

Annotations of Doctoral Thesis Topics for Degree Course in “Nanotechnology and Advanced Materials”

Topic: Kinetic of curing at the interface rubber-metal
Tutor: doc. Dr. Ing. Radek Stoček
Consultant: Ing. Ondřej Kratina, Ph.D.
E-mail: stocek@utb.cz

Annotation:

The PhD thesis is aimed to describe the process of curing kinetic at the interface rubber-metal based on different rubber compounds and type of metal. Experimental investigation will lead to evaluation of measuring methodology for smart description of curing kinetic in laboratory scale. From the theoretical point of view, the definition of numerical model of the curing kinetic will be performed. The future experimental investigation of the mechanical behaviour of the rubber-metal bonding in laboratory scale under quasi-static as well as dynamic loading condition will be performed and correlation with the curing kinetic properties. The transfer of the numerical model of the curing kinetic from laboratory scale to real automotive products will be taken in to the account. Finally the development of the FE Model and Analyse of the rubber-metal bonding with respect to the curing kinetic will be evaluated..

Requirements:

Good knowledge of English, creative abilities, skills for working in physical-chemical laboratory. Working experience with FEM software.

Literature:

1. P.Y. Patil & W.J. van Ooij Rubber Chem. Technol. 77, 891 (2004).
2. Ozawa, K, Mase, K. Surface Science, 2017.