Mertieite-I  

\[ \text{Pd}_{11} (\text{Sb}, \text{As})_4 \]

©2001-2005 Mineral Data Publishing, version 1

Crystal Data:  Hexagonal; possibly monoclinic, pseudohexagonal.  \textit{Point Group}: n.d.  
As small grains, to 0.5 mm.

Physical Properties:  Hardness = n.d.  \textit{VHN} = 561–593, 578 average (50 g load).  

\( R_1 - R_2 \): n.d.

Cell Data:  \textit{Space Group}: n.d.  \( a = 15.04 \quad c = 22.41 \quad Z = 18 \)

X-ray Powder Pattern:  Goodnews Bay, Alaska, USA.  
2.278 (vs), 2.171 (vs), 2.232 (m), 2.017 (m), 1.918 (m), 1.861 (m), 1.572 (m)

Chemistry:  
\[
\begin{array}{cc}
\text{Pd} & 72.9 \\
\text{Cu} & < 1.2 \\
\text{Sb} & 15.3 \\
\text{As} & 9.2 \\
\hline
\text{Total} & < 98.6 \\
\end{array}
\]

(1)  Goodnews Bay, Alaska, USA; by electron microprobe, average of four grains; corresponding to 
\((\text{Pd}_{11.03} \text{Cu}_{0.30})_{\Sigma=11.33} (\text{Sb}_{2.02} \text{As}_{1.98})_{\Sigma=4.00}\).

Polymorphism & Series:  Dimorphous with isomertieite.

Occurrence:  As fine grains in precious metal placer concentrates, apparently derived from 
ultramafic source rock.


Distribution:  In the USA, from the placer dredgings at Goodnews Bay, Alaska [TL].

provided the original material; “I” to distinguish its unique composition and crystallography from 
that of mertieite-II and isomertieite.


References:  