**Formation of pigment patterns of precipitation obtained on a filter septum**

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**Keywords:** pigment, structure precipitate, filtering, water-soluble impurity, humidity.

The formation of precipitation patterns in the allocation of the solid phase from suspensions of pigments yellow C, orange G and red FGR on the filter septum and its subsequent washing was measured. The effect of humidity on the pressure filtration and the precipitate formed resistivity, number and size of pores formed was evaluated. During the process of filtration of suspensions of pigments in filter presses, a precipitate of formed, which structure consists of open pores containing washing liquid and paste. The pores in the pellet cross section have a circular shape in longitudinal section through the axis substantially perpendicular to the surface of the pores of filtering, a change in length of the pore diameter is not more than 25%, the minimum distance between the pores of the pore diameter of more than 0.5.

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**Prospects production of metal manganese ores in Russia.**

**Modern production technologies**

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**Keywords:** manganese, leaching, manganese sulfate, nitrate technology, ferromanganese

**Abstract.** A complex of hydrometallurgical processing technologies of poor and rebellious manganese ore (poor phosphorous ore (carbonate and oxide), dumps of mining and beneficiation plants, slag ferroalloy production, bottom (offshore) iron-manganese nodules) to the high quality competitive manganese products: pure manganese oxides, manganese ferroalloys, metal manganese and ligatures. A new method for leaching manganese ore using sulfuric and nitric acid. Presents a flowchart nitrate technology for oxide and carbonate ore. Analyze the main methods of smelting manganese metal. Need of development of the new technological processes focused on application of a chemical concentrate is shown. Possibility of considerable improvement of use of manganese from a chemical concentrate due to application of nonconventional ways of melting is considered. Use of chemical concentrates instead steelmaking manganese slag improves the quality of the alloys and improves melting.

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**Modeling and optimization of sorption extraction of manganese from the sediment containing carbonate of manganese**

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**Keywords:** manganese, leaching, manganese sulfate, nitrate technology, ferromanganese

**Abstract.** The article is devoted to the development of complex hydrometallurgical processing technologies, the poor, the rebellious manganese ore (poor phosphorous ore (carbonate and oxide), dumps of mining and beneficiation plants, slag ferroalloy production, bottom (offshore) iron-manganese nodules) to the high quality competitive manganese products: pure manganese oxides, manganese ferroalloys, metal manganese and ligatures. A new method for leaching manganese ore using sulfuric and nitric acid is considered. The flowcharts of nitrate technology for oxide and carbonate ore arepresented. The main methods of smelting manganese metal were analyzed. Need of development of the new technological processes focused on application of a chemical concentrate was shown. Possibility of considerable improvement of use of manganese from a chemical concentrate due to application of nonconventional ways of melting was considered. Use of chemical concentrates instead of steelmaking manganese slag improves the quality of the alloys and improves melting.

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**Modeling coupled heat and mass transfer in the sparging stage of vortex deaerators**

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**Keywords:** deaeration, mass transfer, vortex flow, the equation of motion, two-phase medium, the law of motion, law of velocity change, efficiency.

Deaerators with vortex water flow by B.A. Zimin design are widely used how in energetics and chemical industry due to good combination of satisfactory characteristics, wide range of workloads control and low specific quantity of metal. Description of the process of removing dissolved gas trom water in centrifugal flow deaerator is carried out using the basic relations of theoretical mechanics and hydrodynamics. A one-dimensional model of the motion of gas bubbles in a centrifugal flow of water is obtained . On the basis of the proposed description of the liquid flow motion and removal of dissolved gas from the vortex flow of water, it becames possible to set up the problems of improving the design and operation modes of the deaerator with vortex flow of water, solution of which is important for energeties and related industries.

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**Development of technology and the study of the properties of activated carbon from anthracite**

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**Keywords:** anthracite, activated carbon, activation, adsorption properties, porous structure, water treatment.

The properties of anthracite of East Donbass are investigated as raw material for receiving activated carbon (AC). Simplified technology of receiving AC is worked out; experimental commercial parties of activated carbons of anthracite (ACA) are produced. Their physical and mechanical characteristics, porous structure and adsorption properties are investigated. The high volumetric adsorption capacity of the ACA was shown. There is carried out the comparative analyses of the properties of the ACA with industrial brands AC. There are carried out the tests examined the ACA in real-tonnage industrial process such as water treatment. The advantages of the ACA was shown in potable water treatment from organic pollutants, as well as the treatment of industrial wastewater from phenol.

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**Improvement of management approaches to innovation development of chemical industry in Russian Federation**

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**Keywords**: chemical industry, Russian Federation, mathematical modeling, innovations.

The article discusses prospective directions of chemical industry’s development in Russian Federation based on a scope of methodic solutions in the sphere of management, forecasting and assessment of innovation activity’s efficiency of chemical enterprises. Authors created mathematical models, which make possible forecasting and assessment of innovation activity in Russian chemical industry, as well as picking up specific managerial decisions adjusted for its sub-branches. Analysis on models’ parameters, performed as production functions, allows determination of investment structure’s specificity in given sectors of chemical complex. Positive dependence between efficiency and scale of production is understood as a prerequisite for chemical output expansion in Russian Federation.

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