

## 2-28. P.

**FORMATION OF DIRECTIONAL FLUID FLOWS IN A VICINITY OF HIGH-GRADIENT FERROMAGNETIC HEAD IN A PERMANENT MAGNETIC FIELD**

Gorobets O.Yu., Sorockin M.V., Gorobets V.Yu., Bandurka N.P.\*  
Institute of magnetism of a National academy of sciences of Ukraine  
\*Ukrainian State University of Food Technologies

The phenomenon of a formation of stationary flows is investigated in solutions of electrolytes in a vicinity of high-gradient ferromagnetic heads in a permanent magnetic field [1]. It is shown for different electrolytes that the direction and parameters of stationary fluid flows depends on the shape, size and cover of a head. Also it is shown, that directions of flows of solutions does not depend on the class of a matter, but depends on the concrete ions contained in a solution.

Directed fluid flows are organized in the present work. The experiments were carried out on the installation [2]. The solutions of NaCl, KI salts and  $H_2SO_4$ ,  $HNO_3$ , HCl weak acids were used for the research as model fluids. The fragments of the black water colour paint were used as the indicators of a fluid flow. The system of the ferromagnetic balls by the sizes from 100 up to 1000 microns was applied as high-gradient ferromagnetic head. Changing properties of covers of the ferromagnetic balls contained in the chain, and their placement relative each other, the different configurations of flows of solutions were obtained in a vicinity of these chains.

Thus, it is possible to control flows of electrolytes in a vicinity of high-gradient ferromagnetic head in a permanent magnetic field for the creation of new methods of purification and separation of the media. For this purpose, it is necessary to use the systems of heads with different covers consisting of the different initial components and to take into account the properties of the separated medium.

[1] Gorobets S.V., Gorobets Yu.I. Formation of stationary flows of liquid in vicinity of ferromagnetic packing in constant magnetic field// *Magnitnaya gidrodinamika*, 2000, v36, №1, pp 75-78.

[2] Gorobets S.V., Pimenov Yu.N. Installation for visualization and research of efficiency of work of high-gradient ferromagnetic head// *Nauka proizvodstvu*, 1998, №4, pp 28-31.