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MEASURING AND CRUSHING THE STRENGTH OF ROCKS USE OF VARIOUS TYPES OF SURFACTANTS FOR GRINDING

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ABSTRACT

Surfactants, strength of crushed ores, stresses of concentration of active substances, physicochemical processes, changes in concentration, surface tension of substances. The results show that the refractive index, hydrogen index and electrical conductivity of surfactants such as CF-82O1, OP-1O, V-87 and Soapstock at concentrations greater than 0.2% are minimal. Studies have also shown that the mechanism of action of aqueous surfactant solutions on technological and physicochemical processes is adsorption at the interface of amphiphilic surfactant molecules, which leads to a decrease in surface tension, improvement and wetting of the solution.

KEYWORDS: *Adsorption, Solubility, Concentration, Hydrogen Index, Electrical Conductivity.*

INTRODUCTION

One of the urgent tasks of preparing ore for enrichment is to reduce the energy consumption in crushing and grinding minerals. The simplest and most economical way to change the properties of a mineral is to physicochemically clean it with aqueous solutions of surfactants (surfactants).

Studies have shown that aqueous solutions of surfactants enhance the grinding process of ores, which reduces the strength of the liner, balls, and crushed ores. Studies have also shown that the mechanism of action of aqueous surfactant solutions on technological and physicochemical processes is adsorption at the interface of amphiphilic surfactant molecules, which leads to a decrease in surface tension, improvement and wetting of the solution.

To select the optimum concentration of surfactant and its aqueous solutions, we used changes in surface tension, refractive index, hydrogen index and electrical conductivity for surface conductors CF-8201, OP-10, Geronol V-87, the main properties of soap calcium we studied. Akilbinzolsulfonate depends on their concentration. The main properties of the solubility of surfactants in tap water:

1. The emulsifier CF-82O1 is soluble in tap water at a concentration of 0.01-0.4% with strong stirring. Once completely dissolved, the solution becomes clear (actual solution).

2. Surfactant OP-10 is soluble in tap water at a concentration of 0.01-0.4%. Once completely dissolved, the color of the solution becomes clear (actual solution).

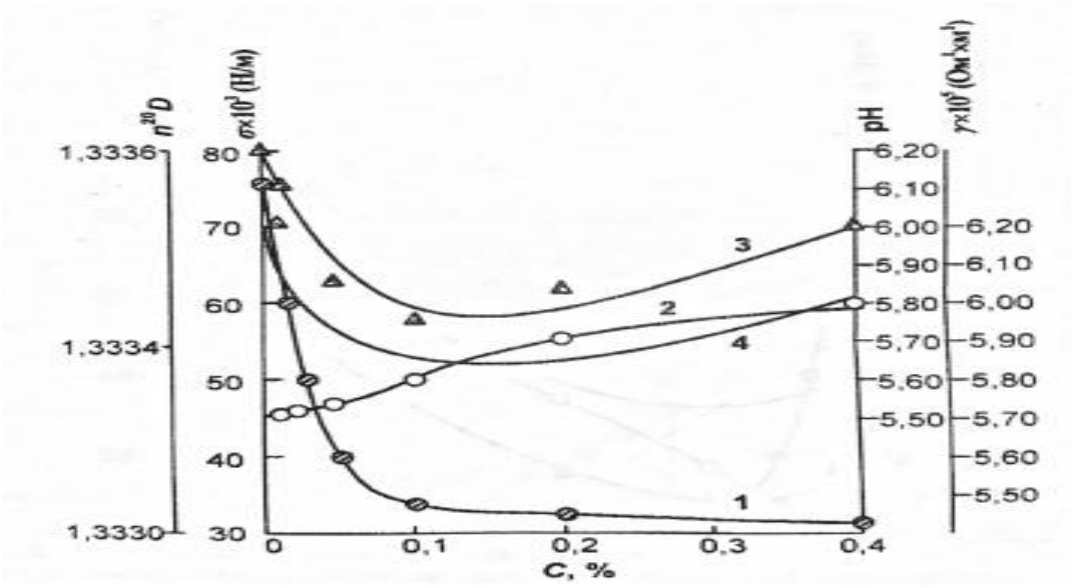

Рис. 1. Закономерность изменения характеристик ПАВ типа CF-8201 от их концентрации:
1 - поверхностное натяжение; 2 — показатель преломления;
3 - водородный показатель; 4 — электропроводность

3. Geronol V-87 is soluble in tap water at a concentration of 0.01-0.4%. After melting, the color of the solution becomes clear (realsolution).

