

## Mineral paragenesis as indicator of origin of gold ore deposits

V.G. MOISEYENKO, Amur Research Integrated Institute, FEB  
RAS, Blagoveschensk, Russia

in ores of hydrothermal group deposits gold associates with quartz or sulphides. By quartz saturation extent one can distinguish two main mineral ore types – essentially quartz and low quartz. Ores of deposits, represented by quartz veins, veined and veined-streaky zones and stockworks with content of quartz-vein material more than 50% are of the first type. The second type is represented by streaky-impregnated and impregnated zones and lodes containing lesser amount of veined quartz.

By concentration extent of sulphide material in essentially quartz ores subtypes of poor-sulphide (<1%) and low-sulphide (1-5%) ores are wide spread. And in low-quartz ores – moderately sulphide (5-20%) and sulphide (>20%) ones. In essentially quartz ores native gold prevails (720-980‰). It is coarse, of medium roundness, relatively high fineness with trace elements of copper, lead, arsenic.

Ores of essentially quartz type were formed from hydrothermal solutions, mostly in temperature interval 350-90°C. The deposition of the main amount of native gold took place by the temperature 250-180°.

Composition of inclusions in native gold greatly differs from one in quartz of the same deposit. They are high-concentrated solutions with predominant sodium in cation group. The available data allow to affirm that during the formation of essentially quartz deposits gold was mainly transported as complex sodium salts and precipitated from high-concentrated solutions.

The above suppositions are corroborated by experiments. The conditions under which spontaneous integration of fine gold particles with formation in 1,5 hours of coarse aggregates (up to 5 cm) of accrete crystals of this metal were established.