal Data:** Isometric. *Point Group:* $\bar{4}3m$. As cubes to 0.1 mm.**Physical Properties:** *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Brittle.
Hardness = ~ 2.5 D(meas.) = n.d. D(calc.) = 2.486**Optical Properties:** Transparent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous to adamantine.*Optical Class:* Isotropic. $n = 1.55$ **Cell Data:** *Space Group:* $P\bar{4}3m$. $a = 7.7269(2)$ $Z = 1$ **X-ray Powder Pattern:** Maria Josefa mine, near Rodalquilar, Andalusia region, Spain.

7.727 (100), 3.863 (40), 1.932 (16), 2.732 (12), 4.461 (10), 3.456 (8), 2.576 (8)

Chemistry:	(1)
Na ₂ O	0.43
K ₂ O	0.10
Al ₂ O ₃	30.50
Fe ₂ O ₃	0.36
As ₂ O ₅	52.01
H ₂ O	[16.60]
Total	100.00

(1) Maria Josefa mine, near Rodalquilar, Andalusia region, Spain; electron microprobe analysis, H₂O by difference; corresponding to [(H₃O)_{0.90}Na_{0.09}K_{0.01}]_{Σ=1.00}(Al_{3.97}Fe_{0.03})_{Σ=4.00}(AsO₄)₃(OH)₄·2.75H₂O.**Mineral Group:** Pharmacosiderite supergroup.**Occurrence:** A secondary oxidation product of arsenic-bearing minerals in fractures of alunitized gold-bearing volcanic rocks.**Association:** Pharmacoalumite, pharmacosiderite, natropharmacosiderite, hydroniumpharmacosiderite, natropharmacoalumite, jarosite, scorodite, arseniosiderite, yukonite, chlorargyrite, miersite, lavendulan, goethite.**Distribution:** From the Maria Josefa gold mine, near Rodalquilar, Andalusia region, Spain.**Name:** As an analog of pharmacosiderite with dominant *hydronium* and *aluminum*.**Type Material:** Mineralogical State Collection, Munich, Germany (MSM 33887).**References:** (1) Hochleitner, R., K.T. Fehr, M. Kaliwoda, A. Günther, C. Rewitzer, W.W. Schmahl, and S. Park (2015) Hydroniumpharmacoalumite, (H₃O)Al₄[(OH)₄(AsO₄)₃]·5H₂O, a new mineral of the pharmacosiderite supergroup from Rodalquilar, Spain. *Neues Jahrb. Mineral., Abh.*, 192(2), 169-176. (2) (2016) *Amer. Mineral.*, 101, 1921-1922 (abs. ref. 1).