**Genkinite**

\((\text{Pt, Pd})_4\text{Sb}_3\)

**Crystal Data:** Tetragonal. *Point Group:* 422. As irregular grains, to about 165 \(\mu\)m.


\[\begin{align*}
R_1 & - R_2: \quad (400) \ 45.6 - 45.6, \\
     & \quad (420) \ 46.5 - 46.7, \\
     & \quad (440) \ 47.6 - 48.0, \\
     & \quad (460) \ 48.7 - 49.2, \\
     & \quad (480) \ 49.9 - 50.4, \\
     & \quad (500) \ 51.1 - 51.5, \\
     & \quad (520) \ 52.3 - 52.7, \\
     & \quad (540) \ 53.5 - 53.8, \\
     & \quad (560) \ 54.5 - 54.8, \\
     & \quad (580) \ 55.5 - 55.8, \\
     & \quad (600) \ 56.5 - 56.7, \\
     & \quad (620) \ 57.4 - 57.6, \\
     & \quad (640) \ 58.2 - 58.2, \\
     & \quad (660) \ 58.9 - 58.9, \\
     & \quad (680) \ 59.5 - 59.5, \\
     & \quad (700) \ 60.0 - 60.1
\end{align*}\]

**Cell Data:** *Space Group:* n.d. *a* = 7.736(1) *c* = 24.161(2) Z = 8

**X-ray Powder Pattern:** Onverwacht mine, South Africa. 2.265 (100), 3.020 (90), 1.934 (60), 1.910 (50), 0.9043 (50b), 0.9025 (50b), 2.146 (40)

**Chemistry:**

\[
\begin{align*}
\text{Pt} & \quad 44.4 \quad 41.86 \\
\text{Pd} & \quad 9.0 \quad 7.01 \\
\text{Rh} & \quad 6.6 \quad 8.23 \\
\text{Ni} & \quad 2.0 \quad 3.41 \\
\text{Cu} & \quad 0.25 \\
\text{Sb} & \quad 35.8 \quad 38.96 \\
\text{Bi} & \quad 1.7 \\
\text{As} & \quad 0.89 \\
\text{Total} & \quad 100.64 \quad 99.47
\end{align*}
\]

(1) Onverwacht mine, South Africa; by electron microprobe, corresponds to \((\text{Pt}_{2.17}\text{Pd}_{0.81}\text{Rh}_{0.61}\text{Ni}_{0.32}\text{Cu}_{0.04})\Sigma=3.95(\text{Sb}_{2.81}\text{As}_{0.11}\text{Bi}_{0.08})\Sigma=3.00\).

(2) Shetland Islands, Scotland; by electron microprobe, corresponds to \((\text{Pt}_{2.04}\text{Rh}_{0.76}\text{Pd}_{0.62}\text{Ni}_{0.55})\Sigma=3.97(\text{Sb}_{3.03})\).

**Occurrence:** In ultramafics or ophiolites mineralized with Pt–Fe–Cu–Ni, and placers derived from them.

**Association:** Sperrylite, platarsite, ruthenarsenite, stibiopalladinite, mertieite-II, Pt–Fe alloy, chromite (Onverwacht mine, South Africa); osmium, Pt–Pd–Cu alloy, hollingworthite, irarsite, laurite, ruthenian pentlandite, chromite (Shetland Islands, Scotland).

**Distribution:** In South Africa, in the Merensky Reef, Bushveld complex, Transvaal, at the Onverwacht [TL] and Driekop mines. From the Joubbo stream, Birbir River, Ethiopia. On Unst and Fetlar, Shetland Islands, Scotland. From Fox Gulch, Goodnews Bay, Alaska, USA.

**Name:** For Dr. Alexandr D. Genkin (1919–), Russian mineralogist specializing in platinum group elements.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, N79000; Canadian Museum of Nature, Ottawa; Royal Ontario Museum, Toronto, Canada, M34861; National Museum of Natural History, Washington, D.C., USA, 136485.


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