Akhtenskite

Crystal Data: Hexagonal. Point Group: 6/m 2/m 2/m. As microscopic crystals, flaky to platy on {001}, in parallel aggregates, sometimes in rows at 120°, probably due to replacement of an earlier hexagonal mineral; as flaky polycrystalline aggregates.


X-ray Powder Pattern: Mt. Zarod, Russia; calculated from an electron diffraction pattern. 2.45, 2.15, 1.65, 1.42

Chemistry: Sufficient material for direct chemical analysis cannot be separated; energy-dispersive analysis shows Mn as the only cationic species; Mn⁴⁺ and O were established by X-ray photoelectronic spectroscopy, as was the absence of OH and H₂O.

Polymorphism & Series: Trimorphous with pyrolusite and ramsdellite.

Occurrence: In mixtures in “psilomelane” with other manganese oxides in an iron oxide deposit, probably bacterially altered from a previous mineral (Akhtensk deposit, Russia); in incrustations of ferromanganese minerals on oceanic basalt on a guyot (Mt. Zarod, Russia).

Association: Cryptomelane, nsutite, pyrolusite, todorokite, goethite (Akhtensk deposit, Russia); vernadite, manganese, Fe–Mn oxides (Mt. Zarod, Russia).

Distribution: In the Akhtensk brown ironstone deposit, north of Magnitka, Southern Ural Mountains; on Mt. Zarod, Sikhote-Alin Mountains, Primorskiy Kray, Russia.

Name: For the Akhtensk deposit, Russia, where it was first noted.

Type Material: Mining Institute, St. Petersburg, Russia, 307/5.