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# Elaboration of new types fire-protective covers based on environmentally safe fire extinguishing powders

**Lali Gurchumelia[1], Murman Tsarakhov[2], Salome Tkemaladze[2], Feliks Bejanov[2]** and **Lasha Tkemaladze[3]**
[1]Institute of Inorganic Chemistry and Electrochemistry, Georgia
[2]Tbilisi State University, Georgia
[3]G Tsulukidze Mining Institute, Georgia

The aim of the presented investigation is the development of technology for production of new types, environmentally safe fire-protective covers on the basis of halogen-free, highly efficient composite fire-extinguishing powders of local mineral raw materials. The technology for production of these materials differs from the conventional production. It is imply and is not associated with significant economic costs, which is reflected in the low cost price of materials. Fire-protective covers we made only by mechanical mixing of binders - polyurethane resins and fillers. High-dispersed fire-extinguishing powders of our preparation, does not need addition of expensive, phosphorous and halogen-containing flame retardants. Such fire-extinguishing powders are manufactured by mechanical treatment and blending of local mineral raw materials, which does not require modification with expensive, halogen containing, organic hydrofobizing additives, what makes the extinguishing powders far cheaper than imported analogues. Here it should be noted, that obtained fire-extinguishing powders similarly of efficient flame retardants, are characterized by high inhibition properties and fire-extinguishing ability. Therefore, such powders we used as fillers, which in composite fire-protective materials are functioning, in itself, as efficient inert flame retardants. Mentioned fillers, similarly to serial inert flame retardants, don't participate in the process of polymer preparation and in contrast to them are characterized by high performance properties. Experimental data confirm that the developed fire-protective covers by fire-resistance are qualified as hardly combustible materials and their performance properties are not worse than performance properties of the standard protective materials of common production. Thus, such fire-protective materials are environmentally-safe, very effective and far cheaper than imported analogues. Therefore they are fulfilling completely requirements posed by normative documentation to the materials used in building processes.

## Biography

Lali Gurchumelia, chemist, doctor of Technical Sciences. She is working in TSU Rafael Agladze Institute of Inorganic Chemistry and Electrochemistry (Georgia). The scope of scientific interests: chemical science, chemical engineering, ecological engineering, ecological biotechnology. She has 55 publications, including in the Infactactatorial Journal -12. Last 10 years she participated in 5 scientific grant. Currently she is a manager of the grant # 216770-"New type fire-extinguishing powders and foam-suspensions based on local mineral raw materials" funder of the National Science Foundation. She had participated in many international conferences and congresses: Nurnberg, Germany; Toledo, Spain; New Forest, UK; Montreal, Canada; Istanbul, Turkey; Elenite Holiday Village, Bulgaria; Rome, Italy; Paris, France; Yerevan-Vanadzor; Tbilisi, Georgia and Ureki, Georgia. She has many years of experience in the study and evaluation of fire–extinguishing and fire- protective materials.

gurchumelia@yahoo.com

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