

Natural potential sources for mercury pollutions in Bulgaria

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Bulgaria falls into the global Mediterranean-Asian mercury belt (Fedorchuk, 1983), which includes world-class mercury deposits Almaden (Spain), Monte Amiata (Italy) and Idria (Slovenia). This geochemical signature of the Bulgarian territory is marked by a lot of mercury occurrences; base metal deposits containing mercury minerals and stream sediments with cinnabar, gold amalgams and drops of mercury.

The known mercury occurrences are located in Western and Southern Bulgaria and are of the following types: quartz-carbonate-barite, quartz-carbonate-argillite, quartz-chlorite-sericite, quartz-dickite, jasperoid, listwanite, alunite-opalite, opalite-argillic, travertine (Todorov, Fedorchuk, 1986).

The deposits and occurrences of base metals containing mercury minerals are copper-lead-zinc strata-bound and stratiform; silver-lead metasomatic; lead-zinc vein and metasomatic; pyrite, copper-pyrite and gold-copper-pyrite; quartz-gold; fluorite and stibnite ones. Mercury is present as cinnabar and metacinnabar (HgS), balkanite (Cu₉Ag₅HgS₈), parashahnerite (Ag₃Hg₂), mercurian tetrahedrite, silver and gold amalgams (Atanasov, 1969; Atanasov, 1971; Atanasov, Kirov, 1973; Atanasov, 1975; Dragov, Obretenov, 1974; Atanasov et al., 1988, Vitov, Marinova, 2007, etc.).

In the stream-sediment pan-concentrated samples studied the cinnabar frequency is 0.64%, which is an indication that 711 km² of the Bulgarian territory there are possible mercury pollutants. The halos of mechanical dispersion of cinnabar are concentrated in Western and Southeastern Bulgaria. Minerals, which correlate positively with cinnabar in the stream sediments, are gold, barite, galena, secondary lead, massicot, malachite, scheelite, anatase, leucoxene and zircon (Vitov, Marinova, 2005, 2007). Besides cinnabar, the stream-sediment pan-concentrated samples contain gold amalgams and drops of mercury (Atanasov et al., 1988).

The mercury in some Bulgarian regions is a natural potential source for mercury pollutions.

Keywords: Mercury, mercury pollutions, Bulgaria

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