

NANOMATERIALS IN MECHANICAL ENGINEERING

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The methodology of formation of the functional materials on metal and polymeric matrixes for manufacturing the completing products used in autotractor engineering industry surveyed.

For pinch of an operational resource of the relative frame conjugations the gamma of composite materials on polymeric matrixes, the modified designed by builders of a various composition and a dispersity. At introduction dope additives low dimensional the particles having not compensated charge it is provided synergetic effect of pinch strengthening, tribotechnical and the adhesiveness performances. The effect is caused by formation in periphery nanoparticale quasicrystalline the transition stratum under activity of an electric field. The charge nanoparticale can be generated as a result of special technological action (mechanical, tribochemistry, temperature, etc.) or it is caused crystal chemistry by a structure of a half stuff. At use of technology of comprehensive squeeze composite materials on basis high-viscosity polymeric matrixes with exponents of toughness and wear-resistance in 2-3 times surpassing exponents of materials of the analogous composition received by traditional methods are received.

There are developed compositions abrasive stability composite materials for the relative frame sealings automobile assemblies on a bottom basis thermoelastolayer, the modified nanodispersible designed by particles of geosilicates.

Presence high dispersible the modifier provides formation of a spatial grid of physical lacings in a thermosoftening plastic material. Due to this the composite gets tribotechnical the performances which are not yielding to matrixes on the basis of vulcanized elastoplastics. Thus adaptability to manufacture of manufacturing and processing raises due to use of the process equipment for pressure casting and multistation equipment.

The technology of formation of the functional coats on polymeric and oligomeric matrixes with application gas-thermal streams and an electrostatic pulverization designed. Tribotechnical and protective covers have high wear-resistance, the adhesiveness toughness in joints with metals and allow to maintain knots of friction and a construction in requirements of action of abrasive mediums, corrosion active mediums, vibrations and reversal loads.

Designed materials are used for manufacturing automobile assemblies: brake cabinets of absorbers, drive lines.