TEN FOLD ECONOMY OF MOTOR OILS AND DOUBLING OF RESERVE MAINTENANCE PERIODS FOR ACCOUNT IT IS SOLID ADDITION OF "STUFFING" OF OIL FILTERS

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ABSTRACT

Ecological motives and theoretical, bases of modelling of mechanisms, of realization of effect without the wear gear knots engines of the internal combustion which are carried out for the account gear catalytic of regeneration of motor oils and subsequent their stabilization rheological of properties as a result of contact interaction with firm additives of special structure directly in system hermetically sealed from an environment of greasing are considered. Physical and mathematical algorithms and methodological recommendations are formulated on the problems of computer forecasting of qualitative structure of firm additives, the quantitative analysis heat exchange processes and long-term management of motor potential of engines of internal combustion.

Keywords: *modelling; friction without wear; tribocatalytic oil regeneration; heat transfer; transport of mass*

1. INTRODUCTION

In conditions of progressing manufacture of transport and stationary engines of internal combustion engine and growing deficiency of the combustive-lubricating materials, traditional ways by single or periodic introduction of additives in motor oils become irrational as they lead to tendentious expansion of assortment of the specialized additives and modifiers of friction, and in a result - to unjustified increase of their maintenance contents in commodity oils more than 14-17 % [1]. Overestimate of concentration and complication addition compositions is frequent turns around decrease reduction gear technical ecological and economic advantages both addition materials, and ways of their application which in any traditional variants do not solve a problem of management of operational resource internal combustion engine.

The complexity of the problem will be, that the majority of real gear system and furthermore - units, do not possess the expressed mechanisms of adaptive self-organizing of effects wear-free friction or other similar phenomena and consequently - do not allow to create for them adequate models and techniques of management of their operational resource.

2. TECHNOLOGY OF REGENERATION TRIBO CATALYTIC OF THE OIL FOR MOTOR, AND THEIR ADVANTAGEE OF EXPLOITATION

As have shown regular researches of the given problem by the example of systems of greasing internal combustion engine, the most perspective, the mesh sight of controllability of motor potential, are self-organizing modular gear system . In which regeneration of a chemical compound and stabilization of physical properties of the fulfilled oil is carried out directly in system of greasing internal combustion engine for the account gear catalytic restoration of the oxidized hydrocarbons at their contact in devices of stabilization of oil with the package of firm additives containing alkaline reagents (NaOH...) and metal promotors of regenerative reactions (Sn, Al, Cu, etc.), and as with soluble by iodine, playing a role of the free carrier of charges [1 - 3].

Using advantages of technology gear catalytic regenerations of motor oils in comparison with traditional antiwear in the ways and actions are confirm to the results of experimental and operational tests [1 - 3] and showed, that after some "induction" period extra earnings (from 200 till 1000 o'clock) in system of greasing internal combustion engine kinetic balance of oxidation-reduction processes, steady balance acid-base, ionic - proton, electronic and the general common thermophysical an exchange is established stable in time. All this leads to stabilization of a

temperature mode and gear physical parameters of a lubricant, and as a result: motor potential internal combustion engine raises in 1,5-3, terms of permanent work of oil up to 10 times. Thus, last updatings in devices of stabilization of oil with tested on internal combustion engine automobiles the (VAZ, KAMAZ, ZIL, YAMZ) and on experimental diesel locomotives, have finished decrease reduction in oil on an intoxication with 50 %, fuel up to 6 % and factor of friction - in 10 times that testifies to doubtless operational and ecological perspectivity of the given technology.

However, to get rid of traditional receptions of empirical selection of necessary components with the package of firm additives by development of new up datings in devices of stabilization of oil and adaptation of technology gear catalytic regenerations of motor oils to various oils and marks internal combustion engine, it was necessary to model macro processes thermo physical, electrochemical both gear catalytic the energy exchange and the mass transfer, coherent (coordinated) which interacts at its atomic molecular level and in full systems of greasing internal combustion engine - is synergetic a condition of formation self-organizing modular gear system .

