

Innovative Anticorrosion Coatings Made in Thailand

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Corrosion continues to be worldwide a major economic and environmental plague. In a century where sustainability starts to become a crucial concern, it is important to discover new technologies which would allow for less pollution and less damage of metallic structures by corrosion.

From the academic point of view, materials scientists worked during the 2000's till now on smart coatings for metals embedding stimuli-responsive capsules. The capsules are typically containing corrosion inhibitors that are released during the corrosion process.

We introduce here a second generation of smart coatings based on polymers containing labile bonds. These coatings can deliver corrosion inhibitors upon onset of corrosion and therefore prevent unwanted leaching of inhibitors in the environment. Furthermore, they decrease significantly the corrosion rate of metals compared with typical passive coatings. Finally, we present materials that can both hinder corrosion and detected corrosion at early stages before the metal is irreversibly damaged.