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Tensile and Corrosion Resistance Studies of MXenes/Nanocomposites: A Review

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Abstract:

MXenes are a relatively new and interesting class of two-dimensional materials with diverse compositions and outstanding characteristics such as dispersibility and metallic conductivity. MXenes appear to be promising fillers for polymer nanocomposites, and data from several studies suggest that this promising material could significantly improve the tensile strength and modulus by 314% and 89%, respectively, when incorporated into a polymer matrix. Corrosion, on the other hand, is a significant issue in numerous industries worldwide, including automotive, defence, aerospace and biomedical. There is a growing body of the literature that recognises MXenes as high-performance corrosion inhibitors. In this review, recent research on the corrosion resistance properties of MXenes-reinforced polymeric composites is also discussed.