

## **Functional polymer-based hybrid materials for electromagnetic radiation shielding and the problem of their durability and material recycling**

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At the actual stage of civilization's development, we face the problem of protecting ourselves from unwanted electromagnetic pollution. Protection from excessive radiation of this type requires the use of appropriate functional materials. One of the most recently developed approaches is the use of textile-based screening materials, for example made of polyamides, with metals additions in the form of fibers or nanoparticles. The effectiveness of EM radiation protection with the use of silver is especially analyzed in this contribution. On the other hand, the problem of reusing this metal, in the process of recycling, is outlined. In particular, we try to clarify whether there is a relationship between the structure of materials, optimized for shielding application, and the possibility of effective recycling of materials after their service life.