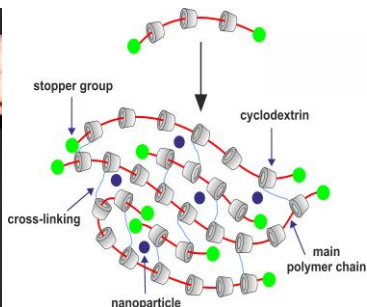
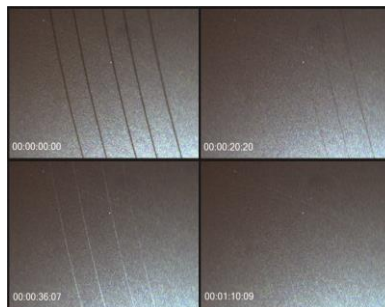




Superficial micro-scratches on top-coat



Structural model of the polyrotaxane nanocomposites (slide-ring gels)



Self-healing after 1 min at 100 °C

LAB TECHNOLOGY

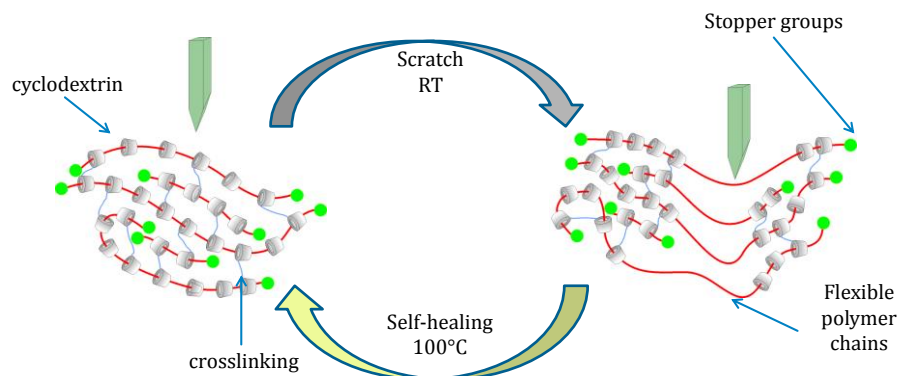
TRANSPARENT NANOMER®-COATING MATERIALS WITH SELF-HEALING FUNCTION AGAINST MICRO-SCRATCHES

AIM

- ▶ Transparent protective coating (pigmented where required) that can heal up superficial damages (e.g. visible micro scratches) by heating for some minutes at mild temperatures of about 80 °C – 100 °C

CHARACTERISTICS

- ▶ Thin-film technology, low material quantity
- ▶ Optically transparent layers with excellent adhesion to plastics, paints and metals
- ▶ Coating layers derived from slide-ring gels (cross-linked polyrotaxanes) containing surface modified nanoparticles
- ▶ Mechanism of healing up (model of a slide-ring gel):



- ▶ Weather ability via incorporation of special nanoparticles
- ▶ Application: e.g. spray coating, dip-coating, and others
- ▶ Thermal curing or photochemical curing (e.g. UV)

APPLICATIONS

- ▶ Substrate materials: plastics, paints, different metals
- ▶ Application areas: e.g. automotive paints, display technology,

STAGE OF DEVELOPMENT

- ▶ Basic compositions available at the lab scale
- ▶ Adaptable to the requirements of new applications through R&D and technology transfer projects



CONTACT

INM – Leibniz Institute
for New Materials
Campus D2 2
66123 Saarbruecken/Germany
www.leibniz-inm.de

Dr.-Ing. Carsten Becker-Willinger
Head Nanomers®

nanomere@leibniz-inm.de
Phone: +49681-9300-196
Fax: +49681-9300-279