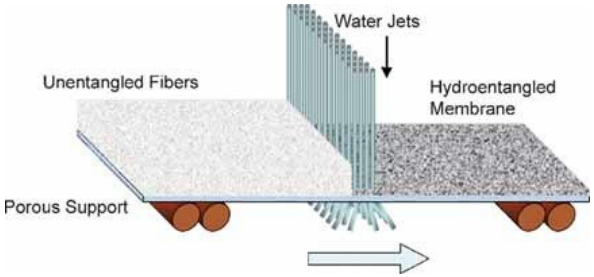
Characterisation of hydroentangled spunbond nonwovens

Supervisor: M.Sc. R. Halamicek, robin.halamicek@fau.de;
Prof. Dr. rer nat. habil D.W. Schubert



Scope:

Hydroentanglement of various spunbond and meltblown nonwovens made from PP, PLA,

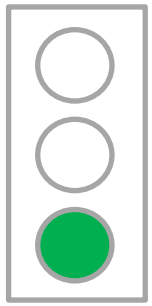
→ Investigation of the influence of process parameters
- Adjustment of various nonwoven properties (fibre diameter, basis weight)
- Variation of water pressure, cycles and contact time

→ Characterisation of fibre and nonwoven properties before and after water jet consolidation (optical, mechanical)

Aim:

A deeper understanding of the effect of water jet consolidation on the stability of melt-blown fibres and the non-woven fabrics made from them.

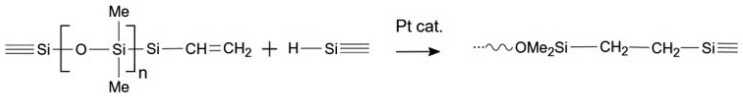
Status

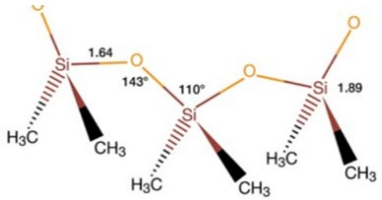


Start: April 2026

Silicone cross-linking kinetics as a function of fillers

Supervisor: Y. Gerigk, M.Sc., yara.gerigk@fau.de;
Prof. Dr. rer nat. habil D.W. Schubert





Scope:

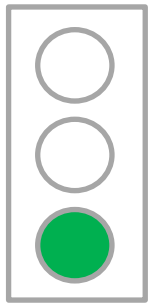
- Cross-linking behaviour of silicones using FTIR, DSC and rheometric measurements
- Quantification of the influence of conductive fillers on cross-linking behaviour
- Description of viscosity trends as a function of filler and additive composition
- Development of models for cross-linking kinetics based on experimental data

Aim:

- Comparison of the three measurement methods for characterising cross-linking kinetics
- Extension of cross-linking kinetics models to account for the influence of the degree of filling

Start: August 2026

Status

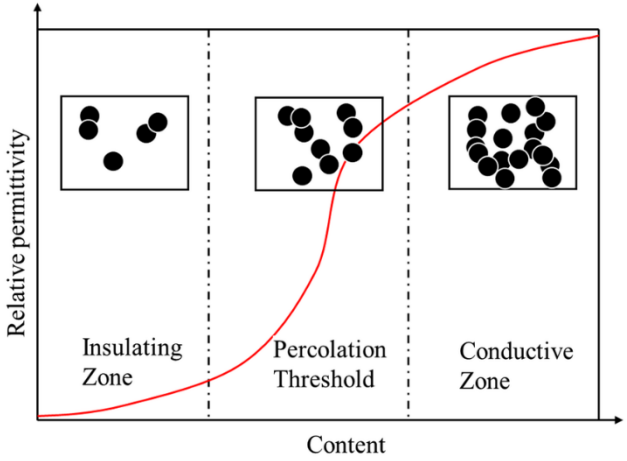


Determination of concentration-dependent conductivity of silicones

Supervisor: Y. Gerigk, M.Sc., yara.gerigk@fau.de;
Prof. Dr. rer nat. habil D.W. Schubert

Scope:

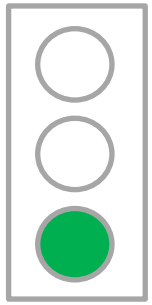
- Production of silicone cast samples with varying filler contents and systems (carbon allotropes, silver nanowires)
- Measurement of electrical conductivity as a function of filler content
  - Conductivity measurement under strain
  - Determination of the percolation threshold for different filler systems



Aim:

- Characterisation of the electrical conductivity of silicone composites as a function of filler composition and concentration. Establishment of physical relationships.

Status



Start: ab Juli 2026