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ICSP & AM 5

კავკასიის მეხუთე საერთაშორისო სიმპოზიუმი
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Fifth Caucasian International Symposium
on Polymers and Advanced Materials

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2-5 ივლისი

Welcome

Dear Colleagues,

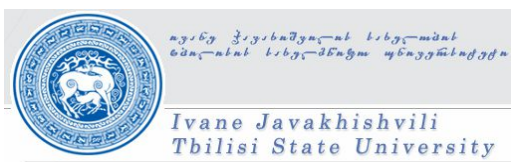
On behalf of the Organizing Committee I wish to extend cordial welcome to all participants of the 5th International Caucasian Symposium on Polymers and Advanced Materials. Ten years ago, 2007, this symposium took place in Tbilisi, Georgia. We are delighted to host you in this year in very beautiful Georgia

The purpose of the conference is to encourage scientists working in polymer chemistry and advanced materials to present their investigations dedicated to problems and discoveries in above mentioned fields. Also "ICSP&AM 5" will help to introduce effectively innovative scientific researches of Georgian, Caucasian and neighboring scientific teams, which are less known for world scientific society.

We hope that this year meeting, gathering almost 120 participants, shall provide a good platform for academic and industrial scientists to discuss recent advances in the area of polymers and advanced materials.

Professor Omar Mukbaniani

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TECHNOLOGICAL PECULIARITIES OF THE OBTAINING THE EPOXY-AMINE COMPOSITES WITH SUPPRESSED COMBUSTIBILITY

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At the present time, the polymer composite materials on the basis of epoxy resins hold much promise and competitiveness. Wide application of the epoxy polymer materials in different areas of industry is specified by a whole spectrum of enhanced properties. Nevertheless, the high growth rates of industrial production are constantly putting forward new claims to the quality to the composite materials to provide the high operating characteristics of goods on their base. The using the already known and prevalent epoxy composites are not able to provide the polymer materials by indispensable properties to the full. In many cases the limited utilizing the polymer matrix on the basis of epoxy composites is specified by insufficient thermal stability, flame resistance and augmented fire risk.

That is why, the making the scientifically well-grounded approaches for the elaborating the new modified epoxy-composites and the efficient technology of the preparing the fire-safe materials on their basis is the vitally important necessity. It foresees the searching the new chemical agents which would be able not only to efficiently suppress the combustibility of the epoxy-amine composites, to well combine with polymer, not to worsen the physical-mechanical properties of materials, but also to be nontoxic, accessible and relatively cheap. Whereupon, the fire-retardant influence onto the technological peculiarities of the obtaining the composite material and its remaking into goods must be taken into consideration.

The elaborated available synthesis method of the epoxy-amine composites with suppressed combustibility provides for the using the copper(II) chelate complexes as a fire retardant-hardener for the epoxy *diane* oligomers. The copper(II) chelate complexes have been obtained by means of crystallizing the mixture of amine curing agent of epoxy resins – *polyethylene-polyamine* and of inorganic cupric salt. The synthesized fire retardant-hardeners do not need an after-treatment, purification or dehydration and practically not influence onto composites shelf life. The obtained composites survive fluidity over a period of 3 h.

The final curing the epoxy-amine composites in chelate complexes presence has been happened during 24 h. at room temperature. It is necessary to note that after adding the crystalline complexes the epoxy-amine composites acquire dark-blue or green-blue color.

The introduced method provides for the obtaining the structurally homogeneous, surface-glace and aesthetically attractive materials.

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