3. MODEL EXCHANGE OF HEAT INTERNAL COMBUSTION ENGINE

The mechanism of self-organizing adaptive gear system and bases of management by the example of system with selective carry of metals by us are described by earlier [4]. In the same place it is shown, that auto synchronization of collective fluctuations of the neutral and charged particles (atoms, molecules, radicals, the micelles, etc.) in a boundary layer, and in volume of oil, leads to formation of power fields thermophysical (phonon), the electrochemical and electrostatic nature in which gradient processes physical desorption selectively become more active, diffusion, the dissociation, the electrophoresis, etc., and as gear catalytic the reactions which are being carrying out in technology gear catalytic regenerations of motor oils regenerative functions [1,3].

The probability of generation of the named power(force) fields and synchronism of their interaction in conditions technology gear catalytic regenerations of motor oils, at presence in the environment more than one kind of elementary sources of harmonious fluctuations (E), is defined (determined) by the decision of some of the equations for (E1), (E2) and ...

$$\frac{\chi}{\lambda_r} = M_r(E)\frac{T_f}{i} = M_r(E)\frac{T_{fo}}{j} = Q_r(E)i, j = \varphi(E)i, j \qquad (1)$$

To judge gear catalytic properties and converter of energy functions of concrete microcells in system gear catalytic regenerations of motor oils it is possible after its analytical research on the equation of thermionic exchange interaction of atoms of the catalyst and reagents in a made active condition [5].

$$Q_r = M_{KE} \quad T^{op} = \mu \quad (C_V T^q)_{KE} = \frac{\rho \quad \delta \quad C \quad h}{\lambda_E} =$$

$$\nu^{Z2_{KE}} \quad \left(\frac{1}{r_2} - \frac{1}{r_1}\right) = \eta \quad M_{pr} \quad T_{pr}^{kr} = \rho \quad \varphi \quad Q_r = const, (2)$$

From the equation (1) and (2) it is obvious, that coherent interactions of oscillatory processes termophysic and electromagnetic character on the active centers gear catalytic modifiers of a lubricant under the certain physical conditions it is dictated by a parity(ratio)

$$Q_K(\mathrm{E})\mathrm{T}^{op}/\rho = \mathrm{M}_K(\mathrm{E})\mathrm{T}^{op}/\rho = \varphi(\mathrm{E})\mathrm{T}^{op}/\rho. \qquad (3)$$

Forecast of the isotopes of the catalytic elements for the technology of tribochemical mode adjustable car and continuous walk . According to the criterion of additive commensurability of the physicochemical parameters in the auto--organized coherent systems of dissipation of energy

