ANTIMICROBIAL HYBRID MATERIALS BASED ON NANO AND SUBMICRO BIOACTIVE OXIDES AND METALS

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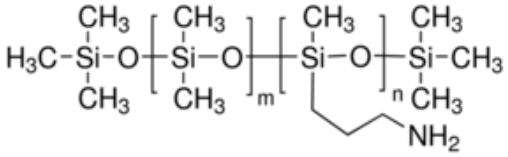
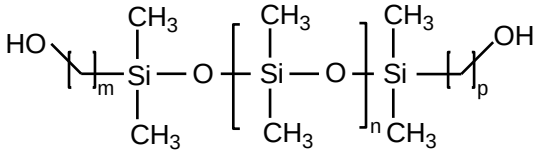
As a basic polymeric matrice for targeted hybrid materials polyurethane obtained by interaction 4,4-dimethylmethanediisocyanate with oligobuthyleneglycoladipinate by equimolar ratio foreseeing its physical, adhesive and presumable tribological properties have been chosen.

For modification of selected polyurethane oligoorganosiloxanes containing side functional groups (amino- and hydroxyl groups) at silicon atoms have been used. Namely:

a) Poly[dimethylsiloxane-*co*-(3-aminopropyl)methylsiloxane:



b) Bis(hydroxyalkyl)oligodimethylsiloxane:



Based on above mentioned modified polymeric matrice and bioactive components (nano and submicro Sb_2O_3, As_2O_3 ZnO and Ag) inorganic-organic antimicrobial hybrid composites have been elaborated.

The thermo physical (DSC, TGA analyses) tribological (resistance towards scratch, dynamical friction and wear), hydrophobicity and surface morphology of the obtained inorganic-organic antimicrobial hybrid materials have been studied.