Feedback-active coatings based on nanocontainers with sensitive polyelectrolyte shell

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Development of a new generation of multifunctional coatings, which will possess active and rapid feedback activity in response to changes in local environment, is a key technology for fabrication of future high-tech products and functional surfaces. These new multifunctional coatings should combine passive components inherited from "classical" coatings and active components, which provide fast response of the coating properties to changes occurring either in the matrix of multifunctional coatings (e.g., cracks, local pH change) or in the local environment (temperature, humidity). Recent level of the surface science and technology shows new opportunities for fabrication of active feedback coatings through the integration of nanoscale containers loaded with the active compounds (e.g., inhibitor, lubricant) into coating matrix (e.g., sol-gel, pigment) thus designing completely new coating systems of the "passive" host - "active" guest structure. As a result, nanocontainers are uniformly distributed in the passive matrix keeping active material in "trapped" state.

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