	C	O	OH	Na	Al	Cu	Zn	S	I
Mi,	12,011	15,9994	17,00737	22,989	26,982	63,546	118,69	118,69	126,904 5
MI-Mi	114,893114, 893	110,905	109,897	103,915	99,922	63,358	61,524	8,214	-
MK(isot.)	114 ; 115	110 ; 111	109 ; 110	103 ; 104	100	63	61	8	-
isotopes	Sn^{114} ; Sn^{115}	Cd^{110} ;Ru^{111}	Ag^{109} ;Cd^{110} ; Pd^{110}	Rh^{103} ;Ru^{104}	Ru^{100} ;Ma^{100}	Cu^{63}	Ni^{61}	$Li^{7}H$;$Li^{6}D$	-
M(Sn)-Mi	106,679	102,690	101,682	95,701	91,708	55,144	53,31	-	-
Mk(isot.)	106 ;107	102 ;103	101	95 ;96	91 ;92	55	53	-	-
isotopes	Pd^{106} ;Cd^{106} ; Ag^{106}	Ru^{102} ;Pd^{102} ;Ph^{103}	Ru101	$Ma^{95}Zr^{96}$; Ru^{96}	Zr^{91} ;Mo^{92}	Mn^{55}	Cr^{53}	-	-
M(I)+Mi	138,915	142,904	143,911	149,893	153,886	190,450	192,284	245,594	253,809
Mk(isot.)	138 ;139	142 ;143	143 ;144	149 ;150	153 ;154	190	192	234 ;247	254
isotopes	Ba^{138} ;La^{138} ; Ce^{139}	Ce^{142} ;Nd^{144}	Nd^{143} ;Nd^{144}	Sm^{149} :Nd^{150} ;Sm^{150}	Eu^{153} ;Sm^{154} ;Gd^{154}	Os^{190} ; Pt^{192}	Ir^{191} ;Pt^{192}	Am^{243} ; B^{243} ;I^{*}	$[Es^{254}]^{*}$
M(Sn)+Mi	130,701	134,689	135,697	141,679	145,672	182,236	184,07	237,38	
Mk(isot.)	130 ;131	134	136	142	145 ;146	182	184	237	
isotopes	Te^{130} ;Ba^{130} ; Xe^{131}	Xe^{134} ;Ba^{134}	Ba^{136} :Xe^{136} ; Ce^{136}	Ce^{142} ;Nd^{142}	Nd^{143} ;Nd^{146}	W^{182}	W^{184},Os^{184}	$[Np^{237}]^{*}$	

Table 1 *Unstable isotopes of the actinide series

Forecast concerned with the structure of the isotopes of the catalytic elements based on the chemical composition of the coherent whole with resonance in the system of tribochemical mode adjustable car and continuous walk.

Coherent whole with resonance	Mk, units convention Mk, units convention Mk, units convention	Possible chemical functions of the isotopes			Promoters of reduction of hydrocarbons
		Catalysts	Co-activators	Charge carriers	
NaOH	39,996			K^{40},Ca^{40},Ne^{20},B^{10}	K,Ca,B
$Al(OH)_3$	78,004		Se^{78},Kr^{78}	K^{39},F^{19},Be^{10}	K
ZnO	81,379	Br^{81}	K^{40},Ca^{40}	K^{40},Ca^{40},Ne^{20},B^{10}	K,Ca,B
$Zn(OH)_2$	99,394	Ru^{99}	Ti^{49}	Mg^{25},C^{13}	Ru,Ti
Na_2O	100,965	Ru^{101}	Ti^{50};V^{50};Cr^{50}	Mg^{25};C^{13}	Ru;Ti;Cr
Al_2O_3	101,960	Ru^{102}:Pd^{102}:Rh^{103}	V^{51}	Mg^{25};C^{13}	Ru;Rh;Pd
SnH_4	122,721	Sn^{122};Te^{122}	Ni^{61}	Si^{30};P^{31};N^{15}	Sn;Si;Ni;P
NaI	149,893	Sm^{149};Sm^{150};Nd^{150}	As^{75}	Cl^{37};F^{19};Be^{9}	
SnO_2	150,688	Nd^{150};Sm^{150}	As^{75}	Cl^{37};F^{19};Be^{9}	
$IO3IO_3$	174,902	Hf^{147};Zu^{175}	Rb^{87};Sr^{87}	Ca^{43};Ne^{23};B^{10}	Hf;Sr;Na;B
[SnO2-NaOH]	190,685	Os^{190};Pt^{190};Ir^{191}	Ma^{95};Zr^{96};Ru^{96}	Ti^{47};Ti^{48};Ca^{48};Mg^{24};C^{13}	Pt;Os;Zr;Ir;Ma;Yi;Ru
$NA_2(SnO_3)Na_2(SnO_3)$	212,666	Pd^{106};Cd^{106}	Cr^{53}	Mg^{26};Al^{27};C^{13}	Pd;Cr;Al
SnI	245,591	Sn^{122};Te^{122}	Ni^{61}	P^{31};N^{15}	Sn;Ni;P
SnI_2	372,50	W^{186};Os^{186}	Nb^{93}	Ca^{46};Ti^{46};Na^{23};C^{12}	Os,Ti
$Na_2[Sn(OH)_6]$	267,11	Cs^{133};Ba^{134};Xe^{134}	Zn^{66}	S^{33};O^{17}	Cs;Ba;Zn;Se
$\sum[CO_2HNaAlZnSnI]$	406	TL^{203};Ru^{101};Pd^{102}	Ti^{59};Cr^{50};V^{51}	Mg^{25};C^{13}	Ru;Pd;Ti;Cr