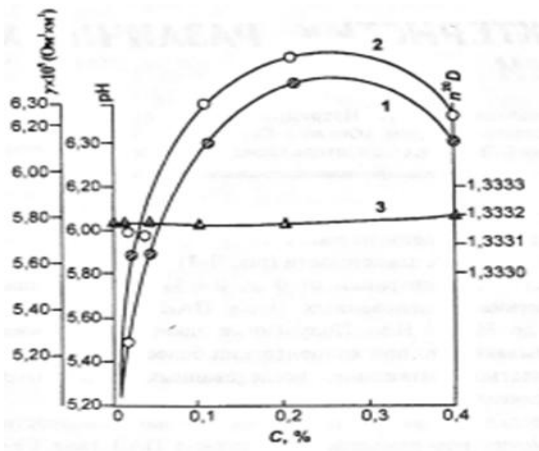

Рис. 2. Закономерность изменения характеристик ПАВ типа ОП-10 от их концентрации:
1 - поверхностное натяжение; 2 – показатель преломления;
3 - водородный показатель

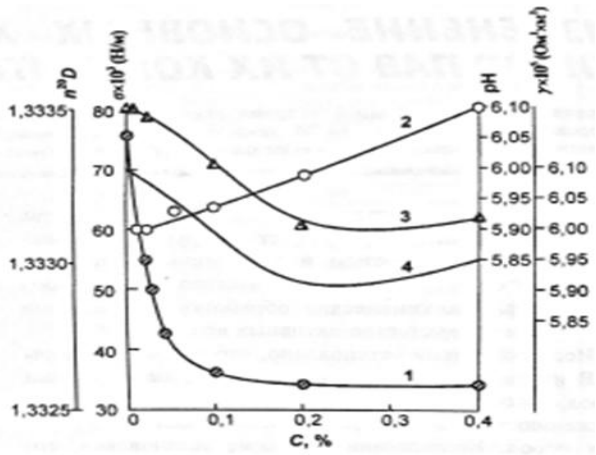

Рис. 4. Закономерность изменения характеристик ПАВ типа Собсток от их концентрации:
1 - поверхностное натяжение; 2 – показатель преломления;
3 - водородный показатель; 4 – электропроводность

4. Soap stocks with a concentration of 0.01-0.4% are soluble in tap water when rubbed with surfactants. Once completely dissolved, we have a system of suspended particles that, over time, slowly settle to the bottom (suspension). In the laboratory, we determined the laws of variation of surface tension, refractive index, hydrogen index and electrical conductivity of surfactants CF-8201, OP-10, V-87 and Soapstock depending on their concentration. shown in the pictureure. 1-4.

