**Processing of nano boron carbide reinforced flexible polymer composites with improved shielding properties**

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**Aims**: The main objective of the current research is to develop light-weight and flexible electromagnetic shielding materials with improved properties using nano/mikro boron carbide dispersed into polymer based matrices after surface modification.

**Methods:** Nano/micro boron carbide particles with various morphologies were synthesized by sol-gel techniques and the obtained particles were surface modified with different functional groups. After mixing the particles with different polymers using high shear mixer, shielding composite plates were shaped using injection moulding and warm pressing.

**Results:** It was shown that sol-gel technique was able to produce boron carbide particles with controlled morphology and better shielding properties could be obtained using these particles within polymeric matrices leading to the formation of flexible composites.

**Conclusions:** Overall, it was found that light-weight and effective shielding materials could be obtained using boron carbide particles dispersed within polymeric matrices. Surface modification of the particles is critical for good dispersion and hence to get better final properties. The concentration of the reinforcing particles also affects the properties in terms of energy absorption and shielding.

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