6_2017

PETROLEUM PRODUCTS: technology, innovation, market

Sheykina N.A., Tyschenko V.A., Gavrilova I.A., Sheykina M.A., Snopov S.G.

The development of low-viscosity hydraulic LH-5-B (low-viscosity hydraulic) oil from the products of hydrocatalytic processing of diesel fractions

Keywords: low viscosity hydraulic oil, group hydrocarbon composition, operational properties, special products.

Abstract. The paper presents low-viscosity hydraulic waxy LH-5-B oil for special products of rocket and space technology and the technology of its production is developed. Low-viscosity hydraulic LH-5-B oil is a thickened polymethacrylate regulated hydrocarbon base with the antioxidant additive. The LH-5-B oil base is produced from the hydrocatalytic processing of gachey and diesel oil fractions and is obtained as strippant while distilling the base mixture AHO-10 (aviation hydraulic oil) and hydroisomerizate fraction.

Public Joint Stock Company «Middle Volga Oil Refining Research Institute» – MidVolgaNIINP
Samara State Technical University
RSC «Progress»

Leont'ev A.V., Tatur I.R., Spirkin V.G., Belomestnova Yu.S.

Improvement of the thermal and oxidative stability of the inhibited protective fluid for hot water storage tanks of power plants

Keywords: protective fluid, dynamic viscosity, corrosion inhibitor, antioxidant additives, polyisobutylene, critical concentration of mycelformation, hot water storage tanks.

Abstract. This article contains data on the effect of antioxidant additives on the thermal and oxidative stability of inhibited protective fluid. Critical concentration of the micelle formation of the FMT corrosion inhibitor is established and the effect of the corrosion inhibitor composition on the thermal destruction of the PIB molecules is shown. The rate constants of the thermal destruction of PIB molecules in the composition of the protective liquid are calculated, and effective antioxidant additives that increase thermal and oxidative stability of the inhibited protective fluid are selected.

Russian State University of Oil and Gas named after I.M. Gubkin

Medzhibovskiy A.S., Kolokolnikov A.S., Zibrova S.N., Rozhdestvina O.V.

Research of certain product characteristics of domestic and foreign alkylphenol (phenolate) additives

Keywords: colloidal stability and separation efficiency, color of additives.

Abstract. Some of lubricant additives properties (i.e. color of additives solutions in different solvents, colloidal stability and separation efficiency) were studied. Research tests were held for domestic (NPP Qualitet) and foreign (Chevron Oronite, WanFY Chemical) alkylphenol additives. Process of color definition test (in different solvents) was held according to GOST 20284-74. The results obtained prove that additives produced by NPP Qualitet and Chevron Oronite have similar properties, and WanFY Chemical additives have worse results (color in solutions is darker). In order to evaluate colloidal stability and additives separation efficiency, a special NPP Qualitet method was used. The results of the tests prove that all samples have good colloidal stability, but WanFY Chemical has worse results. To summarize, NPP Qualitet additives are suitable for import substitution.

Qualitet Group; LLC Qualitet

Korchevin E.N.

Influence of the content of aromatic hydrocarbons on the operational properties of transformer oils

Keywords: transformer oil, aromatic hydrocarbons, gassing in an electric field

Abstract. Electric insulating oils are using for filling high-voltage equipments with voltage up to 1100 kV. There are hydrogen, methane, ethane and other light hydrocarbon gases can be formed in the process of exploitation in the oil insulation of high-voltage equipment, which threatening the normal operation of equipment, as well as life and health of people. To evaluate the behavior of an insulating liquid in the presence

of an ionized gas, the indicator "gas stability of an insulating liquid in an electric field" is operating. Under the influence of an electric field, a low-temperature plasma is formed at the oil-gas interface, which has a destructive effect on the insulating liquid. As a result of this action, insulating liquids can both absorb and release gas in an electric field, depending on their chemical composition. The determining influence is exerted by the content of aromatic hydrocarbons in the composition of the oil. Transformer oils with a high concentration of aromatic hydrocarbons are classified as gas-absorbing. However, aromatic hydrocarbons reduce stability against oxidation of the insulating liquid. Deep-cleaned transformer oils with low aromatic hydrocarbons have a high stability against oxidation, but at the same time, they intensively produce gas when tested for gas stability. Adding a small amount of aromatic hydrocarbons will reduce gas evolution without degrading other characteristics of the transformer oil. In this work the influence of hydrogenated naphthalene derivatives, as well as fractions of light gas oil of catalytic cracking with a high content of diaromatic hydrocarbons on the performance properties of deeply purified transformer oil was studied.

SC «Angarsk plant of catalysts and organic synthesis»

CHEMMOTOLOGOS

Lashkhi V.l., Chudinovskikh A.L., Salutenkova V.A.

Theoretical bases of motor oils operability forecasting

Keywords: operability of motor oils; motor oil condition indicators.

