Irhtemite $Ca_4Mg(AsO_4)_2(HAsO_3OH)_2 \cdot 4H_2O$

Crystal Data: Monoclinic. *Point Group:* n.d. Commonly as crystals, in spherulitic aggregates, to 1 mm; may be powdery.

Physical Properties: Hardness = n.d. D(meas.) = 3.09 D(calc.) = 3.153

Optical Properties: Transparent. *Color:* Colorless, white, pale rose with traces of cobalt. *Luster:* Silky.
Optical Class: Biaxial (+). *Orientation:* Elongation negative, extinction angle = 25°.
$\alpha = 1.634$ $\beta =$ n.d. $\gamma = 1.642$ (γ') 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 16.736(5)$ $b = 9.483(3)$ $c = 10.840(5)$
$\beta = 97°15(20)'$ Z = 4

X-ray Powder Pattern: Irhtem mine, Morocco.
2.97 (10), 3.24 (9), 2.82 (9), 5.08 (4), 3.68 (4), 9.42 (3), 6.85 (3)

Chemistry:

	(1)	(2)
As_2O_5	55.5	56.45
MgO	4.4	4.95
CaO	28.2	27.54
H_2O	11.5	11.06
Total	99.6	100.00

(1) Salsigne mine, 15 km north of Carcassone, Aude, France; artificially dehydrated picropharmacolite, corresponding to $Ca_{4.16}Mg_{0.90}H_2(AsO_4)_4 \cdot 5.28H_2O$. (2) $Ca_4MgH_2(AsO_4)_4 \cdot 4H_2O$.

Occurrence: Probably a dehydration product of picropharmacolite in hydrothermal ore deposits.

Association: Sainfeldite, erythrite (Irhtem mine, Morocco).

Distribution: From the Irhtem (Ightem) mine, Bou Azzer district, Anti-Atlas Mountains, Morocco. In Germany, in the Bauhaus district, Richelsdorf Mountains, Hesse.

Name: For its occurrence in the Irhtem (Ightem) mine, Morocco.

Type Material: National School of Mines, Paris, France.

References: (1) Pierrot, R. and H.-J. Schubnel (1972) L'irhtemite, un nouvel arséniate hydraté de calcium et magnésium. Bull. Minéral., 92, 365–370 (in French with English abs.). (2) (1974) Amer. Mineral., 59, 209 (abs. ref. 1).