Table 2

Hence, at known local temperatures and pressure of oil in system of greasing internal combustion engine, on the equations (1) - (3) the collective power condition and comparative catalytic activity addition or alloying microcells practically in any point of its (her) volume is defined (determined).
For example, at the average temperatures of a working zone gear knots internal combustion engine T_r = 443 K To and zones of stabilization of oil in T_s = 363 K To, as in view of temperatures optimum catalytic activity iodine in oxidizing Toxi. (I) = 723 K To and regenerative Treg. (I) = 673 K To processes [1,3], settlement values φ(I) T^{op}, φ(I)T_r and φ (I) T_s on size appropriate potentials being electromotive forces the standard electronic reactions expressed in "normal" potentialsφ0 [6]. It allows to predict a method of comparison of sizes power consumption and an orientation of oxidation-reduction processes in set local zone, i.e. their convertibility in technology gear catalytic regeneration of motor oils (table 1).

Table 3. Temperature conditions of convertibility gear chemical processes in technology gear catalytic regeneration of motor oils potentials being electromotive forces reactionary.

Electromotive force		Electronic reactions
φ673	φ°	not reversed with T_r=443 andT_s=363°
1,85111	-1,847	$Be^{2-} + 2e^- \rightarrow Be$
0,92559	-0,92	$Se + 2e^- \rightarrow Se_2^-$
0,92559	-0,913	$C\Gamma_2^+ + 2e^- \rightarrow C\Gamma$
0,46279	+0,46	$C_2H_5OH + 2H^+ + 2e^- \rightarrow C_2H_5+H_2O$
0,23139	+0,232	$CHO + 2H^+ + 2e^- \rightarrow CH_3OH$
0,15699	+0,15	$Sn_4^+ + 2e^- \rightarrow Sn_2^+$

Electromotive force		Electronic reactions
φ443	φ°	not reversed .withT_{op}=673 andT_{op}=723°
2,43791	+2,422	$O + 2H^+ + 2e^- \rightarrow H_2O$
1,21895	+1,21	$Cl O_3^- + 3H^+ + 2e^- \rightarrow H Cl O + H_2O$
1,21895	+1,229	$O_2 + 4H^+ + 4e^- \rightarrow 2H_2O$
0,15236	+0,153	$Cu_2^+ + e^- \rightarrow Cu^+$
0,15236	+0,15	$Sn_4^+ + 2e^- \rightarrow Sn_2^+$
0,15236	+0,152	$Ag I + e^- \rightarrow Ag + I^-$

Electromotive force		Electronic reactions
φ723	φ°	reversed .with T_s=363k
1,98872	+/-2,01	$S_2 O_8^{2-} + 2e^- \leftrightarrow 2SO_4^{2-}$
0,94436	+/- 0,99	$H I O + H^+ + 2e^- \leftrightarrow I^- + H_2O$
0,49718	+/- 0,497	$CO + 6H^+ + 2e^- \leftrightarrow CH_4 + H_2O$
0,49718	+/- 0,49	$I O^- + H_2O + 2e^- \leftrightarrow I^- + 2OH^-$
0,24859	+/- 0,25	$I O_3^- + 3H_2O + 2e^- \leftrightarrow I^- + 6OH^-$
0,12429	+/-0,12	$CO_2 + 2H^+ + 2e^- \leftrightarrow CO + H_2O$

