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OBTAINING A HIGHLY EFFICTIVE ANTIKORROSION AND DEPRESSANT ADDITIVES BASED ON LOCAL RAW MATERIALES

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Abstract: Possibility of the syntheses new lubricant materials are shown in work to lubricant on base local swam to resources. Possibility of the practical application polymeric additive are shown.

Key words: additive, polymer, lubricant, syntheses, polycondensation, raw materials, depressor, mechanism, resource, colloidal characteristic, molecular-mass distribution.

МЕТОД СЛАБОЙ АППРОКСИМАЦИИ ДЛЯ ЗАДАЧИ КОШИ ДЛЯ ОДНОМЕРНОЙ СИСТЕМЫ УРАВНЕНИЙ ТИПА БЮРГЕРСА, ВОЗНИКАЮЩЕЙ В ДВУХСКОРОСТНОЙ ГИДРОДИНАМИКЕ

Аннотация: В работе показаны возможности синтеза новых смазочных материалов на базе локальных (местных) сырьевых ресурсов. Показаны возможности практического применения разработанных полимерных добавок.

Ключевые слова: добавка, полимер, смазка, синтез, поликонденсация, сырьё, депрессор, механизм, ресурс, коллоидная характеристика, молекулярно-массовое распределение.

The conditions of the work lubricating oil in modern engine and mechanism become so tense that oil butters in clean type regardless of quality source cheese and methods of its conversion can not provide their normal work [1].

Entering the functional groups or chemical element in different organic join, used as additive to butter, allows to raise efficiency of the action of these join toward improvement that or other characteristic lubricating oil. So studies in the field of syntheses additive, containing in its composition different functional groups, has important importance with stand point of the reception multifunctional additive to butter [2].

For the reason syntheses depressor additive us were organized studies on introduction to molecule olygomers α,γ -dichlorgydringlycerin phosphor containing fragment and development to technologies of the reception phosphor containing additive on base α,γ -dichlorgydringlycerin with phosphor containing join, got on base phosphorits of a Central Kyzylkums [3].

From literature known that study of the regularities joint polycondensation galoid containing monomer and phosphor containing join attracts all greater attention of the researchers due to possibility of the creation on their base olygomers with given characteristic. On the other hand, study of the kinetics and mechanism of the interaction digaloids with said join will vastly increase our knowledge's in the field of inconvertible polycondensationing processes, and we consider that these studies promote, filling available in this area gap. The Last and shoos the necessaries to research the behavior phosphor containing join, after careful peelings in reaction polycondensation with digaloidalkil, contain in its structure two negative centers (α,γ -dichlorgydringlycerin) to achieve the hithemoculling an additive on base of the products these reaction.

The Process polycondensation phosphor containing component with α,γ -dichlorgydringlycerin conducted as en masse, so and in ambience of the different organic solvents.

The Regularities polycondensation phosphor containing component (FCC) with α,γ -dichloroglycerin studied at ekvimoling correlations source component in interval of the temperature 333-373K for 300 minutes. To flow process polycondensation checked potensometric titring acid groups. Since change brought to viscosity and separation of the sodium chloride are a direct result of the described processes, that quantitative estimation two these factor and have served the method of the determination to velocities polycondensation DHG and FCC.

As can be seen from got given (fig.1) dependency amount selected as a result polycondensation DHG and FCC sodium chloride from length of the reactions has S-figurative type. At period from 60 before 150 mines occurs the intensive separation NaCl, characterizing high velocity to reactions polycondensation. Approximately through 160-245 mines (depending on the temperature) separation NaCl stops, reaching 65-80% from theoretical. Such a regularity is confirmed at description of the process polycondensation DHG:FCC on change brought viscosity of the system and on result of importance's of the acid number of the products polycondensation (fig.2).

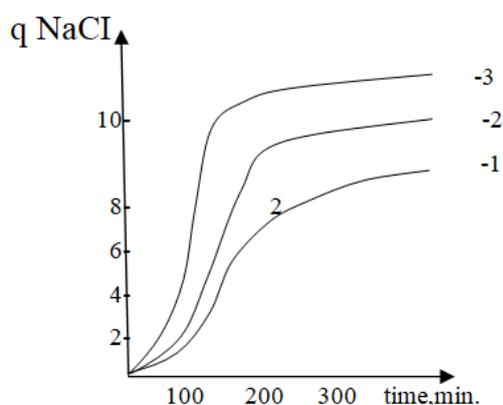


Fig. 1. The Dependency amount chosen NaCl from length polycondensation DHG with FCC under different temperature: 1 - 343K; 2 - 353K; 3 - 363K; Condition polycondensation: 1:1, in ethanol.

