White Graphene Enhanced Textile Coating

Key findings:

White Graphene (WG) enhances the key properties of silicone-type textile coatings, including wear resistance, tensile strength, tear strength and moisture permeability.

- **Abrasion resistance:** **+53%**
- **Tensile strength (breaking force):** **+27%**
- **Tear strength:** **+7%**
- **Moisture permeability:** **+20%**
- **Moisture regain:** **+197%**

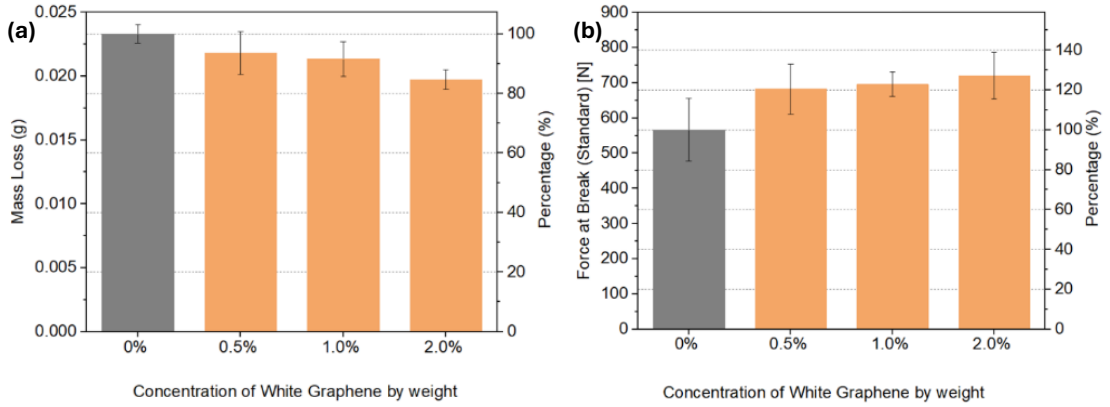


Figure 1. (a) Mass loss after abrasion (10,000 cycles under 12 kPa pressure) at different amounts of White Graphene loading, (b) breaking force of the coated fabrics.

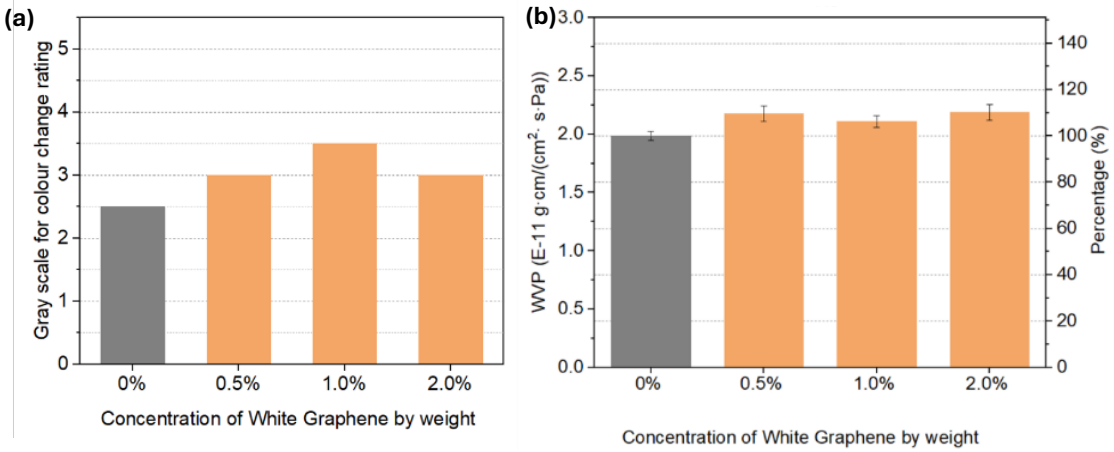


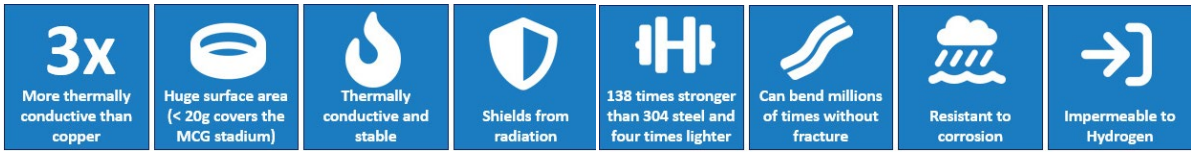
Figure 2. (a) Grey scales for colour change rating of the coated fabrics after lightfastness test, (b) water vapour permeability.

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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