SPONTANEOUS SELF-HEALING POLYURETHANE-BASED MATERIALS

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BIO
Jean-Marie Raquez PhD in Polymer Science from University of Mons, his main areas are the chemical modification and synthesis of polymer-based (nano)-composites issued from renewable resource using reactive extrusion processing. He has also in charge of national and regional projects, programs with industries and European Projects (FP7, H2020). In the realm, he has more than ca. 110 publications in international journals, 30 communications at conferences and is co-inventor of 9 patents. He co-edited 2 books and 11 chapters of book.

ABSTRACT
Polyurethanes (PU) represent high potential in various applications. On use, PU-based materials are subjected to photo, thermal and mechanical aggressions, which limit their performance, lifetime and reliability. To address this problem, the concept of self-healing is of great interest to design high performance self-healing polyurethanes (SH-PU). Developing SH-PU with intrinsic ability to self-heal shall represent a key-factor for more reliable, safe and durable polyurethanes. In this work, we will report on polyurethane approaches that enable self-healing under mild conditions using Thermoreversible Diels-Alder reactions and water-sensitive urea-based moieties.

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