

Session “Gold-mining – new opportunities and technologies”



The moderators of the session were **Igor Sinchyryn** Head of Department of industrial and innovative technologies of RASPP (photo left), and **Andrea Boldi** – President of AREZZO FIERE E CONGRESSI SRL, Italy (photo right).

Andrea Boldi – President of AREZZO FIERE E CONGRESSI SRL in his speech provided analysis of the gold-mining sector in general and spoke about the main focuses of its development. In particular he pointed out the importance of interconnected production chains on the whole Eurasian territory. He said that it is necessary to build the process gradually, from gold-mining in the Far East of Russia to the jewelry production at the factories in Uzbekistan and in Italy with further sales in all Eurasian countries. **Andrea Boldi** expressed confidence in wide opportunities for the cooperation between European and Eurasian businesses and stressed the huge potential of FBA EAC in the matter.

Industrial engineering in gold-mining is rather conservative to a certain extent, and usually uses practices proven through years. The latest achievements in the analysis of the mineral composition of deposits, ultrafine and cluster forms, as well as the development of the theory of ore formation allow to start new technologies of mining of gold, platina and other precious metals in industrial-scale volumes. The main aim is to ensure high profitability of the new factories abiding by high ecological standards.

The participants of the session “Gold-mining – new opportunities and technologies” were aiming to ensure interaction of science and new technologies with producers and finance. The session started with the speech of **Igor Finogenov**, President of the company “Polymetall”. He said that the company demonstrated sustainable production and financial results at all enterprises. The company increases production and free capital to buy new assets and introduce new technologies.

It is interesting that in all other presentations the speakers proved that the value of assets can rise considerably due to new approaches both in the theory of ore formation and the technologies of recovery of finely-dispersed and cluster gold.

Valeriy Kryachko, Head scientist researcher of IGEM RAS (Russia) provided theoretical underpinning for ore formation and for the formation of platina and gold deposits. The subterranean processes with their high temperatures and pressure, provide for high-volatile forms of gold, platina, palladium and other elements in compound with halogens – chlorine and fluorine. Later it was evidenced that the Krasnogorsk solid mass has a unique chromatographic column, which shows the structure of precious metals with regards to their high-volatility. This explains that the most part of noble metals is contained in finely-dispersed and cluster gold.



The problem of recovery of finely-dispersed and cluster gold was also discussed in the speech of **Viktor Nenakhov**, the Dean of Geological Faculty in the Voronezh State University. He informed about the existing cluster forms and the history of their recovery as well as about the methods of research and extraction. Basing on the new disintegrational processes of ore material (piping effect, eddying streams, electromagnetic effect) two major methods can be defined. The first one is self-assembly, the so called “Matvienko effect” which allowed to get a concentrate with high-grade vein of gold (more than 400 grams per ton) after the disintegration in a special concentrator. The second method implies using the piping effect (or cavitation) to recover cluster gold with two processes – disintegration and cyanidation –carried out simultaneously.

Practical work in the analysis of self-assembly of Nano-dispersed forms of platina were covered in the report of **Ekaterina Nenakhova**, Principal geologist in GEO Citrin Ltd. (Russia). As a result of work it was revealed that the technology of self-assembly allows to transfer Nano-dispersed platina into the analytically trackable form with the possibility to observe it on standard optical instruments.

The issues of control system for the turnover of precious metals and the problems trust in the quality of precious metals and jewelry produced in Russia were presented in the speech of **Alexander Tikhomirov**, Head of Bullion Market Association (Russia). The basis of the control of precious metal is an individual electronic mark-up code with relevant crypto defense. The system allows any customer to trace the history of the metal or a jewelry item as well as its quality.

The representative of “Yaruna” Ltd. (Russia) **Sergey Krayushkin** informed the participants of the session about the specialties of gold-mining in Buryatia and behind the Baikal Region, about placer mines and ecological problems of the production. It was noted that “Yaruna” Ltd. has relevant specialists and technical personnel for expert assessment of a gold deposit and gold extraction.

The session ended up with the presentation of **Yuriy Tarasov**, General Director “ECO TransMissia” Ltd. who spoke about an innovative method of exploration with micro-lepton diagnostics. The method is based on the fundamental fact that all physical objects, just like an electric and magnetic field, have their own micro-lepton fields, arising from the interaction of fine elementary particles – micro-leptons.

At the end the participants confirmed the importance and timeliness of the issues discussed at the session, as well as the level of the discussion with speakers and their opponents being real experts in gold-mining and gold-processing, financial experts, sectoral specialists. The participants exchanged contacts and expressed their intentions to continue the work of the session next year.