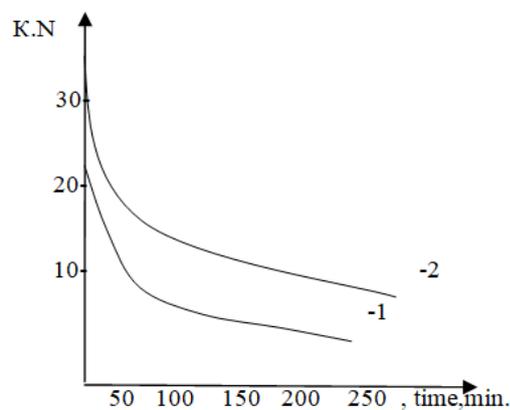


Fig. 2. Dependency of the acid number of the product from length polycondensation DHG with FCC at temperature: 1 - 343K; 2 - 363K; Condition polycondensation: 1:1, in ethanol.

In studied interval of the temperature (343-363K) - a most velocity to reactions exists under 363K. Processing experimental data by method least square has shown that kinetic curves to the best advantage in coordinate from $R=0,8$ before completion of the reactions. This has allowed doing the conclusion that in all studied events kinetic given are better described by equation of the second order. On the grounds of warm-up dependency of the process polycondensation is determined its energy to activations, which forms 31,9 kJ/mol. The Products to reactions present itself very viscous incoloring or painted in amber color of the liquids, their physic-chemical features and condition polycondensation were provided in table 1.

The Composition and construction synthesized phosphopolyols are installed by element analysis and methods IK-, PMR-, YAMR 31P-спектроскопией.

In IK-spectrum of the synthesized join are present the bands of the absorption typical of valents of the fluctuations of the following groups: intensive band of the absorption in the field of 2550-2568 cm^{-1} corresponds to the gidroxil a group, band of the absorption to average intensity in the field of 2360-2368 cm^{-1} typical of P-H relationships, in the field of 2548-2556 cm^{-1} - for groups $-\text{SN}_2-$, bands of the absorption in the field of 1370-1350 cm^{-1} have referred to group $-\text{P}-\text{O}-$, but intensive band of the absorption in the field of 1255-1260 cm^{-1} to group $\text{R}=\text{O}$. The complex signal is present In PMR spectrum in the field of 4,70-4,22 m.d. containing, as judged by integral crooked three chemical shifts. Probably, multiplet signal corresponds to the finishing an gidroximethylen group oligomer, but multiplet signal in the field of 3,9-3,75 m.d. internal oxiphosphatyng group.

Table 1

**Conditions of the syntheses oligomers and some characteristic got phosphopolyol
(FCC:DHG=1:1, =5 hours,T=353K)**

Ambience	Output, %	C, mol/l	Molecular mass of a polyols	n_{D}^{20}	d_{4}^{20} g/sm ³	$\eta_{in0,1}$ KC1
In masse	92,2	1,0	1865	1,4788	1,3184	0,40
ethanol	88,9	2,0	1980	1,4748	1,3071	0,36
Aceton	74,7	1,5	1160	1,4738	1,3134	0,26
i-propanol	85,6	2,0	1669	1,4746	1,3154	0,38

The Eaten through signal in the field of 3,61 m.d. corresponds to oxigrup, connected with phosphorus. Present in such events дублет trace does not introduce possible in view of close located multiplet signal.

Is Installed that under investigation reaction runs in accordance with kinetic equation of the second order, thereby, velocity to reactions proportional concentration digidrophosphat of a sodium (DGFN) and α,γ -dichlorgydringlycerin in the first degree.

On base called on experimental studies us is installed to flow by reactions polycondensation α,γ -dichlorgydringlycerin with digidrophosphat sodium, got on base phosphorits of a Central Kyzylkums, is calculated importances of the energy to activations, some thermodynamic parameters of the spontaneous process polycondensations.

In the further study we studied the influence molecular-mass distribution designed by us additives on characteristic as depressor to butter. On gel-hramotograms of the designed additive (fig. 3) in some cases peak lowmoleculing were discovered except pica main material to factions- admixture (M=500) and peak hithemoleculing to factions (M=1500-20000). Presence to last, powerfully tells on importance Mw, practically not infusing on Mn that in total brings about essential change relations Mw/Mn.

It Is Installed that modified designed additive of lubricant not subject to sinereris, is herewith revealed that fillers (for instance, graphite) also raise the colloidal stability of lubricant.

