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A review of vapor grown carbon nanofiber/polymer conductive composites

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Abstract: In this paper, the mechanical properties of vapor grown carbon nanofiber (VGCNF)/polymer composites are reviewed. The paper starts with the structural and intrinsic mechanical properties of VGCNFs. Then the major factors (filler dispersion and distribution, filler aspect ratio, adhesion and interface between filler and polymer matrix) affecting the mechanical properties of VGCNF/polymer composites are presented. After that, VGCNF/polymer composite mechanical properties are discussed in terms of nanofibers dispersion and alignment, adhesion between the nanofiber and polymer matrix, and other factors. The influence of processing methods and processing conditions on the properties of VGCNF/polymer composite is also considered. At the end, the possible future challenges for VGCNF and VGCNF/polymer composites are highlighted.