Electromotive force		Electronic reactions
φ383	φ°	reversed withT_{op}723K
2,99780	-/+ 2,01	$2S O_4^{2-} - 2e^- \leftrightarrow S_2 O_8^{2-}$
0,99890	-/+ 0,99	$H_2O + I^- - 2e^- \leftrightarrow H I O + H^+$
0,49945	-/+ 0,497	$H_2O + CH_4 - 2e^- \leftrightarrow CO + 6H^+$
0,49945	-/+ 0,49	$2OH^- + I^- - 2e^- \leftrightarrow H_2O + I O^-$
0,24972	-/+ 0,25	$6OH^- + I^- - 2e^- \leftrightarrow 3H_2O + I O3^-$
0,12429	-/+0,12	$H_2O + CO - 2e^- \leftrightarrow CO_2 + 2H$

Designations of an orientation of reactions: direct (→) and the opposite (↔)

As in a basis of self-organizing gear chemical transformations the mechanism the coherence electronic processes, on conditions of an interference mutually-matching their fluctuations [7], both the basic fashions, and settlement potentials corresponding to them laysφ723 ,φ673,φ443, φ363 are divided (shared) into discrete sublevels Electromotive force according to multiple value of a parameter about an interference ni, in the ratio:

$$\sum \varphi(I)^{Top} = n_i \varphi(I)^{Top} = n_i \varphi_i (I)^{Top}. \qquad (4)$$

Appropriate,catalytic the centers addition elements in considered (examined) conditions have a discrete number (line) of the resolved (allowed) power conditions and consequently are capable to making active selectively hierarchy of the convertible electrochemical reactions resulted from an example in tab. 1. Thus it is established, what the range of chemical transformations in system of greasing internal combustion engine can be expanded for the account catalytic additives, which at rather stable gradients of temperatures? T(r-s) = 80 K To much more effectively work as a package of firm connections [2,3]. However, application of those or other elements in quality the complexors and copolymers in gear technical the purposes will be justified only in the event that the metal-complex or polymer possesses the shortest time of "life" in a zone of contact and is abnormal low adhesion to materials gear parts. Therefore, the given properties organometallic connections are desirable and for predicting expediently theoretically.

According to the representations of quantum chemistry modelled by the equation energy-static of a condition of elements in transitive (resonant) complexes (1), both small time of "life", and low adhesion of metalloorganic connections is reached(achieved) under condition of high convertibility of formed connections (or catalytic the turnover metal promotors) that promoted by potentially minimal power barriers of chemical and adhesive communications(connections) on border of the phase unit. But those conditions are created, as a rule, in a transitive condition of substances at resonant the nature energy exchange , that is observed in excited ion-plasma and coherent environments which condition is modelled by the offered (suggested) mathematical device (1) - (4), dictating thermophysical conditions of realizing a resonant exchange:

$$\psi_r T_{q(E)} \Big/ M_{(E)} T_o = 1 \qquad (5)$$

The conceptual essence of these conditions will be, what probability of formation catalytic an element having weight MKE (E), at optimum temperature Top the activated complex MAK = (ψrκ. Top)2 it is defined (determined) by individual size of factor static of equilibrium it is phonon pulse interaction of atoms with a complex and depends on such parity (ratio) of optimum temperatures of process and a boiling point of the catalyst at which thermal thermo-phonon interactions of elements in a complex get resonant character.

In table 2 are submitted individual physics characteristics of practically tested catalysts with the pasckage of firm additives designed on (1) and (5), namely:ψrκ and the MAK for two temperature levels gear catalytic regeneration of motor oils, parameters the mass exchange ΔMob, the energy exchange Eob And exchange electrochemical potential Δφob representing phonon potentials φr – φs, at worker Tr 443 K and stabilization Ts363 K temperatures of oil or work potentials beings electromotive forces reactionary spent on convertibility of oxidation-reduction processes in mode gear catalytic regeneration of motor oils (see tab. 1). It allows on weight of known structure of substances in it to a theme of greasing internal combustion engine to calculate total heat exchange for certain time of its work.

