SOLID GALITE WASTE BY FLOTATION METHOD OF ENRICHMENT OF SILVINITE ORE

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Annotation:
The article examines our country the most promising are methods for producing soda from natural potash ores and production wastes during the flotation method of sylvinite ore beneficiation are solid halite wastes (like flotation tailings) and tailings.

Key words.
Thickener, sludge, flotation, sludge accumulator, vacuum filter, dumping machine, hydrotransportation.

Today, in the territory of Uzbekistan there are enterprises producing soda. Passive import of this product is due to the high cost, which ultimately acts as an unjustified and unprofitable step in relation to enterprises that consume this product as the main raw material. These include, for example, the production of optical glass, the production of synthetic detergents, the leather industry, etc. [1].

Due to the shortage of soda and its high demand, it becomes necessary to organize a separate large-tonnage production.

This situation can be dealt with, taking into account all the possibilities in relation to the raw material base, which is based, mainly, the raw material base wastes in the flotation method of enrichment of sylvinite ores of the Dekhkanabad deposit [2].

The main production wastes in the flotation method of sylvinite ore beneficiation are solid halite wastes (like flotation tailings) and waste sludge.

Solid halite wastes - like flotation tailings, dehydrated to a mass fraction of water of 7% after filtration, with an output of 61.7% of the original ore, are conveyed by a belt conveyor to the tailings warehouse, from where they are loaded into cars with a grab crane and transported to a storage located in the mine area tails. The brines formed as a result of the squeezing out of freshly dumped tailings during storage are pumped out into the sludge collector as they accumulate.

The sludge thickened in the CZN-45 thickener is transported to the sludge pond for final compaction and storage. The slurry solids yield is ~ 5% of the original ore.

A land plot surrounded by an embankment dam has been allocated for the sludge collector. The base of the bed and the upper slopes of the dams are protected by an anti-seepage screen made of polyethylene film. A bulk-type sludge accumulator with an equipped system of sludge

outlets located along the perimeter of the embankment dam crest. The clarified brine after settling in the sludge collector is returned to the technological process [3].

The halite tailings obtained as a result of flotation are pumped into hydrocyclones of the SVP-500 type for classification by the 0.15 mm class. The sands of the hydrocyclones are fed into the slurry separator by gravity. Drainage of hydrocyclones by gravity goes to clarification in thickeners. The unloading of the thickener is fed by a pump to the sump of the unloading of the thickener, and from there it is pumped into the slurry separator, where it is mixed with the sands of hydrocyclones and distributed through drum vacuum filters of the BLK-40-3 type for dehydration to a water mass fraction of not more than 9.0%.

For filtration, two belt vacuum filters of the BF-10 (Germany) and 2M-10 (France) types are also used. To create a vacuum, vacuum pumps of the VN-120 type are used. The filtered product is blown off the filter cloth by means of turbo blowers and discharged onto the conveyor, from where it is removed to the salt dump.

The discharge of the thickeners in the form of a pure mother liquor flows by gravity into the tanks and pumps of the 20 VAT type are pumped into the mother liquor collector, from where it is distributed to the technological process.

The filtrate of drum and belt vacuum filters through receivers and traps (one vessel for each vacuum filter) is directed into the barometric glasses, and from them by gravity into the sump, from where it is pumped into the thickener. Tail pumps, vacuum filters, vacuum pumps are interlocked with the conveyor.

Thickening of sludge production wastes (drainage of hydroseparators, 5, 6, 7, 8, foam products MPM-45) is carried out in thickeners of the P-30 type. The efficiency of this operation is determined by the density of the thickener sand and the degree of clarification of the overflow, which is a circulating mother liquor. With a low density of sands, the loss of potassium chloride increases with the liquid phase contained in them - the mother liquor. Insufficient clarification of the discharge leads to the return of thin clay sludge to the main operations with the circulating mother liquor, which significantly disrupts the technological process and causes an increase in the consumption of reagents. The required density of the sands and the degree of clarification of the discharge are achieved, first of all, by the use of flocculation - enlargement of fine particles, which makes it possible to sharply increase the rate of their settling and the degree of compaction of the sediment. As a flocculant, polyacrylamide is used in the form of aqueous solutions diluted with circulating mother liquor. The degree of clarification of the overflow is also determined by the amount of feed, the timeliness of removing the sediment from the thickener, the state of the overflow thresholds of the thickeners.

Operated sludge thickeners are divided into two groups: thickeners and thickeners. The thickeners are fed from tanks by pumps. The flocculant flows from the reagent section to the supply tank (pos. 2-81) located in the building of the pumping station of the fourth stage of thickening, from which it flows by gravity into the supply tank located in the building of the pumping station of the third stage of thickening. From the supply tanks, the reagent level in which is controlled by level sensors and maintained in automatic mode, the flocculant is evenly distributed into the feed chutes of the thickeners. The discharge of the third and fourth stage thickeners enters the tanks of the circulating mother liquor, respectively, and is pumped into the mother liquor collector, from where it is distributed to the technological process. The discharge of the thickeners is diluted with brine in a sump and pumped to the sludge storage. Unloading of thickeners is carried out periodically with continuous control of the density on a PC monitor at the workplace of the pumping unit operator and stops when the density drops to a ratio of w / t - 1.8. The brine from the sludge storage is fed to the thickener and by the GR 400/40 pump is fed to the pumping station for transporting the sludge to the sludge storage, replenishing the mother liquor system and washing the floors. The volumetric flow rate of the pumped-out sludge and the

returned brine is controlled by flow meters. The levels in the slurry sump of the pumping station and the mother liquor tanks are controlled by level sensors with light and sound alarms on the PC monitor of the pump operator.

Halite waste is categorized as "solid". Their transportation and storage is carried out by conveyor transport and spreaders. The cake of flotation tailings from the filtration section is fed to the belt conveyors of the dumps and tailings facilities, which are parallel transport lines and feed material to three walking dumpers (one OSh-75 type spreader and two OSh-110 type spreaders).

The entire tailings disposal and storage system is sequentially interlocked and centrally controlled. Sludge waste is classified as "liquid". To remove them, pipeline hydrotransport is used. By pumps from the thickening section, the sludge waste diluted with circulating brine is transported through one of two sludge pipelines to the maps of the sludge storage and is stored in accordance with the established regime. Part of the liquid phase of sludge waste after clarification in the form of brine is pumped through a brine line to the thickening section. The composition of this brine also includes squeezing brines formed in tailings dumps. The returned brine is used to ensure the balance of water in the technological process and to dilute the sludge waste before hydrotransporting it to the sludge storage [4].

With the commissioning of soda production at the Dekhkanabad Potash Plant, Uzbekistan will fill all its needs, which is very important for the economy of the Republic.

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