

## **Nano-enhanced Boots Successfully Passed Safety Tests**

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First Graphene, in collaboration with Steel Blue, has successfully completed safety tests for graphene-enhanced boots which will be used in various industrial sectors. This is the first time that graphene has been used successfully in thermoplastic polyurethane masterbatch, which presents considerable benefits including improved wear and chemical resistance, enhanced heat transfer, and reduced permeability.

This is the first time that graphene has successfully been incorporated into a thermoplastic polyurethane masterbatch and offers considerable advantages, including even greater wear and chemical resistance, better thermal heat transfer and reduced permeability.

[Steel Blue](#) is a major global manufacturer of work boots, with a reputation for innovative design to improve comfort, durability and safety. The adoption of graphene to boost these features still further is a continuation of this philosophy, as Chief Executive Officer, Garry Johnson, explains, “Steel Blue is committed to developing innovative solutions for our customers. We’re excited by these recent developments with [First Graphene](#) and look forward to delivering these solutions to our market.”

The prototype boots have been manufactured using [First Graphene’s PureGRAPH 10](#) graphene powder. Unlike competing formulations, this is available in high production volumes with non-aggregated, uniform sized graphene nanoplatelets; this ensures that it disperses evenly in thermoplastic polyurethane (TPU) masterbatches.

The prototype boots incorporate PureGRAPH-infused TPU soles and polyurethane foam innersoles and will now undergo extensive laboratory testing, followed by field trials. Craig McGuckin, Managing Director for First Graphene said, “The development work with Steel Blue provides yet another example of how we’re working with customers to commercialise the development of graphene, to transform the properties of materials used in many different applications, from elastomers and composites, to concrete and specialised industrial coatings.”

Read the [original article](#) on NetComposites.