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Abstract

Luminescent Molecular Chemosensors for Rapid and Nondestructive Detection of Thickness of Polymer Coatings †

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Molecular chemical sensor, especially optical luminescent sensor, technologies are a rapidly growing topic in science and product design, embracing development in chemistry, biochemistry and life science research. It is expected that in the XXI century, optic-chemical sensor science and technology will address two major problems that present a great challenge. One is related to the applications of sensors in different fields of science such as material science, for example, polymer industry. The other problem refers to the chemical world and is related to obtaining completely new synthetic products and new materials. Moreover, strict control of the quality of the final cured polymer coatings is required for high production standards. Therefore, there is a high demand for a quick and reliable method of thickness monitoring that would be applicable directly in production lines. Luminescence molecular chemosensors based on rare metal complexes are the answer to this type of need, because they are based on the use of luminescent probes as molecular sensors and quanta of light for information transfer between the probe molecules and the monitoring system. The luminescent chemosensors react to changes occurring in their vicinity within nanoseconds. Hence, the luminescence sensors meet the requirements of measurement speed.

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