

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals display {100}, {010}, {13 $\bar{1}$ }, {11 $\bar{1}$ }, and {001} as tapered blades, elongated along [100], flattened on {001} in radial fans.

Twinning: By reflection on {001} common.

Physical Properties: *Cleavage:* Perfect on {001}. *Tenacity:* Brittle.

Fracture: Stepped irregular. *Hardness* = ~ 4 *D(meas.)* = 2.48(1) *D(calc.)* = 2.477

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.564$ $\beta = 1.565$ $\gamma = 1.575$ $2V(\text{meas.}) = 24.1^\circ$ $2V(\text{calc.}) = 35.3^\circ$

Orientation: $X = b$; $Z \wedge a = 41^\circ$ in obtuse β . No dispersion or pleochroism were observed.

Cell Data: *Space Group:* $P2_1/a$. $a = 14.8237(19)$ $b = 7.0302(3)$ $c = 9.946(3)$ $\beta = 110.115(12)^\circ$
 $Z = 2$

X-ray Powder Pattern: Northern Belle mine, Candelaria district, Mineral County, Nevada, USA. 2.805 (100), 9.20 (82), 4.88 (64), 2.849 (45), 2.936 (40), 3.510 (35), 1.9527 (35)

Chemistry:	(1)	(2)
CaO	8.18	7.74
MgO	16.47	16.68
FeO	0.13	
Al ₂ O ₃	13.35	14.06
P ₂ O ₅	38.84	39.16
H ₂ O	[22.32]	22.36
Total	99.29	100.00

(1) Northern Belle mine, Candelaria district, Mineral County, Nevada, USA; average of 7 electron microprobe analyses supplemented by Raman and FTIR spectroscopy, H₂O calculated from structure; corresponds to Ca_{1.07}Mg_{2.99}Fe²⁺_{0.01}Al_{1.91}P₄O₂₆H_{18.11}. (2) CaMg₃Al₂(PO₄)₄(OH)₂·8H₂O.

Mineral Group: Jahnsite group, whiteite subgroup.

Occurrence: A low-temperature secondary mineral presumed to have formed as a result of hydrothermal alteration of phosphate nodules derived from the sediments.

Association: Crandallite, fluorwavellite, montgomeryite, variscite/metavariscite, pyrite, quartz.

Distribution: Found at the Northern Belle mine (also known as Argentum mine), Candelaria district, Mineral County, Nevada, USA.

Name: For a member of the whiteite group with the *M3* site occupied by Al³⁺ and the suffix indicates the dominance of Ca at the *X* site and Mg at both the *M1* and *M2* sites.

Type Material: Mineral Sciences Department, Natural History Museum of Los Angeles County, Los Angeles, California, USA (65642 and 65643).

References: (1) Kampf, A.R., P.M. Adams, and B.P. Nash (2016) Whiteite-(CaMgMg), CaMg₃Al₂(PO₄)₄(OH)₂·8H₂O, a new jahnsite-group mineral from the Northern Belle Mine, Candelaria, Nevada, U.S.A. *Can. Mineral.*, 54(6), 1513-1523. (2) (2017) *Amer. Mineral.*, 102, 2346 (abs. ref. 1).