

USE OF COMPOSITE POLYMER MATERIALS IN MODERN AUTOMOBILES

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Abstract: In the article modern automotive industry in the industry composition polymer from materials of use importance , their physical-mechanical properties , traditional metal to materials relatively advantages and car in the construction application sectors analysis Also , the composition of polymer vehicles weight reduce , fuel thrift increase , corrosion endurance improve and ecological security in provision place illuminated .

Key words: composition materials , polymer composites , automotive , carbon fibrous composites , fiberglass plastic , lightweight constructions , ecology , fuel thriftiness .

World automotive industry industry development modern in the phase of cars technical , economic and ecological indicators improve important from tasks one is considered . Car of mass increase fuel spend to increase , to the atmosphere removable harmful gases amount to increase and the vehicle general efficiency to decrease take comes . That's why car working producers light , strong and far term service doer from materials to use separately attention is looking .

Such materials between composition polymer materials important place They occupy . high strength , low density , corrosion resistance endurance and working release technology flexibility with separated It is currently on the day of the world leader car working producers car body , interior elements , bumpers , doors panels , hood , roof section and other constructive elements in preparation composition polymer from materials wide is using .

Composition materials two or from it more than components from the merger harvest to be , their every one alone without has not been new to properties has Polymer in composites main structural parts the following is :

- Polymer matrix ;
- Strengthening fibers ;
- Fillers ;
- Modifier and stabilizers .

As a reinforcing material often fiberglass , carbon fibers and aramid fibers applied . Matrix as and epoxy , polyester , vinylester and thermoplastic polymers is used .

Composition polymer materials following to the advantage has :

- Density lowness ;
- High comparison strength ;
- Corrosion endurance ;
- Vibrations swallowing ability ;
- Heat and electricity insulation ;
- Complex shapes harvest to do opportunity ;
- Far service deadline .

Composition polymer of materials to metals relatively to the advantage has . Traditional in the automotive industry steel and aluminum alloys main construction

materials calculated . However composition polymers to them relatively one row to the advantages has .

First , composite of materials density 4–5 times more than a steel bar less mold , construction mass noticeable at the level reduces . As a result of the car acceleration features improves and fuel expense Second , composites to corrosion Metal details moisture , salt and chemical substances under the influence rusts , composite polymers and such to environments relatively high to endurance Third , composite materials blow energy effective wins . This is road traffic accidents on time security level to increase service Fourth , composition polymers complicated geometric shapes preparation opportunity gives . As a result working release stages number shrinks and product price tag decreases .

Modern in cars application sectors various different . Today on the day composition polymer materials of the car almost all in parts is being used . Car body of mass big part organization It will . That's why for body in the elements carbon fibrous and fiberglass from composites use car up to 20–40 percent of its mass reduce opportunity gives . Bumpers high to the blow resistant polypropylene based on from composites This is prepared . materials light to be with together high It also has elasticity . Salon elements and front panel, door covers , seat carcasses and decorative elements working in the release various kind polymer composites These materials are used car salon aesthetic appearance improves and general mass reduces.

Electricity cars in the construction applies polymer materials . Electrical in cars batteries big to the weight has that was because of light from materials use especially important . Composition polymers using of the car general weight decreases and one charge with pressing passable distance increases .

Engine department elements - radiator caps , fan housings , air filter bodies and other many elements to the heat resistant polymer from composites is being prepared .

Composition polymer from materials use of vehicles ecological indicators to improve service does . Car of mass decrease fuel spend to decrease take comes . As a result carbonate dioxide (CO₂), nitrogen oxides (NO_x) and other harmful substances emission decreases . Electricity in cars and composite materials energy efficiency increasing , battery charge farther preservation This provides the means of transport . ecological safety further increases . Economic point of view from the perspective of , composite of materials service deadline far to be , to corrosion not to occur because of repair and technician service expenses reduces .

Nanocomposite materials , carbon nanotubes and graphene based on new generation polymer composites automotive industry promising from directions one This is materials high strength , warmth conductivity and electricity properties has become , future of cars technician indicators further improve opportunity gives . Artificial intellect and digital modeling technologies development composition materials the composition to optimize and new materials create process to accelerate service is doing .

Conclusion and suggestions: Composition polymer materials modern automotive industry industry inseparable to the part around They are going . lightness , high durability , corrosion resistance endurance and ecological advantages of cars technical and economic indicators noticeable at the level improves . Especially electric vehicles developing current in the period composition polymer of materials importance further increasing is going on . In the future new generation composites creation automotive industry industry further develop , energy economical and ecological safe vehicles working to release wide opportunities creates .

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