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METHOD OF PRODUCING A CONCENTRATE OF CHROME ORES

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3 Claims. (Cl. 209—166)

This invention has reference to a method of producing a concentrate of chrome-ores by means of froth-flotation.

It is a known fact that all oxidized ores and most of their mineral matrix may be subjected to flotation under suitable conditions by means of oleic acid or other high fatty acids and their alkaline salts. Thus with all the oxidized ores the danger exists that simultaneously with the useful particles of the ore the useless matrix takes part in the floating. In order to obviate this drawback the oxygen atoms on the surface of the ore have been substituted by sulphur in order to obtain an easier floating capacity of the ores. The sulphurizing of the surface of the ore can, however, not be carried out with all the oxidized ores as the degree of the sulphurization depends on the affinity of the respective metal to sulphur. The following ores which cannot be sulphurized may be mentioned by way of example: Au, $CuSiO_3$, SnO_2, PbO, PbO_2, Pb_3O_4 $ZnCO_3$, ZnO, $ZnSiO_4$, Fe_2O_3, $FeCO_3$ FeO, Cr_2O_3, further all manganese-tungsten ores.

According to the present invention the above mentioned drawback of the simultaneous floating of the ore and matrix may be overcome with oxidized chrome-ores by preliminarily treating these ores with a complex heteropolyacid or its salts.

The term "complex heteropolyacids" is to be understood as referring to acids obtained by replacing in an oxygen bearing acid one or more atoms of oxygen by oxygen bearing acid radicals of which one at least is of different chemical nature than the fundamental acid. By way of example the following complex heteropolyacids may be mentioned: phosphomolybdic acids, phosphotungstic acids, and the like.

Example

1 kilogram of crushed chrome iron ore is, in the presence of water, subjected to the action of 0.135 gramme of phospho-molybdic acid, whereupon 0.8–1 gramme of sodium-palmitate as collecting agent and 0.02 gramme of pine oil as a frothing agent is added. The latter stabilizes the froth in which the ore collects free from the matrix. 0.1 gramme of waterglass is advisable in a further addition, whereupon the floating process is carried out in the known manner.

Instead of phospho-molybdic acid or its salts phospho-tungstic acid may be used in the above example.

I claim:

1. The method of producing a concentrate of chrome ores by means of froth-flotation which comprises treating oxidized chrome ores with a substance selected from the group consisting of phosphomolybdic acids, phosphotungstic acids, and their salts, and subjecting the product thus obtained to flotation by means of usual froth flotation agents.

2. The method of producing a concentrate of chrome-ores by means of froth-flotation which comprises treating oxidized chrome ores with a substance selected from the group consisting of phosphomolybdic acids and their salts and subjecting the product thus obtained to flotation by means of usual froth flotation agents.

3. The method of producing a concentrate of chrome-ores by means of froth-flotation which comprises treating oxidized chrome ores with a substance selected from the group consisting of phosphotungstic acid and their salts and subjecting the product thus obtained to flotation by means of usual froth flotation agents.

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