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ADVANCED CERAMICS AND APPLICATION IV
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
School of Electrical Engineering and Computer Science of Applied Studies

PROGRAM AND THE BOOK OF ABSTRACTS

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Correlation between crystal structure and thermal stability of fire protection coating

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Fire protection coatings on steel constructions for outdoor conditions on the basis of organic solutions have been analyzed. The first layer of coating is corrosion protection, alkyd paint „PROTHERM STEEL PRIMEPOX“ manufacturer „ITALVIS PROTECT“ Italy. The second layer of coating is an expanding coat for outdoor conditions „PROTHERM STEEL (EXT)“ solvent-based, „AMONNFIRE“ Italy. The third layer is final colors for metal „AMOTHERM STEEL TOP PU SB“ „AMONNFIRE“ Italy. XRD, DTA/TG and FTIR methods were used for sample characterization. It was found that primary and outer layer had very good adhesion. The second layer, for fire protection possesses 2.5 mass % humidity, which resulted in decrease of adhesion. XRD and FTIR analysis showed that those materials are adequate materials for fire protection up to 1000 °C. Principles of fire protection are based on chemical reaction that are taking place in the temperature range 400-700 °C.

Characterization and current–voltage characteristics of solar cells based on the composite of synthesized Sb_2S_3 powder with small band gap and natural dye

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Recently, we have reported the synthesis and optical and electronic properties of Sb_2S_3 nanowires with small band gap. In order to prove that the synthesized nanowires can be considered as a candidate material for solar cells and in order to obtain $I-V$ characteristics, two very simple cells based on synthesized Sb_2S_3 nanowires/natural dye composite were fabricated. Exponential growth of the $I-V$ curves after illumination revealed that the cells could work as electricity generators. A better current response was observed for the cell made of synthesized powder with smaller band gap. The efficiency of the cells is quite low, but this was an attempt to create a solar cell in order to better understand the properties of the synthesized Sb_2S_3 semiconductor and the processes that occur in the cell.