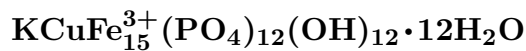


## Phosphofibrite



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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Crystals are fibrous, to 0.5 mm, in radial aggregates.

**Physical Properties:** *Cleavage:* One, nearly perfect, pinacoidal. *Hardness* =  $\sim 4$   
D(meas.) = 2.90 D(calc.) = 2.94

**Optical Properties:** Translucent. *Color:* Yellow or yellowish green. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-). *Orientation:*  $Y$  = elongation. *Dispersion:*  $r \ll v$ .  $\alpha = 1.755(4)$   
 $\beta = \text{n.d.}$   $\gamma = 1.790(4)$   $2V(\text{meas.}) = \text{Moderate}$ .

**Cell Data:** *Space Group:*  $Pbmn$  or  $Pnmn$ .  $a = 14.40$   $b = 18.76$   $c = 10.40$   $Z = 2$

**X-ray Powder Pattern:** Clara mine, Germany.  
9.50 (100), 3.23 (60), 3.13 (60), 4.35 (50), 2.99 (50), 2.77 (50), 2.10 (50)

Chemistry:	(1)	(2)
$\text{P}_2\text{O}_5$	34.0	34.07
$\text{Al}_2\text{O}_3$	1.5	
$\text{Fe}_2\text{O}_3$	46.6	47.90
CuO	2.6	3.18
$\text{K}_2\text{O}$	1.9	1.88
$\text{H}_2\text{O}$	[13.4]	12.97
Total	[100.0]	100.00

(1) Clara mine, Germany; by electron microprobe and microchemical methods,  $\text{H}_2\text{O}$  by difference; corresponding to  $\text{K}_{1.00}\text{Cu}_{0.81}(\text{Fe}_{14.52}\text{Al}_{0.73})_{\Sigma=15.25}(\text{P}_{0.99}\text{O}_{3.97})_{12}(\text{OH})_{12.36} \cdot 12.33\text{H}_2\text{O}$ .  
(2)  $\text{KCuFe}_{15}(\text{PO}_4)_{12}(\text{OH})_{12} \cdot 12\text{H}_2\text{O}$ .

**Occurrence:** In a hydrothermal polymetallic barite-fluorite deposit.

**Association:** Beraunite, strengite, barian pharmacosiderite, quartz.

**Distribution:** From the Clara mine, near Oberwolfach, Black Forest, Germany.

**Name:** For *phosphorus* in the composition and its characteristic *fibrous* habit.

**Type Material:** n.d.

**References:** (1) Walenta, K. and P.J. Dunn (1984) Phosphofibrit, ein neues Eisenphosphat aus der Grube Clara im mittleren Schwarzwald (BRD). *Chem. Erde*, 43, 11–16 (in German).  
(2) (1984) *Amer. Mineral.*, 69, 1192 (abs. ref. 1).