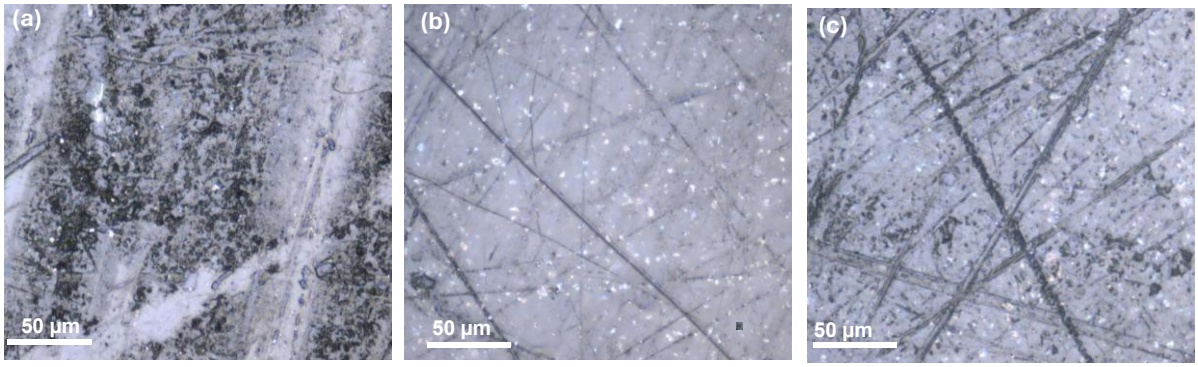
White Graphene Enhances Properties of Glass Fibre Reinforced Epoxy Resins

Key findings:

White Graphene (WG) enhances mechanical properties of glass fibre reinforced epoxy resin, including flexural strength, flexural toughness, shear strength and young modulus.

- **Flexural toughness:** +64%
- **Flexural strength:** + 21%
- **Shear strength:** +28%
- **Young modulus:** +14%



0 wt% WG 0.2 wt% WG 0.5 wt% WG

Figure 1. Optical images of the glass fibre reinforced epoxy with different amount of white graphene loading.

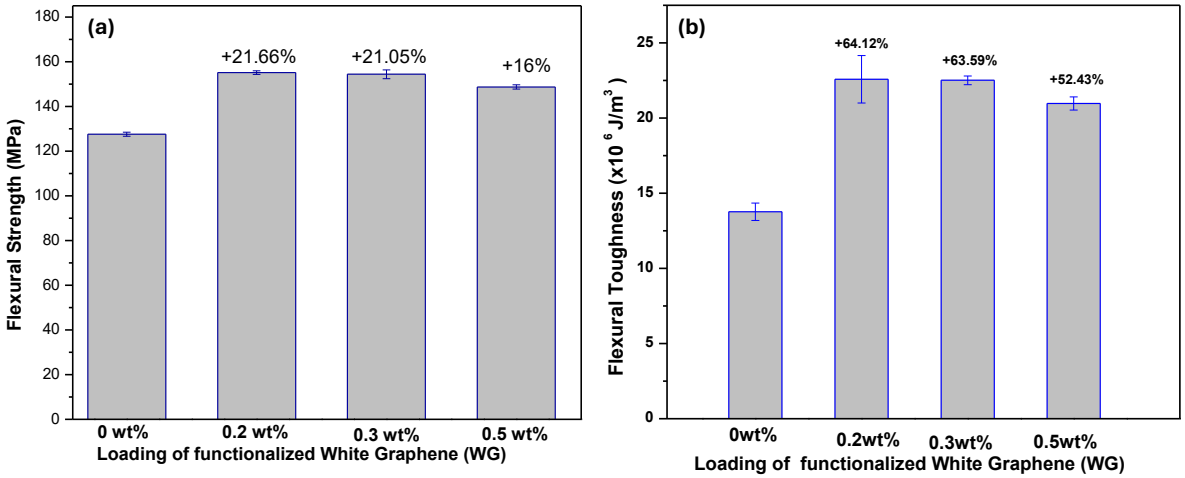


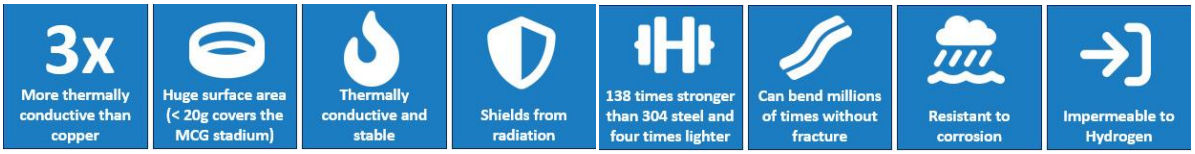
Figure 2. (a) Flexural strength of glass fibre reinforced epoxy at different loading of White Graphene, (b) Flexural toughness at different loading of White Graphene.

White Graphene

A novel two-dimensional layered nanomaterial - BNNS







PRODUCT CHARACTERISTICS	METHDOLOGY	STANDARD
Appearance	Visual	White solid powder
Lateral Size	Scanning Electron Microscope	0.3-10 µm
Lateral Aspect ratio	Scanning Electron Microscope	1:1 - 1:30
Thickness	Atomic Force Microscope	1-50 nm
Bulk density	EN17199-1 weighting method	0.055 g/cm³
Respirable dustiness fraction	EN17199 Small Rotating drum (M4)	55 mg/kg
Water solubility	OECD 105 Flask Method	Insoluble
Chemical composition and Impurities	Raman Spectroscopy	BN vibrational peak
	Fourier-transform infrared spectroscopy	BN vibrational peaks
	Energy-Dispersive X-ray Spectroscopy	B & N > 98% O < 2% Other < 0.5%
Surface functionalization	-	Customized

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