

ELASTOMER NANO-COMPOSITES FROM RENEWABLE RAW MATERIALS

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Cellulose nanofibres are produced ²in-situ² by dynamical co-coagulation in different types of latex such as NR, NBR, SBR. Water-soluble cellulose derivatives, mixed with latex, are coagulated in a PFR (Plug Flow Reactor). Under elongation flow conditions cellulose nanofibres emerge which are surrounded with coagulated latex. The mechanical properties of the resulted nano-composites strongly depend on the processing parameters such as flow rate, length of the PFR and the type of cellulose. Depending on the diameter of the PFR and the flow rate different aspect ratios of the fibres can be adjusted.

The contribution will highlight the influence of the cellulose molecular weight and of the processing parameters on the fibre formation as well as the mechanical-dynamical properties of the nano-composite. After the vulcanization the materials are characterized by mechanical testing and by TEM.



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- Nanoskalige Cellulosefasern in Kautschuk als anisotroper Verstärkungsfüllstoff
- Optimierung der dynamischen Koagulation unter chemischen und prozesstechnischen Aspekten