

New Polymer Coatings for Anticorrosion

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Most of the recent advances in polymer chemistry are related to energy and biomedical applications. Polymers allowing for the controlled release of active substances on demand were developed so that a precise amount of drugs can be delivered at the right time and place.

Inspired by these developments, we investigated the use of smart polymers and nanomaterials for anticorrosion properties. Our laboratory explores two different strategies for the controlled release of corrosion inhibitors in coatings. The first strategy relies on the preparation of nanocontainers that encapsulate corrosion inhibitors. They could be released on the onset of corrosion so that efficient hindering of corrosion occurred. For the second strategy, polymers containing corrosion inhibitors in their backbone or in their side chains were synthesized. The inhibitors were linked to the polymers by labile bonds that could be cleaved by reduction or change of pH value.