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**PROCESS DEVELOPMENT OF RUBBER COMPOUNDS WITH PTFE MICRO POWDER TO IMPROVE TRIBOLOGICAL PROPERTIES**

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Rubber materials are often used for technical parts with tribological requirements. These can be sealing elements such as O-rings, piston seals and radial shaft seals. Due to the engineering progress, the requirements concerning tribological properties of such compounds have grown steadily. A method to improve these properties of rubber is the incorporation of PTFE particles which are chemically bound to the rubber matrix. This has already been demonstrated in previous scientific studies.

In industrial production, minimal use of PTFE micro powder in combination with increased life-time of sealing applications justifies additional material costs resulting from the additive. Therefore, tribological properties are determined against different amounts of PTFE micro powder in this paper. In addition, production costs can be reduced by shortening of mixing time and rising of delivery rate. In order to achieve a high mixing efficiency, the influence of the mixing time on the degree of mixing is analysed. In a further step, the processing properties of these compounds during injection moulding and extrusion are analysed by means of rheological properties. Friction and wear behaviour of the new rubber materials will be finally determined as a function of velocity, surface pressure and friction partner.