The higher contents in silver has been found in argento- and plumbojarosite and are 4,600 g/t. The size of the silver and silverbearing minerals are 2μm to 0,8mm and this minerals are: native silver, argentite, jalpaite, proustite, pyrargirite, fahlore and freibergite. The higher contents in gold of jarosite are 8,5 g/t and the size of the gold grains ranges from 2μm to 100μm.

This systematic investigation revealed that jarosite is precious metal carrier and for this reasons it can be considered as "indicator" for gold and silver concentrations of economically importance in Greece.

CHANGES OF THE GOLD GRAINS MORPHOLOGY DURING THEIR DOWNSTREAM TRANSPORT: THE GALLIKOS PLACER EXAMPLE (NORTHERN GREECE)

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This study of gold grains sampled in the Gallikos area shows how gold grains evolved in a fluvial placer. The morphology of the grains changes progressively during their downstream transport and is influenced by various including character of the original lode grains, distance of transport, chemistry of water, streams energetics and time spent in the steam. In the present work 355 gold particles (26% gold grains and 74% gold flakes) from the Gallikos area have been investigated to indetify the morphological features of the gold grains and the relationships between grain morphologies and surface textures.

STRUCTURE PETROPHYSICAL CHARACTERISTICS OF ZVEZDEL - PCHELOJAD ORE FIELD (EASTERN RHODOPE)

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The Zvezdel - Pchelojad ore field is situated at the southern margin of the Momchilgrad graben - syncline, a part of the Eastern Rhodopean paleogene sink. The ore field is hydrothermal, polymetall and vein type. The conducted investigation aimed at acquiring of information about the petrophysical properties of rocks and their influence upon ore formation.

By means of free water-saturation we obtained information about effective pore space (Peff) including quantity of large (P1 >10^{-2}mm), medium (P2 = 10^{-2} - 10^{-4} mm), small (P3 <10^{-4} mm), pores as well as the conditional momentarily saturation (A), constant of saturation (B), density (R), etc. By measuring the velocities of longitudinal and transverse ultrasonic waves we computed different elastic moduli and ratios (Young's modulus (E), Poisson's ratio (μ), Shear modulus (G), etc.), as well as the Debye temperature (Θ) etc.

The rhyolites, tuffs, tuffobreccias, polygenetic breccias and tuff's sandstones, have been most favorable for hydrothermal circulation. Their average effective porosity is respectively 11.1%, 13.97, 13.62, 12.09 and 16.71%. Nevertheless the share of the large pores is not so big between 23-39% of effective porosity, their relative weight (A) is considerable and ranges between 3.11 and 4.47%. B are high also between 0.09 and 0.13 h^{-1}. The density varies from 2.04 t/m^3 for sandy tuffs to 2.39 t/m^3 for tuffobreccias. These rocks show the lowest average values for Young's modulus (from 2.12 to 3.42 X 10^4 MPa) that defines them as frailest ones. The low Debye temperature values show the significant presence of deffects in their crystal structure and loosening the links between the separate elements of the substance.

The amphibolites are typical shields only and are characterized by low values of Peff (from 0.17 to 1.08%, with average 0.51%), A (from 0.06 to 0.48%, average 0.18%) and B (average 0.07) and predominating of small pores (39%). But the density is high - average 2.93 t/m^3 varying from 2.77 to 3.12 t/m^3. The elastic and strength properties are several times higher then those of the previous group of rocks - from 2 times for the Poisson's ratio (0.21) to 2.5 - 4 times for Young's modulus. The Debye temperature reaches its extrema values too up to 545°K, average 472°K.

Most of the rocks played a dual role - one petrographic type includes varieties with different petrophysical nature. Thus, in the one and the same petrographic kind fall rocks with quite different physical properties which could form in their inner parts petrophysical structures favorable for ore deposition.

Consequently, in the Zvezdel - Pchelojad ore field, the lithological control is only an isolated case for the ore bearing structure formatting. In fact they could be controlled by petrophysical barriers which should be studied by means of special volumetric investigations. This will help a deeper understanding of ore formation processes to be acquired and the exploration effectiveness to be increased.