

Genkinite**(Pt, Pd)₄Sb₃**

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Crystal Data: Tetragonal. *Point Group:* 422. As irregular grains, to about 165 μm.**Physical Properties:** Hardness = n.d. VHN = 603–677 (25 g load). D(meas.) = n.d. D(calc.) = 9.256**Optical Properties:** Opaque. *Color:* Pale brown or tan with a yellowish tinge. *Pleochroism:* Weak in oil for some grains. *Birefractance:* Weak. *Anisotropism:* Moderate to strong; from gray to extinction.R₁–R₂: (400) 45.6–45.6, (420) 46.5–46.7, (440) 47.6–48.0, (460) 48.7–49.2, (480) 49.9–50.4, (500) 51.1–51.5, (520) 52.3–52.7, (540) 53.5–53.8, (560) 54.5–54.8, (580) 55.5–55.8, (600) 56.5–56.7, (620) 57.4–57.6, (640) 58.2–58.2, (660) 58.9–58.9, (680) 59.5–59.5, (700) 60.0–60.1**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:**

| | (1) | (2) |
|-------|--------|-------|
| Pt | 44.4 | 41.86 |
| Pd | 9.0 | 7.01 |
| Rh | 6.6 | 8.23 |
| Ni | 2.0 | 3.41 |
| Cu | 0.25 | |
| Sb | 35.8 | 38.96 |
| Bi | 1.7 | |
| As | 0.89 | |
| Total | 100.64 | 99.47 |

(1) Onverwacht mine, South Africa; by electron microprobe, corresponds to (Pt_{2.17}Pd_{0.81}Rh_{0.61}Ni_{0.32}Cu_{0.04})_{Σ=3.95}(Sb_{2.81}As_{0.11}Bi_{0.08})_{Σ=3.00}. (2) Shetland Islands, Scotland; by electron microprobe, corresponds to (Pt_{2.04}Rh_{0.76}Pd_{0.62}Ni_{0.55})_{Σ=3.97}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 Joubdo 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.**References:** (1) Cabri, L.J., J.M. Stewart, J.H.G. Laflamme, and J.T. Szymański (1977) Platinum group minerals from Onverwacht. III. Genkinite, (Pt, Pd)₄Sb₃, a new mineral. *Can. Mineral.*, 15, 389–392. (2) (1979) *Amer. Mineral.*, 64, 654 (abs. ref. 1). (3) Cabri, L.J., Ed. (1981) Platinum group elements: mineralogy, geology, recovery. *Can. Inst. Min. & Met.*, 105–107. (4) Prichard, H.M. and M. Tarkian (1988) Platinum and palladium minerals from two PGE-rich localities in the Shetland ophiolite complex. *Can. Mineral.*, 26, 979–990. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 191.

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