Abstract

The miner concentrators for clean high density minerals are machines than use centrifugal forces and different mineral densities for select the more density minerals (gold, zircons, magnetites..)

My thesin want to study the optimization of a concentrator type Knelson MD-3 with search of parameters more favourables to obtain the best percentage of recover of gold. Later want to do an extrapolation of conclusions obtained for the use of a Knelson of more capacity of load, the Knelson MD-7.5.

The study wants to do a special importance to the measure and forme of the particles to recover in relation with interaction with centrifugal flows of water in the machine. The testings consist in an introduction to knelson of water and sand clean and sifting (in instructions to use the machine suggest the use of material in measure smaller than 2 mm), also mix an amount of gold particles sifting too. In last case I siff for get a homogeneous measure of gold particles. This particles have been tried with a binocular microscope and classified according to forme in two big groups: plane particles and rounded particles. Observe than someone formes smaller than 0.063 mm hasn’t got classification because we can speaking of “gold dust” and only have got a generic study according weight. This sample of sand and gold particles was concentrated by knelson concentrator remarked before.

The testings have been produced with differents water volumes for introduce dry material in the machine. Other parametres than could have influence in the recover is the centrifugal velocity, but this factor couldn’t us study because in this machines is fixed.

On the accumulate material in concentrator conus I do a grading of particles with a pan, in the case of Knelson MD-3, because is very short material to grading. In the case of Knelson MD-7.5, than has a concentrator conus of more capacity and for this I have got a lot of material for gridding, can use a vibrating table, a natural magnet for sorting the ironmagnetics, and a machine of electromagnetic sorting (Frantz Isodynamic), for sorting paramagnetics and diamagnetics minerals. The Thesina descript with accuracy the use of Knelsons and the others machines.

Other testing have been doing, using different sands, graded for the measure of grain and watching the influence in the recover of differents gold particles. The last testings have been to recuperation of heavy minerals in run sequences for the concentrator of analysis simple (studing the composition of the cocentrate and doing a new run in the reject filtrated of the water), for two models of concentrators.

In this way I’ve consulting articles in the webs of principals makers of miner concentrators and use articles and books for looking characteristics of hydraulic phenomenons produced in the machine of the study and your interaction with gold particles, according to measure and forme. This way is neccessary for give an explanation to the outcomes of the testings remarked before.

Is checking than the forme and measure of the gold particles, and your interaction with the sand particles have got a large influence in your recover. I’ve find a few parameters of water volum and preassure corrects for get an optim recover of the analysis sample.