Anorpiment

Crystal Data: Triclinic.  

\[ \text{Point Group: } \tilde{1} \]  
As \[ \text{drusy crusts of wedge-shaped crystals, to } 0.2 \text{ mm,} \]
exhibiting \{010\}, \{110\}, \{\tilde{1}10\}, \{001\}, \{021\} and \{02 \tilde{1}\}.

Physical Properties:  

\[ \text{Cleavage: Perfect and easy on } \{001\}. \]  
Fracture: Irregular.  
Tenacity: Sectile.  
Hardness = 1.5  
\[ D(\text{meas.}) = 3.33 \]  
\[ D(\text{calc.}) = 3.346 \]

Optical Properties:  

Transparent.  
Color: Greenish-yellow.  
Streak: Yellow.  
Luster: Resinous on crystal faces, pearly on cleavage surfaces.  
Optical Class: Biaxial (-).  
\[ n > 2 \quad 2V = 35–40^\circ \]  
Orientation: Acute bisectrix (X) is approximately perpendicular to the \{001\} cleavage.  
Dispersion: None.  
Pleochroism: None.

Cell Data:  

\[ \text{Space Group: } P\tilde{1}. \]  
\[ a = 5.7577(2) \quad b = 8.7169(3) \quad c = 10.2682(7) \]  
\[ \alpha = 78.152(7)^\circ \quad \beta = 75.817(7)^\circ \quad \gamma = 89.861(6)^\circ \]  
\[ Z = 4 \]

X-ray Powder Pattern:  

Palomo mine, Castrovirreyna Province, Huancavelica Department, Peru.  
2.552 (100), 4.867 (97), 2.469 (96), 3.609 (82), 4.519 (77), 2.880 (75), 3.702 (46)

Chemistry:  

\begin{tabular}{c|cc}
 & (1) & (2) \\
--- & --- & --- \\
As & 58.21 & 60.91 \\
S & 38.72 & 39.09 \\
Total & 96.94 & 100.00 \\
\end{tabular}

(1) Palomo mine, Castrovirreyna Province, Huancavelica Department, Peru; average of 4 electron microprobe analyses, corresponding to As\textsubscript{1.96}S\textsubscript{3.04}.  
(2) As\textsubscript{2}S\textsubscript{3}.

Polymorphism & Series:  

Dimorphous with orpiment.

Occurrence:  

A very low-temperature hydrothermal mineral.

Association:  

Dufrénoyosite, muscovite, orpiment, pyrite, realgar.

Distribution:  

At the Palomo mine, Castrovirreyna Province, Huancavelica Department, Peru.

Name:  

Alludes to the mineral’s triclinic (anorthic) symmetry and dimorphous relation to orpiment.

Type Material:  

Natural History Museum of Los Angeles County, USA, # 63514 & 63544; Mineral Museum of the University of Arizona, Tucson, USA, #19326.

References:  

Anorpiment, As\textsubscript{2}S\textsubscript{3}, the triclinic dimorph of orpiment. Mineral. Mag., 75(6), 2857–2867.  
(2) (2013)  
Amer. Mineral., 98, 1078 (abs. ref. 1).