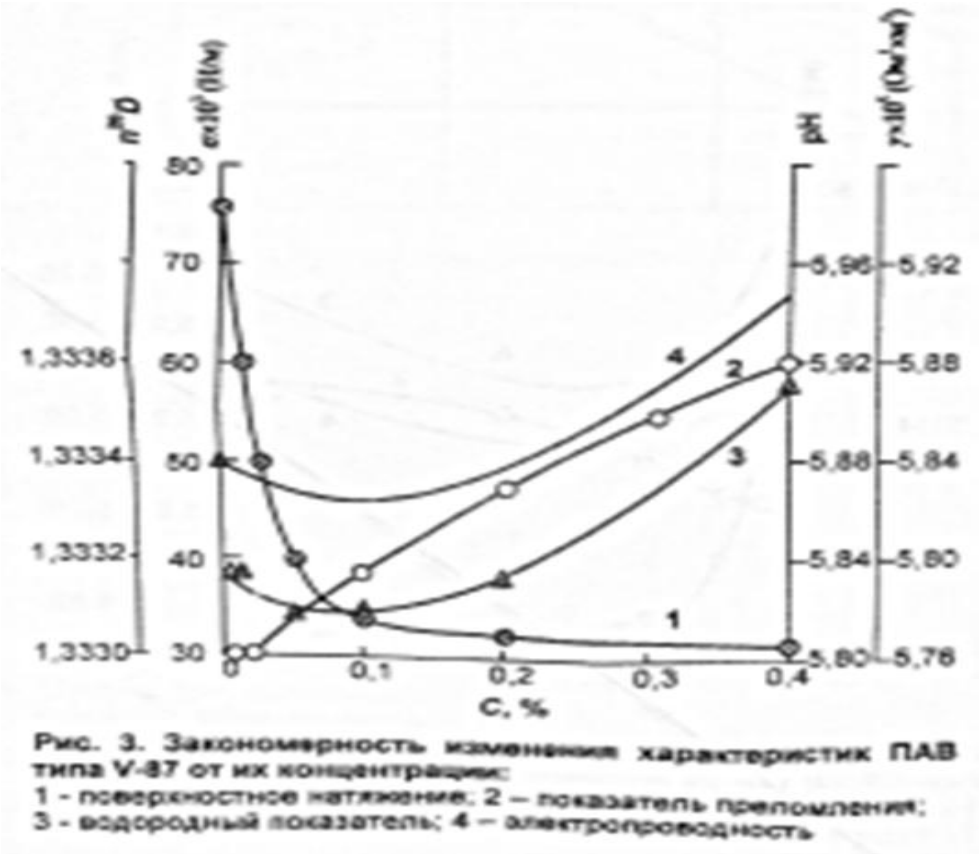

Рис. 3. Закономерность изменения характеристик ПАВ типа V-87 от их концентрации:
1 - поверхностное натяжение; 2 – показатель преломления;
3 - водородный показатель; 4 – электропроводность

The results obtained (Picture. 1-3) show that with an increase in concentration from 0 to 0.4%, the surface tension of the studied types of surfactants decreases from 73.5 to 30 × 103 N / m. The results show that the surface tension of the surfactants studied at a concentration of more than 0.1-0.2% decreases almost slightly.

Studies have shown that the change in surface tension of the concentrations of surfactants of the types CF-8201, OP-10 and V-87 is characterized by the dependence of the hyperbolic type. _

The results obtained (Pictureure 1-4) show that with an increase in concentration from 0 to 0.4%, the refractive index, high value index and electrical conductivity of surfactants such as CF-8201, OP-10, V- permeability 87 and Soapstock decreases. The results show that the refractive index, hydrogen index and electrical conductivity of surfactants such as CF-82O1, OP-1O, V-87 and Soapstock at concentrations greater than 0.2% are minimal. A further increase in concentration is accompanied by an increase in the refractive index of the hydrogen index and the electrical conductivity. The resulting pattern is characterized by parabolic results. The regularity of the change in the refractive index of surfactants of the Soapstock type to their concentration is characterized by the dependence of the linear type (Picture. 4).

CONCLUSION:

1. With an increase in concentration from 0 to 0.4%, the surface tension of surfactants decreases from 73.5 to 30 × 10 3 N / m. The results obtained show that the surface tension of the surfactants studied at a concentration of more than 0.1-0.2% decreases almost slightly.

The laws of variation of surface tension of the concentration of surfactants of the types CF-8201, OP-10 and V-87 are characterized by the dependence of the hyperbolic type.

2. As the concentration increases from 0 to 0.4%, the refractive index, hydrogen index, and electrical conductivity of surfactants such as CF-8201, OP-10, V-87, and Soapstock decrease. The results show that the refractive index, hydrogen index and electrical conductivity of surfactants such as CF-8201, OP-10, V-87 and Soapstock have a minimum value at a concentration of more than 0.2%. A further increase in concentration is accompanied by a refractive index of hydrogen and an increase in electrical conductivity. The resulting pattern is characterized by parabolic results. The regularity of the refractive index of surfactants of the Soapstock type to their concentration is characterized by a linear type dependence.

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