

Strengite

Fe³⁺PO₄•2H₂O

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals are variable in habit, may be dominated by {111}, lathlike along [001], or elongated along [100] or [010], to 5 cm, with many forms. Generally radial fibrous, as botryoidal or spherical aggregates and crusts. *Twinning:* Rarely on {201}.

Physical Properties: *Cleavage:* On {010}, good; on {001}, poor. Hardness = 3.5
D(meas.) = 2.84–2.87 D(calc.) = 2.84

Optical Properties: Transparent to translucent. *Color:* Purple, violet, pink, peach-blossom-red, carmine, greenish white; may be nearly colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Orientation:* $X = a$; $Y = c$; $Z = b$. *Dispersion:* $r < v$, strong. $\alpha = 1.697$ – 1.708 $\beta = 1.708$ – 1.719 $\gamma = 1.741$ – 1.745 2V(meas.) = Moderate to small.

Cell Data: *Space Group:* $Pcab$. $a = 10.122(1)$ $b = 9.886(1)$ $c = 8.7233(7)$ $Z = 8$

X-ray Powder Pattern: The Kreuzberg, Germany. (ICDD 33–667).
3.114 (100), 4.383 (85), 5.509 (60), 2.546 (50), 3.996 (45), 3.002 (45), 2.949 (45)

Chemistry:

	(1)	(2)
P ₂ O ₅	38.24	37.99
Fe ₂ O ₃	43.40	42.73
H ₂ O	18.89	19.28
Total	100.53	100.00

(1) Pleystein, Germany. (2) FePO₄•2H₂O.

Polymorphism & Series: Dimorphous with phosphosiderite, forms a series with variscite.

Mineral Group: Variscite group.

Occurrence: A late secondary mineral in complex granite pegmatites; in “limonite” iron ores and gossans; with magnetite iron ores; rarely a cave mineral.

Association: Beraunite, huréaulite, dufrénite, bermanite, stewartite, cacoxenite, rockbridgeite, vivianite, apatite, leucophosphate, phosphosiderite.

Distribution: In Germany, in the Eleonore and Rotläufchen iron mines, near Giessen, Hesse; at Hagendorf, and on the Kreuzberg, Pleystein, Bavaria. At Cyrilov, Czech Republic. In Sweden, from the Leveäniemi mine, Svappavaara, and in the Kiruna iron mines. At Iglesias, Sardinia, Italy. From the Mangualde pegmatite, near Mesquitela, Portugal. In the Bomi Hill Caves, Liberia. In the USA, from the Palermo #1 and Fletcher mines, near North Groton, Grafton Co., New Hampshire; at Midvale, Rockbridge Co., Virginia; large crystals from Indian Mountain, Cherokee Co., Alabama; at Three Oak Gap and the Coon Creek mine, Polk Co., Arkansas; in the Wood mine, Cooke Co., Tennessee; from the Bull Moose mine, five km southeast of Custer, Custer Co., South Dakota; at Pala, San Diego Co., California. In the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, Minas Gerais, Brazil. From the El Criollo pegmatite, Cerro Blanco, Tanti district, 45 km west of Córdoba, Córdoba Province, Argentina. At the Iron Monarch quarry, Iron Knob, South Australia. A number of other minor localities are known.

Name: To honor Johan August Streng (1830–1897), German mineralogist, University of Giessen, Giessen, Germany.

Type Material: Wroclaw University, Wroclaw, Poland, II–18166.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana’s system of mineralogy, (7th edition), v. II, 756–761.

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