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Synthesis and characterization of nanocomposites films with graphene oxide and reduced graphene oxide nanosheets

Meryem Goumri, Christophe Poilâne, Pierre Ruterana, Bessem Ben Doudou, Jany Wéry, Anass Bakour, Mimouna Baitoul

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## HIGHLIGHTS :

- Stable dispersion and alignment of graphene oxide nanolayers in PVA were achieved.
- Efficient load transfer is found between the nanofillers GO and matrix PVA via strong hydrogen bonding.
- The mechanical properties of the GO-based nanocomposite are improved.
- The excellent agreement between the experimental tensile modulus data and the values predicted by the theoretical models.
- The tunable thermal properties of PVA nanocomposites were proved.

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