The Chemical stability of lubricant defined the oxidation an them in bomb under pressure of the oxygen (8 atm) under 100o C or bore the in special ditch in thermostats under raised to temperature. About stabilities judged on amount of the absorbed oxygen, at time and on growth acid number lubricant.

It Is Installed that introduction designed additive in composition of lubricant brings about reduction of water, in consequence of gidrofiling compositions that also reduces the corrosion of the metallic parts mechanism.

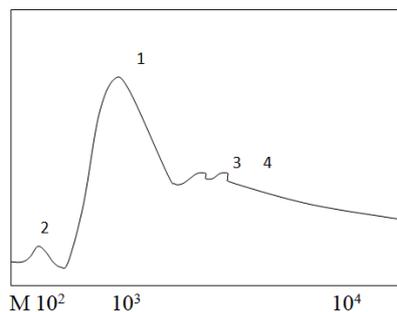


Fig 3. Gel- hramotograms synthesized additive on base of the reactions copolycondensation epichlorgydrin with phosphoric by acid. 1-main material; 2-lowmoleculing admixture; 3-hithemoleculing fraction; 4-peak in the field of excluding.

Acidity and acid number modified designed by us additive of lubricant defined on GOST 5985 - 59. The Indicator served nitrozing yellow (the delta) or phenolphthalein. When test of many lubricant and special oils, containing oxidized oil product, acid numbers, determined with using nitrozing wanted and phenolphthalein, did not coincide.

Viscosity of plastic lubricant measured on automatic capillary viscosimeter, since she defines the possibility of their leading-in in mechanisms of the start the machines, as well as loss to powers on friction. Particularly, it is important to know viscosity of lubricant under low temperature. Under constant temperature viscosity it changes depending on velocities of the deformation of lubricant. Usually in standard on lubricant is specified greatly possible importance of viscosity under one or another low temperature and velocities to deformation.

The Limit to toughness on shifts this minimum voltage of the shift, causing destruction of the structured framework of plastic lubricant and transitions it to viscous current. This factor measured on capillary plastometr- K2.

For the reason production more qualitative goods oils on Alty-Aryks production Fergana oil referenirer plant was perfected lubricant production technology, modified designed additive. Work on production modified oils and solydor was realized in chemical laboratory (HL-1) Alty-Aryks production FNPZ.

Modified industrial and designed additive of the butter had a following features (tabl.2).

It is installed that physic-chemical features modified additive oils hang from structure hydrocarbon, falling into their composition. They are determined by method IR-spectrum, which results are indicative of that that there are unsaturated paraffin join in composition of the diesel oil that explains low density and viscosity given diesel oil.

Us are revealed that on factor of density, cinematic and dynamic viscosity modified fuel be up to quality GOST (tabl.3). It Is Installed that when functioning in mechanical transmissions (in gearbox, in leading bridge) modified designed additive industrial butters show all quality, inherent transmissions butter, answering modern requirements.

Table 2

The Main physic-chemical characteristic of the industrial butter of the general-purpose (the GOST 20799-79)

Nº	Factors	Additive Ferad	Additive EFO	FCP-1	FCP-2
1.	Density,g/sm ³	0,89	0,87	0,900	0,905
2.	Cinematic velocity in 50°C, st. (M ² /s)	4-5	7	6-8	12-14
3.	Temperature of a cooling,°C	-20	-18	-24	-30
4.	Temperature of the flash (open crucible), °C	120	118	142	154
5.	coxing, %(mass)	0,04	0,06	-	-
6	Zoling %(mass)	0,05	0,008	0,003	0,002
7.	Acid number , mgKOH/mg	0,05	0,05	0,04	0,02
8.	Test on thermostabilization and corrosion	Weakly bears		bears	

Note: FCP-1-additive on base epichlorgidrin with FK, FCP-2 additive on base α,γ-dichlorgydringlycerin with FC.

Table 3

Physic-chemical characteristic of the diesel oil

Diesel oil fractioning at temperature,K	density g/sm ³	Cinematic velocity in 293K, mm/s	Dynamic velocity in 293K, mPa s
453	0,822	6,20	5,36
523	0,829	5,64	4,28
623	0,852	5,14	3,85

Together with that they provide also work micromechanics box of the issues without vibration, slippages and sticking disk tractions. The Last, is an essential advantage phosphor containing additive before industrial additive of the mark "Ferad" and EFO.

Thereby, we are designed new polyphunktional phosphopolyols, which can be applying as additives to oils material. Since, applicable at present in industry of the additive wedding from-beyond the frontier, they hard obtenium, toxic and roads.

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