MICROENCAPSULATION OF SELF-HEALING AGENTS VIA POLYCONDENSATION

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ABSTRACT

Matrixes such as thermoset materials undergo damages over time due to external forces such as cyclic stresses and climate conditions. Microcapsules represent reservoirs of healing agents which are dispersed into materials. Upon crack formation, the microcapsules present in the matrix should break (and not debond) and release their reactive liquid content, allowing the material to recover its strength [1].

The polycondensation approach used within our group is presented with melamine based components to build the microcapsule shell. This controlled and well-known process in industry is described in our particular case for the encapsulation of healing agents such as multi-thiols. Important criteria of the final encapsulated components before their integration into materials, which are discussed, are for instance: the chemical compatibility between the shell and the encapsulated agents, the shell strength and surface properties and the size and concentration of the microcapsules.

REFERENCES