Abstract. Regulation of values limits for motor oil condition indicators defi ning oils acceptable working capacity in the equipment is an extremely complex task, as theoretically, and also practically.
The correct regulation, on one hand, prevents negative infl uence of oils upon the reliability of equipment, and, on the other hand, hinders their early change and excessive expense. For minimisation of those diffi culties at the solution of problems it is offered to express the change of oil condition in time (operation time) with a logistic function, extremal points on which show basic change of quality (state) of the oil. The last is described by a set of informative single indicators, boundary values of which correspond to extremal points on the curves.

Ermilov E.A., Koval'skiy B.I., Bezborodov Yu.N., Balyasnikov V.A.

Oxidation and thermal destruction of motor oil ZIC HIFLO 10W-40 SL in the process of operation

Keywords: indicators of thermooxidation stability and thermal withstandability of motor oil ZIC HIFLO 10W-40 SL.

Abstract. The results of the study of influence of the processes of oxidation and thermal destruction on the optical properties, the kinematic viscosity, volatility and anti-wear properties of full synthetic motor oil are presented. It was found, that the processes of thermal destruction have reduced the rate of change of optical density, volatility, and have increased the kinematic viscosity and anti-wear properties, however the processes of thermal destruction have dominated at the processes of oxidation, when optical density is more 0,47.

FSAEI HVE «Siberian Federal University»

EQUIPMENT and DEVICES

Reutova O.A., Gavrilova E.A.

Catalyst performance impact for cracking process parameters mode and hardware design of regenerating process

Keywords: cracking catalyst, regenerator, deactivation, technological mode parameters, coke.

Abstract. This article describes the relationship of the cracking catalyst properties with technological mode parameters and hardware design of the regeneration process by the example of unit 43-103. Cracking catalyst evolution has led to a simplification of the structure of the regenerator and an increase in temperature in the apparatus, will significantly reduce the level of residual coke.

Dostoevsky Omsk State University

Sidorov G.M., Yahin B.A., Ryabova V.I,. Filatov A.K., Zaitsev Yu.N.

The decline in the quality of diesel fuel during storage and recovery method

Keywords: diesel fuel, wear, lubricating properties, additive, tank, product bundle

Abstract. Diesel fuel performs a lubricating function for moving the parts of fuel equipment. In the context of more stringent environmental requirements of diesel fuel removes compounds containing sulfur, nitrogen and oxygen. These compounds are natural surface-active agents (SURFACTANTS) and their removal affects the lubricity of diesel fuel, therefore, with the aim of improving lubricating properties to diesel fuel added anti-wear additives. Commodity during prolonged storage of diesel fuel in the tanks going bundle product. This diesel does not have sufficient lubricating properties and charging vehicles such diesel fuel can cause rapid failure of diesel engines. The problem of stratification and loss of quality of diesel fuel is relevant for remote regions of Russia, where the provision of petroleum products due to the so-called «Northern delivery». In these regions the period of storage of diesel fuel in the tanks of up to one year (until the next navigation). The article presents research data changes lubricating properties of diesel fuel in the tanks during prolonged storage. Results of studies it has been shown that after 2 weeks of storage average spot diameter wear of diesel fuel increased by 49 microns, at 56 the day storing the difference with the original value amounted to 80 microns. Thus, already two months diesel fuel storage, the testimony of the sample are nearing maximum value average spot diameter wear at 60°C, GOST R regulated 55475-2013, equal to 460 microns. After six months the indicator lubricating ability top totaled 472 microns, the bottom -356 microns. These data prove the fact commodity bundle of diesel fuel during prolonged storage. Shows the opportunity and offered a way to restore the lubricating ability of diesel fuel to the required standards.

FSBEI HE «Ufa State Petroleum Technological University»

PAGES of HISTORY

Akhmadova H.H., Musaeva M.A., Syrkin A.M.

The Mirzoyev plant – the harbinger of formation of large-scale Grozny Oil-Processing Industry

Keywords: the Grozny oil well and wellhead oil production, oil refineries, factory Mirzoyev, alembic.

Abstract/ It is established that Mirzoyev's plant constructed in 1866 during the work prior to gushing oil production in 1895 was the largest oil refinery in the North Caucasus. With the development of technology of oil refining it has been continuously improved and expanded. In 1885 the factories Mirzoyev was ceded to S.V. Niebuhr, and in 1893 to Ahverdov I.A. the Role of plant Mirzoyev in the development of the Grozny and domestic refining are so significant that some researchers have started the industrial processing of oil relates to the date of construction of the plant Mirzoyev.

State Educational Institution of Higher professional Education
"Grozny State Petroleum Technological Univesity";
State Educational Institution of Higher professional Education
"Ufa State Petroleum Technological Univesity"

MATERIALS of the PETROCHEMICAL and REFINERS ASSOCIATION

Extracts of the protocol #134 of ANN board meeting of 30.03.2017 / Subject – Fulfi lment of four-side agreements by middle-size oil refi neries; Approvement of measures plan (road map) concerning additives to lube oils and additives feed