

June 14-15, 2018  
London, UKArch Chem Res 2018, Volume 2  
DOI: 10.21767/2572-4657-C2-006

## ELABORATION OF NEW TYPES ENVIRONMENTALLY SAFE FIRE-EXTINGUISHING POWDERS AND ESTABLISHING THE CONDITIONS OF EXTINGUISH OPTIMUM AND EFFECTIVE USE OF SUCH POWDER

**Lali Gurchumelia**

TSU Rafael Agladze Institute of Inorganic Chemistry and Electrochemistry, Georgia

The aim of the presented investigation is the development of technology for production of novel, halogen-free, environmentally safe, highly efficient fire-extinguishing powders based on local mineral raw materials, which does not require modification with expensive, halogen-inclusive, hydrophobizing additives, providing low-cost production of fire-extinguishing powders in comparison with imported analogues. The optimal dispersity was selected in such way, that caking capacity be minimal and a homogeneous action of combustion products on the flame as of powder efficiency is carried out with consideration of the both effects. Experimental data confirms that the developed fire-extinguishing powders are characterized with high performance characteristics, as well as high fire-extinguishing capacity. At the same time it should be noted, that the efficiency of the obtained powders is practically the same as of standard imported powders, but do not contain any halogens, is environmentally safe and 1.5-2 times cheaper than the imported

analogues. For obtaining powders, the conditions of extinguish optimum and effective use of powder are stated. Optimum extinguishing condition means the selection of optimum intensity of powder supply into seat of fire when minimum consumption of powder provides fire extinguishing in minimum time. Thus, in order to determine optimum conditions of extinguishing it is necessary to study the dependence of powder specific consumption and extinguishing time to supply intensity. For our powders optimum condition of extinguish is: powder supply intensity 1-0.6-1.0 kg/m<sup>2</sup>sec to fire center when powder specific consumption does not exceed  $G=0.8-1.2$  kg/m<sup>2</sup>. Therefore, we can surmise that the use of fire-extinguishing powders of our preparation is possible at extinguishing of all types of fires over ground, as well as, underground constructions and does not need additional antiseptic measures.

L\_gurchumelia@yahoo.com