Table 4. Characteristic parameters individual catalytic activity of basic chemical components with the pasckage of firm additives in formation of the complexes processes of technology gear catalytic regeneration of motor oils

Parameters:	Na	Sn	Al
M	22,98	118,69	26,981
T^q	1156,15	2893,15	2773,15
$K\psi_{rk}^{443}$	8,81163	18,180	4,31156
M_{AK}^{443}, EV	77,6449	330,5124	18,58963
ψ_{rk}^{363}	7,22091	14,8980	3,533220
M_{AK}^{363}	52,14154	221,9516	12,48364
ΔM^{ob}	25,5034	108,5608	6,10599
E^{ob}, EV	2040,272	8684,864	488,4792
$\Delta \varphi^{ob}$, EV	0,088446	0,376489	0,021175

The comparative analysis of settlement parameters in the expanded variant of tab. 2 allows to estimate catalytic advantages of various elements and to classify them on the activity during formation complex – coherent quasi-resonance structures, on catalytic "the turnover " in oxidation-reduction reactions and on the energy exchange abilities in the given temperature gradient. Elements Na resulted for an example, Sn and Al borrow (occupy) in a number (line) above the named activity rather prestigious place, as proves to be true their effective influence on functions gear catalytic regeneration of motor oils directly in working internal combustion engine{2,3].

Thus, theoretical research shows, what in system of greasing internal combustion engine it is possible to expand a range of chemical transformations by selection such catalytic additives, which at rather stable gradients of temperatures $\Delta T(r\text{-}s)$ = 80 K To more effectively work as a package of firm additives. Forecasting of chemical selectivity of such additives probably after definition for each element of individual exchange potentials as a matter of fact wave process $\Delta\varphi$obel (tab. 2) also is carried out by calculation of the sum of potentials of coherent exchange processes $\Sigma\varphi obco = \Delta\varphi obel.\eta i$ with subsequent comparison to normal or standard potentials of electronic reactions $\varphi°$ (tab. 3).

Table 5. A coordination of electronic reactions between catalytic elements of a package of firm additives

Additives	$\Delta\varphi i^{ob}{}_{el}$,V	η_i	$\Sigma\varphi^{ob}{}_{co}$,V	$\varphi°$,V	Electronic reactions
Na	0,08844	1	0,08844	+0,08	$S_4O_6^{2-} + 2e^- \rightarrow 2S_2O_3^{2-}$
Na	0,08844	4	0,35378	+0,354	$AgIO_3 + e^- \rightarrow Ag + IO_3^-$
Sn	0,37648	2^{-1}	0,18824	-0,185	$CuI + e^- \rightarrow Cu + I^-$
Sn	0,37648	8	3,01191	-3,02	$Ca(OH)_2 + 2e^- \rightarrow Ca + 2OH^-$
Al	0,02117	4	0,08470	-0,08	$S_4O_6^{2-} + 2e^- \rightarrow 2S^2O_3^{2-}$
Al	0,02117	16	0,33880	-0,33	$ClO_3^- + H_2O + 2e^- \rightarrow ClO_2^- + 2OH^-$
Al	0, 02117	128	2,71047	-2,714	$Na^+ + e^- \rightarrow Na$

