

UNITED STATES PATENT OFFICE

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FLOTATION REAGENT

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2 Claims. (Cl. 209—167)

My invention relates to a reagent that is to be used in oil flotation and has in view the preferential separation of lead and zinc sulphides. The reagent that I use for this purpose is sodium sulphocyanate and it has the power in alkaline solution to depress the zinc sulphide and make possible a lead concentrate practically free from zinc sulphide.

The amount of the reagent used will differ of course with the different ores but usually runs within a range of about .05 to .50 lb. per ton of ore treated.

The following test will show the efficiency of the operation on a lead, zinc, copper ore:

	Wt.	Recovery percent					
		Pb.	Zn.	Cu.	Pb.	Zn.	Cu.
	Gr.	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Ore.....	1000	10.4	18.6	1.5			
Pb concentrate.....	146	62.0	8.7	3.4	87.0	6.8	33.4
Zn concentrate.....	200	4.0	55.0	1.5	11.7	85.7	29.0
Tails.....	554	0.41	2.4	0.1	1.3	7.5	37.6

In this test, the ore was ground so that 90% of it would pass through a 200 mesh sieve. So-

dium carbonate was used to make the pulp alkaline and zanthate was used as a conditioner. Pin oil was used as the frothing agent. .07 lb. of sodium sulphocyanate was used as a dispersion agent and as a depression agent for zinc sulphide. The lead concentrates were reclaimed from the froth.

The zinc sulphide tailings were reactivated by the use of copper sulphate and refloats, recovering the zinc sulphide as a concentrate in the froth.

My reagent when used in an alkaline solution has the property of acting as a dispersing and depressing agent for zinc sulphides and to some extent for iron sulphides.

I claim:

1. The method of separating lead and zinc sulphides comprising adding to the mineral pulp sodium sulpho-cyanate and then subjecting the pulp to a froth flotation operation.

2. The method of separating lead and zinc sulphides comprising adding to the mineral pulp, that has been made alkaline, sodium sulpho-cyanate and then subjecting the pulp to a froth flotation operation.

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