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**Laminated, composite and sandwich films (membranes) based on graphene-oxide with nano-textiles****Petra Roupčová, Karel Klouda, Lucie Gembalová, Eva Kuzelová-Kostalová and Jiri Chvojka**

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This study describes preparation of Graphene-Oxide (GO) suspensions and their hybrid compounds, GO-biochar, GO-C<sub>60</sub>, GO-CF<sub>0.9</sub>, which are subsequently applied to nano-textiles using various techniques. This method was used to prepare composite and sandwich-type films or laminated nano-textiles. GO, GO-biochar and biochar were suspended in a suitable oligomer. Nanofibres (nanotextiles) were then formed using the electrospinning method with the content of the given fiber computations. Physical changes of these fibers were tested. PP fibers made of melt blown technology were doped with powdery GO, GO-biochar and biochar. After application of the cover layer were tested for filtration and adsorption capabilities-aerosol penetration. Relative arrangement in product (film) cross-sections was identified in products prepared using SEM analysis. Thermal stability of the products was determined using DTA, DSC analysis and compared to the stability of the nano-textiles. Chemical properties of GO allow several its modifications, partial reduction, creation of composites with metals and their oxides. Preparation and thermal analysis GO-TiO<sub>2</sub>/PCL/GO-TiO<sub>2</sub> has been described as an example. The conclusion of the project suggests possible application of the products (films).

**Biography**

Petra Roupčová is a PhD student from Vysoká škola báňská-Technical University of Ostrava, Czech Academy of Science and J. Heyrovský Institute of Physical Chemistry, Czech Republic. The main field of her research is monitoring of ecotoxicity of nanomaterials based on graphene.

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