THERMAM 2016

3rd International Conference on Thermophysical and Mechanical Properties of Advanced Materials

1 – 3 SEPTEMBER 2016

Izmir / Turkey

Porous and Powder Materials Symposium and Exhibition

Organizers:

Dokuz Eylul University
Department of Mechanical Engineering
Izmir - Turkey

University of Rostock
Institute of Technical Thermodynamics
Rostock, Germany

Azerbaijan Technical University
Department of Heat and Refrigeration
Bakü - Azerbaijan

materials to maintain their stability at high temperatures (up to 100 ° C) and low (down to minus 30 ° C) temperature and humidity of the environment and the impact of any environmental factors, pressures up to 2.5 MPa and sliding velocities up to 5,0 m /s.
Called on test in working conditions bearing slides from composite wood-polymeric material has shown that, using them in nodes of friction worker organ of the machines and mechanism will allow vastly to raise double resource of their work, as well as will allow to raise reliability and capacity to work of the machines, working in condition of friction and wear-out.

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Properties of Antifrictional and is Antifriction-Wear Proof Composite Polypropylene and Polyethylene Materials

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Abstract: Are designed aitifriktsionno - wearproof polypropylene and polyethylene compositions of functional purpose for working bodies of the cotton cars and mechanisms providing functionally important physicomechanical, triboktekhnichesky and operational properties of the composite polymeric materials working in the conditions of interaction with cotton raw. They quite meet the functional requirements imposed to materials of details of the rubbing couples of working bodies of the cotton cars and mechanisms used on procuring points and the cotton-processing plants.
To use developed composite polymeric materials as materials for details of the rubbing couples of working bodies of cotton cars and mechanisms, in the conditions of frictional a between effect of with cotton - a raw leads to increase of productivity of cars for of 12-16% and a lower of power consumption for of 7-18%, damages of cotton fibers and broken up of seeds, and also eliminations of possible fire of a cotton-raw and education having reeled up fibers on surfaces of composite details.
Keywords: composition, polypropylene composition, polyethylene composition, composite polymeric material, ant frictional material, ant frictional and wear proof material, property, physic mechanical properties, tribotechnical properties, cotton raw.
When developing polymeric composite materials by the most important the choice of material and fillers is. This choice is carried out taking into account purpose of material: for anti-frictional material is a low coefficient of friction with cotton raw in various service conditions; for the wear proof – the minimum wear, and the low coefficient of friction and low wear ability of material at friction with cotton raw are necessary for ant frictional and wear proof composite material. The friction of cotton raw with composite material has the difficult nature. At friction influence the mechanism of interaction of these bodies both molecular, and mechanical process. Specifics of the contacting bodies are caused by emergence of electrostatic forces. Proceeding from it, it is established that the friction of cotton raw with composite material has molecular

mechanical and the electric nature. These results allow is directed to change and regulate properties of materials, providing their compliance to requirements imposed to the composite polymeric materials working at interaction with cotton raw.

Thus, for creation of composite materials of anti-frictional appointment it is necessary to seek for increase of durability of material, decrease in temperature and reduction of size of a charge of static electricity in a friction zone. And when developing composite material of anti-frictional and wear proof (AW) appointment it is necessary to consider requirements of the minimum values of coefficient of friction and intensity of wear.

These tasks can be solved by different introduction of fillers, including systems of hybrid fillers. When developing composite materials as fillers graphite, soot, a kaolin, talc, fiber glass were used, wollastonit also cotton lint. However each of them has the shortcomings and advantages. By pilot studies it is established that fiber glass, wollastonit and cotton lint increase coefficient of friction and reduce intensity of wear. Graphite, soot, a kaolin and talc reduce friction coefficient, but increase wear ability of composite materials, and also improve warm and conductivity and, thereby, reduce temperature and size of a charge of static electricity, the contacting couples arising in a zone of friction. And, efficiency of these fillers, especially fibrous, is considerably shown at their smaller contents, that is at the smaller content of fiber glass intensity of wear considerably decreases, and at further increase in their contents intensity of wear of composite materials reduces a little decreases, but the friction coefficient sharply increases. The most effective decrease in coefficient of friction of composite materials with cotton raw is observed at introduction of soot and graphite.

Table 1

Properties of antifrictional and is antifriction-wearproof composite polypropylene and polyethylene materials

Indicators	Composite polymeric materials					
	APEC-1	APEC-2	AWPEC	APPC-1	APPC-2	AWPPC
Breaking point at a bend,MPa	40,3	42,6	49,0	105,0	115,2	112,5
Impact strength, kJ/m^2	20,3	25,7	32,4	112,4	117,5	125,4
Hardness on Brinell, MPa	66,4	70,5	62,4	92,5	97,5	89,3
Elasticity module at a bend, GPa	0,75	0,78	0,90	1,81	2,05	2,0
Friction factor, f	0,27	0,28	0,31	0,25	0,26	0,28
Intensity of wear, $I \cdot 10^{10}$	5,4	5,2	4,0	2,7	2,5	2,45
Temperature in friction zone, K	315	310	*308*	314	300	303
Value of charge of static electricity, $Q \cdot 10^{-7}$, Kl	22,2	19,3	15,1	18,4	16,1	16,2

The note: values I and f at P = 0,02 MPa, V = 2,0 km/s; AWCPM are obtained on the base of additives and polymer binders on thermal extruder mixer. R-specific *pressure, V-speed of sliding, W-humidity of cotton raw.*

On the basis of the aforesaid, us antifrictional and wear proof composite materials on the basis of polyolefin's – a polyethylene of the high density (PEVP) and a polypropylene (software), in the established their optimum ratios providing functionally important physic mechanical, tribotechnical and operational properties of the composite polymeric materials working in the conditions of interaction with cotton raw. And they possess high anti-frictional properties and wear resistance in comparison with steel.

Strength and tribotechnical properties of developed anti-frictional polyethylene (APEK) and the polypropylene of compositions (APPK), anti-frictional the polypropylene of compositions (AIPPK) are given in the table.

The main strength properties of samples (the destroying stress at $\wp$ bend, the elasticity module at a bend of (E), impact strength and, hardness of (HB) are determined by Brinell by the standard methods - state standards. A complex of tribotechnical properties (coefficient friction f, intensity of wear) compositions at interaction with version cotton raw Tashkent-3, the 1st grade, machine collecting, humidity of 8,2% are defined on a disk tribometry.

Apparently from the table, properties the polyolefin of composite polymeric materials quite meet the functional requirements imposed to material of details of the rubbing couples of working bodies of cars and mechanisms of a cotton complex main of which the technologic and profitability of the used material are, effective decrease in damageability of cotton fiber and seeds, an exception of accumulation of static electricity, having reeled up fibers on surfaces of kolok and a spark at impact with the solid bodies which are in cotton raw.

Details of the rubbing couples of working bodies of the giving mechanism, a mobile loading crane of cotton, a telescopic tunnel formative, the tunnel car, a revolts of cotton and were made of the developed composite polymeric materials of a feeder, the plants used on procuring points and the cotton cleaning at acceptance, transportation, dismantling and supply of cotton raw in the subsequent technological installations.

To use developed composite polymeric materials as materials for details of the rubbing couples of working bodies of cotton cars and mechanisms, in the conditions of frictional a between effect of with cotton - a raw leads to increase of productivity of cars for 12-16% and a lower of power consumption for 7-18%, damages of cotton fibers and broken up of seeds, and also eliminations of possible fire of a cotton-raw and education having reeled up fibers on surfaces of composite details.

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