Haiweeite $Ca(UO_2)_2(Si_5O_{12})(OH)_2 \cdot 6H_2O$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As spherulites consisting of minute, bladelike grains; also as single flakelike grains, flattened on {100}.

Physical Properties: *Cleavage*: Good on {100}. Hardness = 3.5 D(meas.) = 3.35 D(calc.) = 3.08 Fluoresces weakly dull green under UV; radioactive.

Optical Properties: Semitransparent. *Color*: Pale yellow to greenish yellow. *Luster*: Pearly on the cleavage.
Optical Class: Biaxial (-). *Pleochroism*: *Y* = pale yellow; *Z* = colorless. *Orientation*: *Y* = *b*. *Dispersion*: *r* > *v*; very strong. α = 1.533-1.571 β = 1.572-1.580 γ = 1.573-1.582 2V(meas.) = 15°-20°

Cell Data: Space Group: *Pbcn*. *a* = 18.3000(5) *b* = 14.2331(3) *c* = 17.9192(5) Z = 8

X-ray Powder Pattern: Coso Mountains, California, USA.
9.14 (100), 4.56 (60), 4.42 (60), 3.19 (50), 3.11 (50), 7.05 (40), 3.54 (40)

Chemistry:	(1)	(2)
K_2O	n.d.	0.11
SiO_2	33.1	30.34
UO_3	52.8	58.01
CaO	5.4	5.72
H_2O	8.7	13.19
Total	[100.0]	107.38

(1) Coso Mountains, California, USA; inseparably combined with metahaiweeite, average of 4 analyses, recalculated to 100.0% after deduction of insolubles, mainly quartz. (2) Teofilo Otoni, Minas Gerais, Brazil; average of 6 electron microprobe analyses supplemented by TGA, corresponding to $(Ca_{1.01}K_{0.02})_{\Sigma=1.03}[(UO_2)_{2.00}Si_{4.99}O_{12}(OH)_2]\cdot 6.28H_2O$.

Occurrence: On fracture surfaces in granite and in voids in neighboring loosely consolidated lake bed sediments (Coso Mountains, California, USA); along fractures in tourmaline-bearing granite and granite pegmatite (Brazil).

Association: Autunite, meta-autunite, uranophane, uranophane-beta, phosphuranylite, torbernite, meta-torbernite, chernikovite, uranian “opal" (Perus, Brazil).

Distribution: From the Haiwee Reservoir, Coso Mountains, Inyo Co., California, USA. At Perus, 25 km north of São Paulo, and from Teofilo Otoni, Minas Gerais, Brazil. On Portezuelo Hill, Ranquil district, Mendoza Province, Argentina. From Badgastein, Salzburg, Austria.

Name: For the Haiwee Reservoir, Coso Mountains, California, USA, above which the mineral was first found to occur.

Type Material: n.d.

References: (1) McBurney, T.C. and J. Murdoch (1959) Haiweeite, a new uranium mineral from California. Amer. Mineral., 44, 839-843. (2) de Camargo, W.G.R. and D.P. Svisero (1969) Haiweeite, a new occurrence in Brazil. Amer. Mineral., 54, 966-969. (3) Plášil, J., K. Fejfarová, J. Čejka, M. Dušek, R. Škoda, and J. Sejkora (2013) Revision of the crystal structure and chemical formula of haiweeite, $Ca(UO_2)_2(Si_5O_{12})(OH)_2\cdot 6H_2O$. Amer. Mineral., 98, 718-723.