

## Properties of rubber nanocomposites filled by activated carbon blacks

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Rubber reinforcing carbon blacks were prepared by physical activation in CO<sub>2</sub> to different degrees of burn-off. The mechanical properties indicating the reinforcement of SBR vulcanizates filled by activated carbon blacks, such as tensile strength, 300% modulus and elongation were determined. SBR rubber composites filled by carbon blacks after CO<sub>2</sub> activation with specific surface area of 196 m<sup>2</sup>/g exhibited overall improved mechanical properties than that having raw black. But the mechanical properties of rubber composites decreased at higher filler loading ratio with further activation due to the difficulty in obtaining uniform filler-rubber interaction with much higher BET surface area. Electromagnetic Interference (EMI) shielding characteristics and surface resistivity of carbon black/SBR composites measured in this study explained that it is easier for carbon blacks with high specific surface area to form continuous conductive filler network in the rubber matrix.