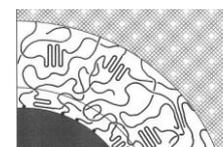
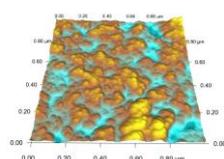
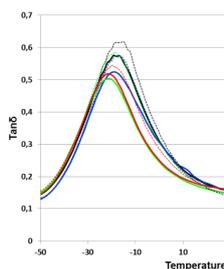
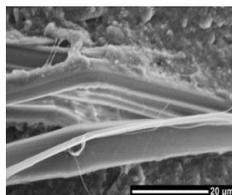
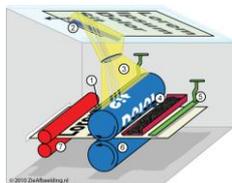
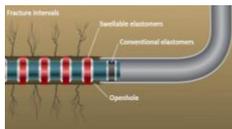


MSc ASSIGNMENTS AT ELASTOMER TECHNOLOGY AND ENGINEERING



The chair of Elastomer Technology & Engineering (ETE) is a member of the MS³ cluster within CTW. ETE is developing innovative materials based on elastomers. Common ground of all research projects is *sustainability*. The research is focused on tires, e.g. the development of composites with innovative reinforcement systems, particular fillers as well as short fibers, for low rolling resistance and high wet grip. In cooperation with the Prince of Songkla University, Thailand, ETE studies and develops *tailored filler systems* as well as *'green' additives* for natural rubber with the final aim to improve the performance of these materials in truck tires.

Another main research area of ETE is *recycling*. For different sources of elastomeric waste such as gloves, roof sheeting as well as passenger car tires, devulcanization processes are developed and studies on the application of the devulcanizate are performed.

Even though tire technology is the leading R&D area for elastomers, other elastomer products are studied within ETE as well. Examples are sealings in harsh environments, copy machine rollers or engine mounts.

The objective in the assignments on material development is to make *correlations between material composition and properties*. In general, innovative additives are tested in new compositions with the aim to improve certain properties. An example is the reduction of the hysteresis of an elastomer in order to reduce energy loss in a tire, commonly called rolling resistance. Another related area of research is the *replacement of environmentally harmful additives by new and sustainable ones* without deteriorating the material properties.

Within the recycling projects, the aim is to get a *high quality recycled material*, with properties comparable to the properties of the original elastomeric material. This is applied on two levels: the recycled material as such as well as the blends with virgin material from which new products are made. Within these projects, the aim is to reverse the vulcanization process and to adjust composition and processing of blends with recycled material for *better performance of the composites*.

The projects comprise a theoretical and a practical part. In the theoretical part, a literature study is performed, and an overview of the state-of-the-art as well as a work plan is prepared. The practical part is done in the labs of ETE, where equipment for the preparation of the composites and test samples as well as the test equipment is available. For an impression see http://www.utwente.nl/mechlab/overig/exp_list_researchgroup/ETE/. Modeling of material properties in correlation to their composition can be a part of the assignment as well.

MSc students within ETE are individually supported by PhD students or staff members. ETE is an international group with Dutch, English or German speaking researchers. The common language is English.

The following classes are compulsory:
201400044 Plastic and Elastomer Engineering
191156500 Elastomeric Technology

These classes are optional:
201400046 Experimental Methods
191121710 Composites
191121700 Composites Forming

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