

Brandtite**Ca₂(Mn²⁺, Mg)(AsO₄)₂•2H₂O**

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Crystal Data: Monoclinic. *Point Group:* 2/m. Stout to slender prismatic crystals, with prominent {100}, {110}, {120}, {010}, {122}, a number of minor forms, to 8 mm; in radiated groups and fibrous spherules. *Twinning:* On {100}, common.

Physical Properties: *Cleavage:* {010}, perfect; {001}, good. Hardness = 3.5
D(meas.) = 3.61–3.67 D(calc.) = 3.63–3.70

Optical Properties: Transparent to translucent. *Color:* Colorless to white; colorless in transmitted light. *Luster:* Vitreous.

Optical Class: Biaxial (+). *Orientation:* X = b; Y ∧ c = 6°; Z ∧ c = 84°. *Dispersion:* r < v, strong to very strong. α = 1.707–1.709 β = 1.711 γ = 1.722–1.727 2V(meas.) = 15°–23°

Cell Data: *Space Group:* P2₁/c. a = 5.897–5.899 b = 12.991–12.968 c = 5.964–5.684
β = 108.01–108.05° Z = 2

X-ray Powder Pattern: Harstigen mine, Sweden.

3.010 (100), 3.241 (70), 3.373 (55), 3.424 (30), 6.482 (25), 5.151 (20), 3.790 (20)

Chemistry:

| | (1) | (2) | (3) |
|--------------------------------|-------|-------|--------|
| P ₂ O ₅ | 0.05 | | |
| As ₂ O ₅ | 50.48 | 49.95 | 51.19 |
| FeO | 0.05 | | |
| MnO | 14.03 | 14.85 | 15.80 |
| PbO | 0.96 | | |
| MgO | 0.90 | 0.46 | |
| CaO | 25.07 | 24.66 | 24.98 |
| Cl | 0.04 | | |
| H ₂ O | 8.09 | 9.31 | 8.03 |
| insol. | 0.04 | | |
| Total | 99.71 | 99.23 | 100.00 |

(1) Harstigen mine, Sweden. (2) Vrančice, Czech Republic; by electron microprobe, H₂O by TGA; corresponds to Ca_{2.01}(Mn_{0.96}Mg_{0.05})_{Σ=1.01}(AsO₄)_{1.99}•2.32H₂O. (3) Ca₂Mn(AsO₄)₂•2H₂O.

Polymorphism & Series: Dimorphous with parabrandsite.

Mineral Group: Roselite group.

Occurrence: In metamorphosed Fe–Mn orebody (Harstigen mine and Långban, Sweden); in a metamorphosed stratiform zinc orebody (Sterling Hill, New Jersey, USA).

Association: Lead, sarkinite, flinkite, caryopilite, galena, barite, calcite (Harstigen mine, Sweden); sarkinite, rhodochrosite, sphalerite, franklinite, willemite, barite, calcite, chalcocopyrite, löllingite (Sterling Hill, New Jersey, USA).

Distribution: Found in the Harstigen mine, near Persberg, and at Långban, Värmland, Sweden. From Sailauf, northeast of Aschaffenburg, Bavaria, Germany. In the Falotta mine, Oberhalbstein, Graubünden, Switzerland. At Vrančice, near Příbram, Czech Republic. In the Ushkatyn-III deposit, Atasu district, Kazakhstan. At Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA. In the Veta Negra mine, Pampa Larga district, Tierra Amarilla, southeast of Copiapó, Chile. From the Wessel's mine, near Kuruman, Cape Province, South Africa.

Name: To honor George Brandt (1694–1768), Swedish chemist.

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