

**PETROLEUM PRODUCTS:  
TECHNOLOGY, INNOVATION, MARKET**

*Mitusova T.N., Lobashova M.M., Nedayborsch A.S., Titarenko M.A.*

**Production of Arctic diesel fuel in Russia**

*Keywords:* arctic diesel fuel, depressor and dispersing additive, cloud point temperature, cold filter plugging point, molecular mass distribution of n-paraffin hydrocarbons, stability at cold storage.

*Abstract.* The climatic conditions of Russia determine a great demand of high-quality low pour point diesel fuels – up to 40% of total production volume. Meanwhile, their production in Russia is extremely limited. For winter and Arctic diesel fuels special requirements were developed for low-temperature properties, which are reflected in the basic standard for diesel fuel– GOST 32511-2013 and in the standard for winter and Arctic dewaxed diesel fuel – GOST R 55475.

VNII NP JSC has conducted the studies regarding obtaining of diesel fuel for Arctic climate of class 4, based on fuel produced by «RN-Komsomolskiy Refinery» of Far Eastern Federal District with application of depressor and dispersing additives. It was proved that the yield of Arctic diesel fuels increases due to addition of optimal quantity of high-melting n-paraffin hydrocarbons, contained in high-boiling diesel fuel fraction.

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*Farzaliyev V.M., Djavadova A.A., Ramazanova U.B., Yusifzadeh G.Q., Dadashova T.A.*

**Investigation of viscosity-temperature and rheological properties of polymethacrylate type additives**

*Keywords:* lubricant oils, viscosity additives, mechanical destruction, thermal degradation, rheology, dynamic viscosity.

*Abstract.* Viscosity-temperature and rheological properties of polymethacrylate type viscosity additives of Viscoplex series (Röhm firm, Germany) have been studied. Behavior of additives in base oils has been studied by using mechanical and thermal destruction methods. Also the analysis of dynamic viscosity was carried out on Cold Cranking Simulator CCS-2100 as per ASTM D 5293 standard.

*(National Academy of Sciences of Azerbaijan  
by acad.A.M.Guliyev Institute of Chemistry of Additives)*

*Khokhlov S.S., Eleev A.F., Gerasimov K.N., Dunaev A.V.*

**Synthesis and study of properties of preventive tribalistas based on 1,1-dihydrophenylisatin- $\beta$ -ketosulfones**

*Keywords:* salt 1,1-dihydrophenylisatin- $\beta$ -ketosulfone acids, tribalistas, the coefficient of friction.

*Abstract.* Synthesized and investigated a series of salts based on 1,1-dihydrophenylisatin- $\beta$ -ketosulfones. Shown their high efficiency as additives even at concentrations of 0,004-0,1%. When this coefficient of friction and the wear rate was reduced by 20-50%. In a series of salts prioritized antifriction properties of the additives in accordance with the electric potential of their metals ( $f_{Li} < f_{Al} < f_{Mg} < f_{Zn} < f_{In}$ ). Based on the tribological tests, taking into account the availability of raw materials and ease of synthesis, the conclusion about the prospects of using the generated salt as a preventive additives for lubricating oils and fuels.

*(Federal State Unitary Enterprise «State Research Institute of Organic Chemistry and Technology»;  
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for the Agricultural Machines and Harvesters Engineering Technology and Services»)*

**EQUIPMENT and DEVICES**

*Vezirov I.R.*

**Technology for upgrading of the hydrocirculation vacuum-creating systems**

*Keywords:* vacuum distillation, fuel oil, one- and two-stage vacuum hydro-circulation system, saturated vapor pressure, decomposition gases, steam booster ejector, line jet device, nozzles, ejection coefficient, energy efficiency.

*Abstract.* The article describes the technology of increasing the efficiency of vacuum hydro-circulation systems. On an example of one of the Russian refineries we solve the problem of increasing the depth of the vacuum (residual pressure reduction) without replacing the existing equipment of the unit. The task is solved with the

help of jet device (booster ejector) and column operation optimization. The proposed design of the steam booster ejector provides its assembly without additional foundations and supporting platforms. Optimization of the operating mode of the column and the use of the booster ejector enhance takes-off of the targeted distillates. Also, raw materials temperature lowering is provided at the outlet of the furnace, which reduces the load on the vacuum system and increases the run life of the unit. The proposed activities enhance the takes-off of the desired fractions and the run life of the unit, as well as reduce energy consumption for the process.

## CHEMMOTOLOGOS

*Lashkhi V.L., Chudinovskikh A.L., Boykov D.V., Efanova O.Yu.*

### **Possible way of motor oil disperse phase holding ability assessment**

*Keywords:* motor oils, carbon black capacity, dispersion, sedimentation.

*Abstract.* An empirical dependence is offered, binding together the change of engine oil viscosity with its disperse phase content. A certain physical sense is enclosed into each of this dependence indicators. It gives a chance observing the results of the indicators analysis to predict the holding ability of oil and its mobility limit.

*Lashkhi V.L., Chudinovskikh A.L., Samusenko V.D., Zagryadskaya A.D.*

### **Features of washing effect of detergents in motor oils**

*Keywords:* motor oil, detergents, sulphonates, salicylates, phenolates, alkalinity carrier.

*Abstract.* The washing action is connected with alkaline centres existence in detergents which are actively interacting with the disperse phase, and it makes an obstacle to its being fixed on a heated metal surface. It allows to provide purity of metal surface. Due to more significant reorganization of micelles and adsorbate in the force field of metal, salicylates favourably differ by their washing action from sulphonates.

## CONFERENCES. SEMINARS. EXHIBITIONS

**On the International exhibition «Chemistry-2015» / 27–30 October 2015, Moscow**

**On VI Moscow international lubricants week – 2015 / 17–20 November 2015, Moscow**

## MATERIALS of the PETROCHEMICAL and REFINERS ASSOCIATION

**Extracts of the protocol #125 of ANN board meeting of 01.10.2015**

## NEWS. FACTS. DOCUMENTS

**A world level scientific edition: preparation and inclusion into citation indexes and abstract databases**

**LIST of articles published in the Journal in 2015**