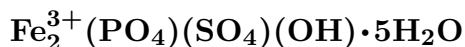


Diadochite



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Crystal Data: Triclinic; may be amorphous. *Point Group:* 1 or $\bar{1}$. Rarely microcrystalline, as six-sided platy crystals, in nodular, reniform, botryoidal, stalactitic, colloform aggregates; commonly amorphous, glassy, earthy.

Physical Properties: *Fracture:* Earthy to uneven, conchoidal. *Tenacity:* Pulverulent to brittle. Hardness = 3–4 or less. $D(\text{meas.}) = 2.0\text{--}2.4$ $D(\text{calc.}) = [2.32]$

Optical Properties: Semitransparent. *Color:* Yellow, brownish yellow, brown; reddish brown, greenish yellow, pale green, pale yellow; in transmitted light, pale yellow to yellowish brown.

Optical Class: Biaxial (+), isotropic when glassy. *Dispersion:* $r > v$, strong. $n = 1.60\text{--}1.61$ [isotropic] $\alpha = 1.615$ $\beta = 1.618\text{--}1.638$ $\gamma = 1.665\text{--}1.670$ $2V(\text{meas.}) = \text{Small}$.

Cell Data: *Space Group:* $P1$ or $P\bar{1}$. $a = 9.585(1)$ $b = 10.235(1)$ $c = 7.335(1)$
 $\alpha = 81^\circ 46(1)'$ $\beta = 107^\circ 57(1)'$ $\gamma = 121^\circ 10(1)'$ $Z = 2$

X-ray Powder Pattern: Haut-le-Wastia, Belgium; commonly X-ray amorphous.
8.74 (100), 4.377 (100), 8.28 (90), 3.929 (85), 4.082 (65), 2.942 (65) 2.918 (40)

Chemistry:	(1)	(2)	(3)
SO ₃	15.14	17.21	19.53
P ₂ O ₅	14.82	16.83	17.32
Fe ₂ O ₃	39.69	37.80	38.97
FeO		0.07	
H ₂ O(+)		16.76	
H ₂ O(−)		10.04	
H ₂ O	30.35		24.18
rem.		0.86	
Total	100.00	99.57	100.00

(1) Arnsbach, Germany. (2) Haut-le-Wastia, Belgium; H₂O by the Penfield method.
(3) Fe₂(PO₄)(SO₄)(OH) · 5H₂O.

Occurrence: A secondary mineral in gossans and some coal deposits, formed by sulfate-rich solutions acting on earlier phosphates, may be post-mine; in cave deposits, the phosphate derived from guano; widespread in secondary phosphate assemblages in granite pegmatites.

Association: Delvauxite, vashegyite, pitticite, melanterite, vivianite, wavellite, leucophosphite, phosphosiderite, ferrostrunzite, beraunite, mitridatite, rockbridgeite, jahnsite, roscherite, “limonite”.

Distribution: From Arnsbach, near Gräfenenthal, and in the Garnsdorf mine and the Feengrotten (Cave), Saalfeld, Thuringia, Germany. At Visé, Védryn, and Haut-le-Wastia, Belgium. From Hředl, Nučic, Litošice, Vysocany, and Chvaletice, Czech Republic. At Psychagnard, Isère, France. In Slovakia, from Železník (Vashegy). At Leoben, Austria. In the USA, from near Bethel Church, Pike Co., Indiana; at a coal mine in Jackson Township, Coshocton Co., and in Monday Creek Township, Perry Co., Ohio; from the Coon Creek mine, near Shady, Polk Co., Arkansas; in the Tip Top mine, 8.5 km southwest of Custer, Custer Co., South Dakota; from Gringo Gulch, Santa Cruz Co., Arizona. At Rapid Creek, Yukon Territory, Canada. A few additional localities are reported.

Name: From the Greek for a successor, as it typically is formed from earlier phosphates.

Type Material: Mining Academy, Freiberg, Germany, 20765.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1011–1013. (2) Van Tassel, R. (1985) Minéraux phosphates secondaires (vashegyite, destinezite [= diadochite], wavellite, crandallite, phosphate de fer) a Haut-le-Wastia, province de Namur (Belgique). Bull. Soc. Belge Géol., 94, 19–27 (in French with English abs.).

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