**Strategic directions of development of the petrochemical industry in Russia**

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**Keywords:** strategy, petrochemical industry, efficiency, hydrocarbon processing, food processing.

The significant part of the oil producing countries , has конецформыначалоформыpoorly developed their own process industry. Prompt reduction of stocks of oil (the peak of world extraction will be passed by 2020) and unstable pricing forces these countries to search for alternative sources of the income. Last time more and more attention is paid to natural gas, including casing-head gas and even to industrial emissions. Due to the fact that oil is not renewable resource in the oil companies the process of diversification has begun. The strategic purpose of the world oil corporations become intensive development of gas sector, integration into electric power industry, coal branch and transformation finally into the power companies. Oil gas extracting and petrogaschemistry gradually pass in the category of hi-tech branches. In modern conditions the hydrocarbon processing industry requires a dynamic and innovative development which is impossible without creating your own advanced technologies. As a strategic product directions of development of hydrocarbon processing it is reosonableto consider those that are at the junction of the priorities of different sectors and have a synergistic multiplier effect.

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**Iron-contained catalysts based on aluminum and silicon oxides for the oxidative degradation of azo dyes in aqueous phase**

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**Keywords:** catalysts, aluminum oxide, silicon oxide, sol-gel method, oxidative degradation of dyes

Iron-contained catalysts based on mesoporous aluminum and silicon oxides prepared by the sol-gel method with gelation in acid and alkaline medium had shown high efficiency in response to oxidative degradation of azodye carmoisine in aqueous solutions. Results of stability study on catalysts to leaching of iron ions in the solution during catalysis had shown that the most stable catalysts, carriers which were obtained by gelation in an acid medium. Sample of the catalyst based on aluminum oxide had the highest stability, which is explained by the formation on the surface of highly dispersed phase of α-Fe2O3. Fe-containing catalysts based on alumina and alumina-silica gels with biporous structure are promising materials for wastewater cleaning from the impurities of organic dyes.

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**The composition and structure of the polymer-nickel coatings produced by electrodeposition on the cathode**

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**Keywords**: metal-coating polymer electrolytes, gel fraction, intermetallic, X-ray analysis.

In order to improve the functional capacity of this method we proposed to combine cathodic electrodeposition of polyelectrolytes with electroplating. Using the modern methods of physical and chemical analysis, as well as the method of extraction of oligomer with sutable solvent we studied composition and structure of a layered coatings obtained by electrodeposition on the cathode amine polyelectrolyte together with nickel electroplating. We proposed the mechanism of coatings formation and causes of shown properties that differ significantly from the properties of the coatings from the initial systems, namely high microhardness with consistently good elasticity and an order of magnitude higher corrosion resistance. We found that in the process of electrodeposition in the initial period of time intermetallic iron-nickel is formed, which causes the manifestation properties, as well we found the catalytic effect of nickel on the process of curing.

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**Electrochemical synthesis in Russia. Status and prospects**

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**Keywords:** electrolysis, electroorganic synthesis, electrolyzer, emulsion, nonaqueous solvents, initiation of chain reactions.

Fifty-year experience of testing and technological implementation of both large- and small-scale productions of electroorganic synthesis is summed up. The ways of improving the technical-and-economic parameters of electrolysis are considered by certain examples. It is shown that the use of non-diaphragm (one-electrolyte) electrolyzers is most rational for commercial-scale productions of fine organic synthesis. Considerable positive effect can be achieved with electrolysis of two-phase systems – emulsions, and properly organized mass transfer in the interelectrode space is of paramount importance. Gas-lift circulation is efficient for one-phase electrolytes. The processes described were tested industrially or on pilot scale. Advanced processes with the use of nonaqueous solvents are presented. Of particular interest is recently disclosed electrochemical initiation of chain reactions which allow the electrical energy consumption to be reduced by a factor of several tens. The article may be useful in working out novel processes of electrochemical synthesis.

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**Poly(arylene sulfide)s on the dinuclear aromatic hydrocarbons and sulfur basis**

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**Keywords**:polycondensation, poly(arylene sulfide)s, electrophilic substitution, aluminum chloride, elementary sulfur, dinuclear aromatic hydrocarbons, thianthrene.

The poly(arylene sulfide)s of different structures were synthesized by the high-temperature interaction of the sulfur dinuclear aromatic hydrocarbons (diphenyle, diphenylsulfide, diphenyldisulfide and diphenylamine) with elementary sulfur in the presence of AlCl3. It was found that the electrophilic tiiliration of the aromatic nucleus of these compaunds proceeds through the intermediate formation of the intramolecular cyclic arylene sulfides. By IR-, NMR-spectroscopy, mass-spectrometry showed that the tiiliration of dinuclear arenes already having sulfide or disulfide bridges, forming the ring-chain structure polymers with thianthrene sulfide groups and the polimerformation proceeds due to the homopolycondensation of aromatic sulfide under the influence of AlCl3. And the tiiliration of arenes without sulphide bridges leads to the poly(arylene sulfide)s with a predominant content of the *ortho*-phenylene fragments in the chain.

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**Hot-melt fluid bed granulation is alternative to fluid bed coating**

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**Keywords:** hot-melt granulation, fluid-bed, film coating, drug release kinetic.

The hot-melt fluid bed granulation as well as fluid bed coating allowed to produce the drug with sustained release. The defined composition of emulsion self-emulsified during dissolution test. Significant differences in the API release kinetic between the sample obtained by hot-melt granulation and a sample obtained by coating are absent for the first 30 min. During the next 30 min the dissolution profiles vary significantly, while the sample prepared by hot-melt granulation has a greater sustained release effect. It was noted that using a hot-melt granulation time costs are reduced by 3-3.5 times. The hot-melt granulation does not require heating of the fluidizing air.

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