

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As anhedral grains, to 0.2 mm.  
*Twining:* Polysynthetic on {100}, showing a lamellar structure in polarized light.

**Physical Properties:** Hardness = 4.5 D(meas.) = 3.0–3.3 D(calc.) = [3.13]

**Optical Properties:** Transparent. *Color:* Colorless.

*Optical Class:* Biaxial (-). *Orientation:* Extinction  $\wedge$  lamellae  $\approx 2^\circ$ – $3^\circ$ .  $\alpha = 1.598(1)$   
 $\beta = 1.605(1)$   $\gamma = 1.608(1)$   $2V(\text{meas.}) = 63^\circ$ – $65^\circ$   $2V(\text{calc.}) = 66^\circ$

**Cell Data:** *Space Group:* P2<sub>1</sub>/a.  $a = 13.36(5)$   $b = 5.23(2)$   $c = 9.13(3)$   $\beta = 91.2(2)^\circ$   
 $Z = 4$

**X-ray Powder Pattern:** Dayton meteorite.

2.625 (10), 3.734 (9), 2.679 (9), 1.875 (9), 2.718 (8), 3.344 (7), 2.230 (7)

**Chemistry:**

	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	46.9	47.27
FeO	0.5	
MgO	12.6	13.42
CaO	18.8	18.67
Na <sub>2</sub> O	22.1	20.64
Total	100.9	100.00

(1) Dayton meteorite; by electron microprobe, average of six grains, total Fe as FeO; corresponds to Na<sub>2.16</sub>Ca<sub>1.01</sub>Mg<sub>0.95</sub>Fe<sub>0.02</sub><sup>2+</sup>(PO<sub>4</sub>)<sub>2</sub>. (2) Na<sub>2</sub>CaMg(PO<sub>4</sub>)<sub>2</sub>.

**Occurrence:** A very rare component in phosphate nodules in an iron meteorite.

**Association:** Panethite, whitlockite, albite, enstatite, schreibersite, kamacite, taenite, graphite, sphalerite, troilite.

**Distribution:** In the Dayton finest (very fine-grained) octahedrite meteorite.

**Name:** In honor of Dr. Brian Harold Mason (1917– ), U.S. National Museum, Washington, D.C., USA, for his contributions to the study of meteorites.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 1506.

**References:** (1) Fuchs, L.H., E. Olsen, and E.P. Henderson (1967) On the occurrence of brianite and panethite, two new phosphate minerals from the Dayton meteorite. *Geochim. Cosmochim. Acta*, 31, 1711–1719. (2) (1968) *Amer. Mineral.*, 53, 508–509 (abs. ref. 1). (3) Moore, P.B. (1975) Brianite, Na<sub>2</sub>CaMg[PO<sub>4</sub>]<sub>2</sub>: a phosphate analog of merwinite, Ca<sub>2</sub>CaMg[SiO<sub>4</sub>]<sub>2</sub>. *Amer. Mineral.*, 60, 717–718.