

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. Granular, to 975 μm , and as rims around other phosphates and silicates.

Physical Properties: *Cleavage:* Rhombohedral, probable. Hardness = 4.5–5
D(meas.) = n.d. D(calc.) = 3.01

Optical Properties: Transparent. *Color:* Colorless, orange-brown with included iron oxides; gray in reflected light, with orange-brown internal reflections. *Luster:* Vitreous to resinous.
Optical Class: Uniaxial. $n = 1.60\text{--}1.61$ *Anisotropism:* Weak. *Birefractance:* Weak.

Cell Data: *Space Group:* $R\bar{3}$. $a = 14.967(2)$ $c = 42.595(4)$ $Z = 18$

X-ray Powder Pattern: Carleton meteorite.
3.694 (s), 2.960 (s), 2.753 (s), 3.558 (m), 2.500 (m), 2.126 (m), 1.851 (m)

Chemistry:	(1)	(2)	(3)
P ₂ O ₅	49.9	45.8	51.55
SiO ₂	0.59		
FeO	2.2	16.0	
MnO	0.30	10.12	
NiO		0.08	
MgO	33.5	17.55	34.16
CaO	6.59	3.60	6.79
Na ₂ O	6.6	6.66	7.50
Total	99.68	99.81	100.00

(1) Carleton meteorite; by electron microprobe, average of five analyses; corresponding to Na_{1.77}Ca_{0.96}(Mg_{6.96}Fe_{0.26}Mn_{0.04})_{Σ=7.26}[(P_{0.96}Si_{0.08})_{Σ=1.04}O₄]₆. (2) GRA 95209 meteorite; by electron microprobe, average of 8 analyses, total Fe as FeO, total Mn as MnO; corresponds to Na_{1.99}(Ca_{0.60}Mg_{0.43})_{Σ=1.03}(Mg_{3.60}Fe_{2.07}Mn_{1.33})_{Σ=7.00}(P_{0.98}O₄)₆. (3) Na₂CaMg₇(PO₄)₆.

Occurrence: As a single grain in a phosphate-rich inclusion in an iron meteorite (Carleton meteorite); in phosphate-rich portions of an acapulcoite-lodranite meteorite.

Association: Chlorapatite, olivine, pyroxene, plagioclase, schreibersite, nickel-iron, troilite, kamacite, hydrated iron oxides [of terrestrial origin] (Carleton meteorite); magnesian graffonite, orthopyroxene, olivine, plagioclase, nickel-iron (GRA 95209 meteorite).

Distribution: In the Carleton type IIICD iron and GRA 95209 primitive achondrite meteorites.

Name: Honors Professor Ernst Florens Friedrich Chladni (1756–1827), German physicist, University of Riga, Riga, Latvia, who first published the hypothesis that meteorites were of extraterrestrial origin.

Type Material: National Museum of Natural History, Washington, D.C., USA, 2707.

References: (1) McCoy, T.J., I.M. Steele, K. Keil, B.F. Leonard, and M. Endre (1994) Chladniite, Na₂CaMg₇(PO₄)₆: a new mineral from the Carleton (IIICD) iron meteorite. *Amer. Mineral.*, 79, 375–380. (2) Floss, C. (1999) Fe,Mg,Mn-bearing phosphates in the GRA 95209 meteorite: occurrences and mineral chemistry. *Amer. Mineral.*, 84, 1354–1359.