



Combination of Devulcanization and Reactive Extrusion for Value-Added Rubber Recycling

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Abstract:

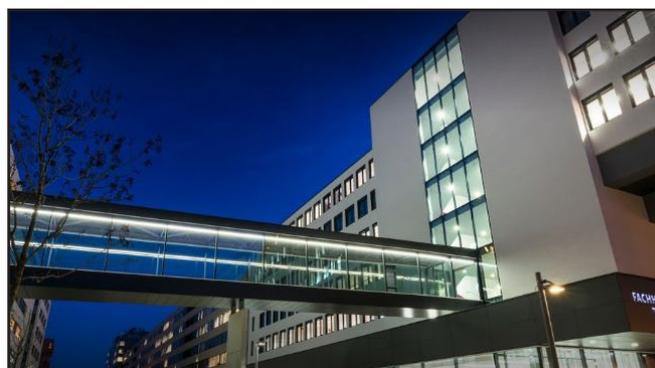
Vulcanized Rubber, as elastomer, is difficult to recycle. Today, the main end of life routes of tyres and other rubber products are landfilling, incineration in e.g. cement plants, and grinding to a fine powder, with huge quantities lacking sustainable recycling of this valuable material. Devulcanization, i.e. the breaking up of sulfur bonds by chemical, thermo-physical or biological means, is a promising route that has been investigated for more than 50 years. The rubber material thereby suffers mechanical degradation and a loss in mechanical properties. A novel process of thermo-mechanical devulcanization in a twin-screw extruder is presented, which includes long-chain branching to “repair” the polymer. Process control can be done via melt pressure measurement or an online rheometer. The novel process has the potential to save up to 2kg of CO₂ per kg of rubber.

Biography:

Dr. Maximilian Lackner MBA earned his PhD from Vienna University of Technology in 2003. He completed his habilitation in 2009. From 2004 to 2011, he worked in the polymer industry in Austria and China in several senior leadership positions. In 2011, Dr. Lackner founded a company for anti-microbial polymers.

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Citation: Maximilian Lackner; Combination of Devulcanization and Reactive Extrusion for Value-Added Rubber Recycling; *Biopolymer* 2020; July 20, 2020; Paris, France.