Technological expediency of selection and use of the solid-phase catalytic additives as a package of various elements tosucced first - from necessity of activization as it is possible the greater number regenerative the processes, influencing on stabilization of quality of oils, second – from dissipation for function of convertible chemical reactions in conditions self organizing modular gear system, carried out due to integration of the electrochemical and thermophysical phenomena into a uniform coherent macro-system field of energy exchange . Specific correlations of physical and chemical properties testify typical addition elements and characteristic parameters gear system in analytically deduced (removed) equation of calculation discretely commensurable molar weights transitivequasi-resonance complexes and the radicals which are made active by various catalysts at corresponding temperatures on a condition (5):

$$\mathbf{M}_{AK}(Sn)^q_{(s-r)} = \eta_1\mathbf{M}_{AK}(Ca)^p_{(s-r)} = \eta_2\mathbf{M}_{AK}(Sn)^p_r = \eta_3\mathbf{M}_{AK}(J)^p_s = \frac{Q\ (Sn)^q}{\Delta T_{(r-s)}} = \eta_1\frac{Q\ (Ca)^p}{\Delta T_{(r-s)}} = \eta_2\frac{Q\ (Sn)^p}{T_r} = \eta_3\frac{Q\ (J)^p}{T_s} = \eta_4\mathbf{M}(OH). \quad (6)$$

As indexes q and p show, temperatures of boiling and fusion elements catalytic are initial at calculation thermo-phonon potentials on (1).

Typical laws (6) are a physical substantiation of computer algorithms of the aprioristic analysis gear catalytic activity addition and alloying elements in systems of greasing internal combustion engine, and also purposeful selection of firm additives for technology gear catalytic regeneration of motor oils.

As electrochemical and thermal processes in considered (examined) technology are functionally interconnected and are the basic saving resource and ecological factors in operational qualities internal combustion engine, the integrated problem (task) of forecasting self organizing modular gear system is reduced to accumulation of the exhaustive list catalyzed oxidation-reduction reactions (see by tab. 1,3) and to calculation of total potentials electrochemical (EV the mole -1) and thermal (K Kal •the mole-1) the energy exchange in full systems of greasing

$$\sum\varphi(Ei)^{ob}\rho = \sum\left[\mathrm{M}_K(E)\Delta T_{(r-s)}\right] = \sum Q(E)^{\Delta T} \quad (7)$$

Necessary recalculation molar parameters of weight and energy percent –weight the commensuration is convenient for making a method of machine adaptation of the settlement data to concrete system of internal combustion engine.

4. DATA TESTIFY TO THE EFFECTIVENESS OF TECHNOLOGY TO R.T.C.M.C. EN EXPLOITATION

A special cartridge "Troyler" (see the figure) is installed with the way of an oil flow for engines in the lubricating system of engine "KAMAZ 740".

At the time of the oil contact with the alkaline reagent it is necessary the reaction of oxydoreduction and the process of inhibition which have as a result to maintain qualities of oil necessary for the exploitation throughout a course of 100 thousand kilometers, the period during which one will not need more to change oil in the engine.

Components of the alkaline reagent, products of ageing (Sn, Al, Fe, Cu…) at the time of the contact with iodine in the alkaline medium pass in a state of colloidal solution which is spread, carried by the oil flow, on the surface subjected to friction, and forms an organometallic film producing an effect antifriction, anti-stripe and anti-corrosive.

The optimum maintained alkali index, this makes it possible to improve in a considerable way oil the capacity detergent and the degree of dispersion of this one.

The process and the technique suggested are patented and protected by the certificates from author.

