

Materials of Conferences

**TO THE QUESTION
ON THE ECOLOGICAL SAFETY
NANOMATERIALS , APPLIED
IN BUILDING**

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Development nanosciences and nanotechnologies has come nearer to a stage connected with necessity of their wide application in all branches of a national economy., the analysis of modern lines of introduction of new building technologies and materials in economically developed countries of the world allows to assert that materials and the technologies received on the basis of achievements and workings out in area nanotechnologies become a basis of dynamical introduction in practice the next 10–20 years. Under forecasts of scientists-economists, by 2017 the market volume

нанотехнологий in universal industrial production can exceed 1 bln. euro.

The most perspective nanotechnologies, suitable for manufacture of building materials are: activation (structurization) of water; crushing of initial materials and raw materials; manufacturing the nanodisperse armatures; using various nanomodifiers.

Nanomodifiers – these are additives, for strengthening of those or other physical and chemical properties building nanomaterials, allowing not only to lower quantity of used building materials, but also to raise thus their technological and operational characteristics, for example durability, reliability, peremiality.

The most widespread nanomodifiers are fullerenes, astralens, fulleroids, single-layered and multilayered carbon nanotubes, nanoparticles etc.

However, except brilliant technological, economic and operational characteristics nanomaterials possess the complex of physical, chemical

In table 1

Material	The Ecological characteristic
Concrete	Is harmless at observance of safety rules
Nanoconcrete	It is harmless at observance of safety rules
Fibre	It is safely at observance of service regulations
Nanofibre	It is safely at observance of service regulations
First coat	It is unsafe
Nanofirst coat	It is less ecologically dangerous
Wood	It is safe
Nanowood	It is safe
Glue (gel)	It is unsafe
Nanoglue	It is less ecologically dangerous
Paint	It is unsafe
Nanopaint	It is less ecologically dangerous
Varnish	It is unsafe
Nanovarnish	It is unsafe
Plastic	It is ecologically dangerous
Nanoplastic	It is safe

properties and biological action, which are caused by increases the chemical potential substances on interphase border of high curvature, the big specific surface, high adsorbzion and heat-sink ability. It all conducts to accumulation nanomaterials in vegetative, animal organisms, and also microorganisms, transfer on a food chain that, thereby, increases their receipt in a human body. The review of the literary data, has shown (only 2% of the published researches problems of risks for health and environment from outside products of daily demand) concern that for today practically are absent or the authentic data concerning influence nanomaterials and nanoparticles on genotoksichnost, the hormonal and immune status, teratogennost, embriotoksichnoct, mutagenost and carcinogenicity is inaccessible.

In table 1, the results of the analysis of ecological characteristics of building materials and nanomaterials. The basis of accessible information sources are pre-sented. The comparative analysis of ecological characteristics of building materials and nanomaterials.

Though for today the scope nanotechnologies in building is not wide enough, nevertheless, using nanoconcrete, nanopaint etc., does building materials more effective, according to the destination. However it is obviously, that some building nanomaterials can represent the dager for people's and for environment. In this connection it is necessary to establish a duty for manufacturers to inform on presence nanomodificats in the building materials and to forbid use defined nanomaterials which danger exceeds their advantage.

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