Paulgrothite  

\[ \text{Cu}_9 \text{Fe}^{3+}\text{O}_8(\text{PO}_4)_4\text{Cl}_3 \]

Crystal Data: Orthorhombic.  \textit{Point Group: mm2}.

Physical Properties: Cleavage: Tenacity: Fracture:  
Hardness =  
\[ \text{D(meas.)} = \text{D(calc.)} = \]

Optical Properties: Color: Streak: Luster:  
Optical Class:

Cell Data: \textit{Space Group: Cmc2}  
\[ a = 5.90(1) \quad b = 15.66(4) \quad c = 17.33(4) \]

X-Ray Diffraction Pattern: Arsenatnaya fumarole, Tolbachik volcano, Kamchatka peninsula, Far-Eastern Region, Russia.  
2.909 (100), 2.452 (65), 3.561 (37), 2.347 (26), 4.667 (24), 5.317 (18), 3.236 (17)

Chemistry:

Polymorphism & Series:

Mineral Group:

Occurrence:

Association:

Distribution: From the Arsenatnaya fumarole, Second scoria cone of the Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka peninsula, Far-Eastern Region, Russia.

Name:

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5595/1).