

Physic-chemical characteristics of pyrophyllite spherulites from the Urals and Brazil

SINYAKOVSKAYA, I.V., UMINOV, A.M. Institute of mineralogy UB RAS, Miass, Russia

A few places of veined pyrophyllite mineralization in form of radiate-fibrous aggregates (spherulites) are known in the world. Attractive look allows to consider them as source of collection raw material.

There is Ibitiara deposit in Brazil. The best specimens occurs as radial aggregates ("roses") and sprays up to 12 cm across. Exposed pyrophyllite crystals are beige, pale brown or reddish, but samples from deeper levels are pearl-white to cream-white. Flakes are of 0.8–5 mm length and 0.1–1.5 mm width. Shape is fan-like – thickening from center to periphery of spherulite. Microprobe analysis indicates that chemical composition of Brazil pyrophyllite is close to ideal: SiO_2 65,09; Al_2O_3 29,67; Fe_2O_3 0,31; CaO 0,11 %. Associated minerals are hematite flakes, quartz and andalusite crystals, patches of lazulite.

Among collectors showy pyrophyllite specimens from Berezovsk deposit (Middle Urals) are known. Shape and sizes of pyrophyllite aggregates are similar to Brazil pyrophyllite. Colour is green because of admixture of Cr_2O_3 0,02-0,15 % (content of rest oxides are: SiO_2 64,55-66,16; Al_2O_3 27,97-29,01; Fe_2O_3 0,06-0,09; MgO 0,03-0,04; CaO 0,04-0,06; Na_2O 0,15 %). Polytype modification is represented by unregulated monoclinic structure (a_0 5.12, b_0 8.88, c_0 18.6; β 96.3°). Pyrophyllite are mixture polytypes 2M and 1Tc in case of isomorphic substitution by donbassite (sudoite) (a_0 5.12, b_0 8.86, c_0 18.6; β 96.3°). Into spherulites are assist small grains of milk-white quartz, crystals of chromic tourmaline.