

Electrical Impulse Disintegration as a New Method of Technological Mineralogy and Gemmology

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New technology of electrical impulse disintegration (EID) of different types of ores was developed with design of new equipment. The electrical hydraulic and plasmas sources were used for experimental disintegration of pegmatites with pink spinel (Pamir) and emerald (Brazil), silver-gold ores from Jullietta deposit (Far East, Russia), gold-sulfide ores from Darasun deposit (Irkutsk region) and gold bearing conglomerates of South Africa.

High degree recovery (practically 100%) was found for all grain sizes of spinel and emerald. The artificial shears and fractures were not established on the surfaces of these minerals. High recovery for different types of gold bearing ores was established (about 80-90 %). This number was decreased up to 50 % for small classes of ore fragments; there are different types of mineral intergrowths. Efficiency of the EID depends on source power and time of impulse action on ores. Every type of ores needs a special experimental-technological study for optimization of EID-process.

The original commercial EID device was created and installed in "Aelimp" company. It is possible to vary of technical characteristics at disintegration process, and select of optimal disintegration parameters in relatively short period of time. Also special mobile EID-device EGIDA-43/03 M was constructed. Placed on the track this device is a very comfortable for disintegration of ores from small size deposits. Production power of

this device is 20-25 m³ /hour, expenditure of energy is ~ 6-9 kV hour/ tonne of ore, expenditure of reverse water <4 liter/hour.