White Graphene Enhances Properties of Nail Polish

Key findings:

White Graphene (WG) enhances the key properties of nail polish, including wear resistance, hardness, adhesion and water absorption, without compromising the appearance of the white and dyed nail polish or the transparency of transparent nail polish.

- Wear resistance: +48%
- Hardness: +15%
- Adhesion: +5%
- Water absorption: –62%



Figure 1. The addition of up to 0.5% white graphene had no noticeable change on the colour of the white/dyed nail polish.

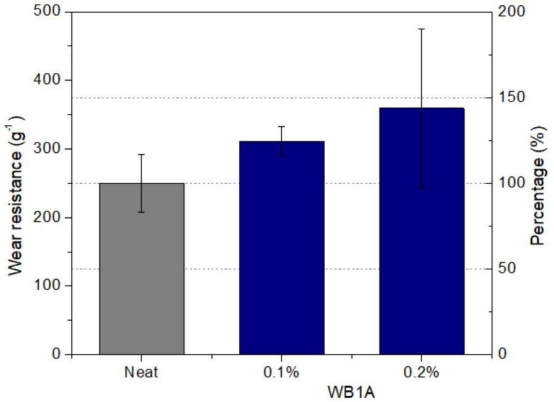
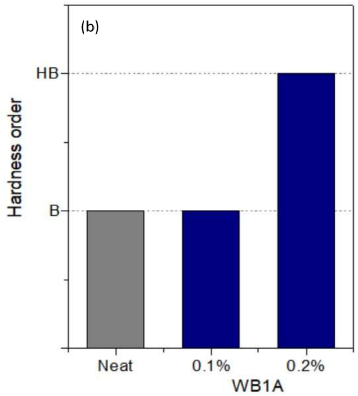


Figure 1. (a) At 0.1wt% and 0.2wt% loading of white graphene, wear resistance of the nail polish was improved by 25% and 48%, respectively.



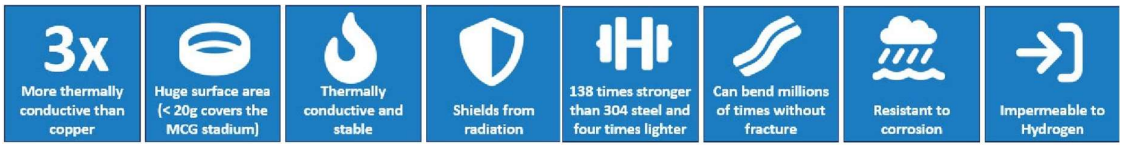
(b)At 0.2wt%, white graphene improved the pencil hardness by 1 level, i.e. from B to HB.

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 Fourier-transform infrared spectroscopy Energy-Dispersive X-ray Spectroscopy	BN vibrational peak BN vibrational peaks B & N > 98% O < 2% Other < 0.5%
Surface functionalization	-	Customized

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