Sepiolite $Mg_4Si_6O_{15}(OH)_2 \cdot 6H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$, possible. Compact nodular, earthy, clayey, massive. Rarely fine fibrous along [001], to 2 cm.

Physical Properties: Hardness = 2–2.5 D(meas.) = > 2; dry porous masses float on water. D(calc.) = [2.26]

Optical Properties: Opaque or nearly so. *Color:* Grayish white, white, white with a yellowish or reddish tinge; bluish green. *Luster:* Dull.
Optical Class: Biaxial (–). *Pleochroism:* X = colorless to very pale yellow; $Y = Z$ = golden yellow. α = 1.515–1.520 β = n.d. γ = 1.525–1.529 2V(meas.) = 0°–50°

Cell Data: *Space Group:* *Pncn* or *Pnan*, possible. $a = 5.21$ $b = 26.73$ $c = 13.50$
Z = 4

X-ray Powder Pattern: Eskişehir, Turkey.
12.8 (100), 2.58 (45), 4.53 (35), 4.29 (35), 3.35 (30vb), 3.77 (20), 2.26 (16b)

Chemistry:

	(1)	(2)
SiO_2	52.50	55.65
Al_2O_3	0.60	
Fe_2O_3	2.99	
FeO	0.70	
MgO	21.31	24.89
CaO	0.47	
H_2O^+	21.27	19.46
Total	99.84	100.00

(1) Ampandrandava, Madagascar. (2) $Mg_4Si_6O_{15}(OH)_2 \cdot 6H_2O$.

Occurrence: A sedimentary clay mineral; also in serpentine.

Association: "Opal," dolomite.

Distribution: Known from many localities, but not in large amounts. A few localities affording good material include: from antiquity, at Eskişehir, Turkey. From Vallecas, near Madrid, and Cabañas, near Toledo, Spain. At Nugssuaq, western Greenland. In the USA, from Middletown, Delaware Co., Pennsylvania; at Gouverneur, St. Lawrence Co., New York; in Little Cottonwood Canyon, Salt Lake Co., Utah; from Crestmore, Riverside Co., California; on the southern High Plains, from Amarillo, Texas to Hobbs, New Mexico; at Ash Meadows, Nye Co., Nevada. From Cerro Mercado, Durango, Mexico. From near Lake Amboseli, Kenya. At Lake Natron, Tanzania. From Ampandrandava, Madagascar. At Kuzuu, Tochigi Prefecture, Japan.

Name: From the Greek for *cuttle-fish*, the bone of which resembles the mineral in being light and porous.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 680–681.
(2) Brauner, K. and A. Preisinger (1956) Structur und Entstehung des Sepioliths. Tschermaks Mineral. Petrog. Mitt., 6, 120–140 (in German). (3) Brindley, G.W. (1959) X-ray and electron diffraction data for sepiolite. Amer. Mineral., 44, 495–500. (4) McLean, S.A., B.L. Allen, and J.R. Craig (1972) The occurrence of sepiolite and attapulgite on the southern High Plains. Clays and Clay Minerals, 20, 143–149. (5) Nagata, H., S. Shimoda, and T. Sudo (1974) On dehydration of bound water of sepiolite. Clays and Clay Minerals, 22, 285–293.