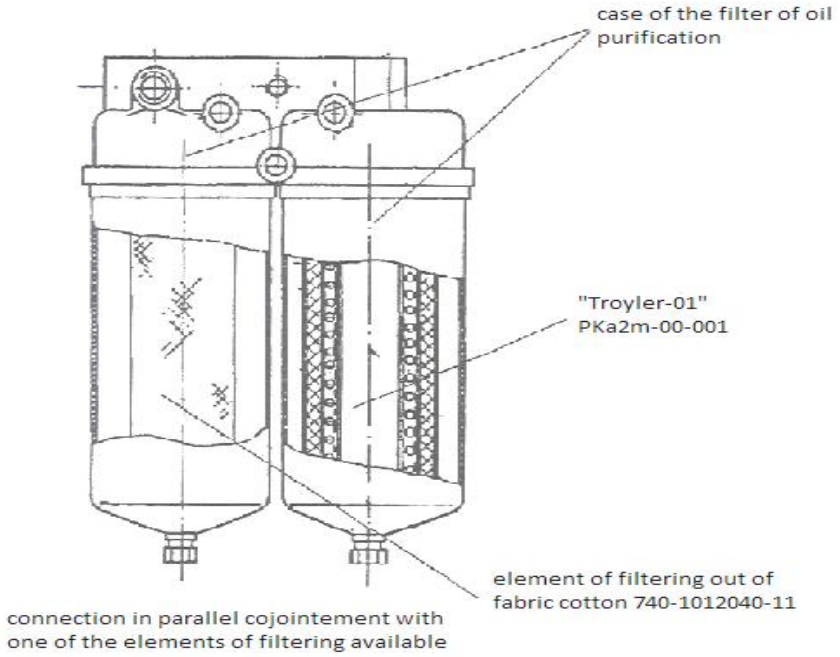
During the work of oil for engines along a course of the motor vehicle, this process makes possible:

- to decrease the rate of consumption of oil for essential engine for the exploitation, of 5 - 7 times and to lower the oil losses of 30 - 50%;
- to make increase the resource of the engine thanks to the decreased wear of 1.3 - 1.5 times in the couples of friction;
- to lower by 40 - 60% formation of the carbonaceous deposits of calamine and varnish on the details constituting the block of the cylinder and the piston.

PLAY OF DELIVERY

The play of delivery "Troyler" understands a body of entry, an alkaline reagent and essential materials of consumption to ensure the circulation of 100 thousand km course of the motor vehicle, as well as a filtering fabric cotton element

Body of entry of a tribochemical agent of reduction (TROYLER-01) installed in lubricating system of diesel engine "KAMAZ 740"



5. CONCLUSION

Thus, at the computer decision described the equations (1) - (7) the aprioristic estimation catalytic properties and qualitative selection of the firm additives alloying and soluble microcells is practically reached(achieved) the

quantitative analysis of power promoted by them of oxidation-reduction processes in real conditions of operation of motor oils, the subsequent integration of parameters the energy exchange in scales of system of greasing of anyone internal combustion engine, and as final procedure of construction of modular model the energy exchange and the mass transfer therefore the methodical base for long-term program the administration by a chemical compound and rheological properties of motor oils, thermal balance of engines is formed, and in a result - their motor potential and ecological advantages is carried out. The description of modular model of a thermal exchange and the mass transfer is a subject of the subsequent work.

6. NOMENCLATURE

R.T.C.M.C : tribochemical mode adjustable car and continuous walk
χ : constant
λ2K : probability the coherence wave processes
Mκ(E) : weight of elementary sources of coherent fluctuation;
Tf, To : temperatures of phase transition catalytic an element (E) and optimum for (its) activation,
i, j : factors the coherence oscillatory processes;
Qf : potential thermo-phonon power (force) fields to answer values tf, top, i and j;
φ : potentials being electromotive forces of electrochemical reclaiming processes;
ρ :factor of equivalence of thermal and electromagnetic energy.
Qr : heat of reaction (work thermo-phonon fields);
MKE, Mpr : weight catalytic an element and a product of reaction;
Cv : molar a thermal capacity;
Tq, Tkr : temperatures of boiling and critical;
C : speed of light;
h : Planck's constant;
λE :a wave equivalent of electronic transition;
ZKE : a serial number catalytic an element;
r1... r2 : radiuses different-valence catalytic ions;
μ : the molar fraction of the activated catalytic element ;
ρ, υ, φ : Factors of a commensurability of energy
η :step-type behaviour thermo-phonon fluctuations

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