

PROGRESSIVE TECHNOLOGY RESOURCE AND ENERGY CONSERVATION AT MANUFACTURING OF PRODUCTS FROM RECYCLED MATERIALS

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Relevance of the work due to the fact that the use of waste rubber industry in the main production is the best option in solving numerous measures to save raw materials and environmental protection, and work in this direction is promising.

Objective: To study was the possibility of creating polymer composites based on waste rubber industry.

Methods: rotational viscometer, vibration rheometry, mechanical properties (elastic and strength properties, tear strength, abrasion resistance and abrasion opposite, Shore A hardness).

Results: Rubber crumb rubber is one of the processing products of secondary raw rubber (rubber waste, including old tires). The main raw material for production of rubber crumb is worn out tires, as more than half of the rubber produced in the world is used in the manufacture of tires. Shredded tires as crumb are widely used

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The use of crumb rubber of this fraction allows to obtain elastomeric compound having good physical mechanical properties. Sample number 3 has the best properties. A wide variety of rubber products for different

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purposes can be produced on the basis of these composites. The investigation of the crumb size effect on the the deformation properties of the composites showed that the use of larger particles results in a substantial reduction in elongation at break as compared with smaller particles (table).

The reason for the negative impact of large size particles on the deformation properties of composite materials, is probably insufficient strength of connections in the system "polymer — polymer"; and that is probably adsorption of plasticizers and softeners occurs on the surface of large crumbs that in turn, negatively affects the properties of the polymeric material.

conducted a study on the possibility of cheaper polymer compositions due to full or partial exclusion of their composition rubber, t. E. Realized the possibility of manufacturing polymer compositions based on waste rubber industry.

Table. Recipes of elastomeric compositions using rubber crumb

Names of Parts	Samples. the mass fractions of 100 mass fractions of rubber				
	1	2	3	4	5
Rubber	225,5	225,5	225,5	225,5	225,5
Rubber crushed (fraction 0,2—1,0 mm) / (fraction 1,0—2,0 mm) / (fraction 2,5—4,0 mm)	90,0	100,0	110,0	120,0	130,0
Physical and mechanical properties of the compositions					
Tensile strength, MPa	1,8/1,6/1,4	2,1/1,8/1,58	2,7/2,4/2,1	2,3/2,1/1,7	2,2/1,9/1,6
Shore A hardness, units Shore A	70/70/60	75/75/64	80/80/68	80/80/68	80/80/68