



Steel Blue and First Graphene to Showcase the World's First Graphene Safety Boot

HIGHLIGHTS

- Prototypes have been manufactured and have undergone testing at accredited laboratories.
- Safety boots are currently being wear trialled in a variety of working environments.
- The two companies have collaborated to develop graphene enhanced materials that will provide significant improvements in safety footwear performance, protection and comfort.
- A successful project review meeting has been held at the Graphene Engineering and Innovation Centre, Manchester.
- Steel Blue and First Graphene to give a joint presentation at the Polymers in Footwear event in Berlin on Tuesday 19th November

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Advanced materials company, First Graphene Limited ("FGR" or "the Company") (ASX: FGR) is pleased to provide an update on its collaboration with Steel Blue safety boots.

The prototype boots have been manufactured using First Graphene's PureGRAPH® 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 have undergone extensive laboratory testing in accredited laboratories.

Tests were conducted at Viclab Pty Ltd, one of Australia's leading NATA accredited and independent mechanical testing services. The prototype boots complied with the following test procedures;

- Impact resistance
- Upper to outsole bond
- Interlayer bond strength
- Slip resistance on ceramic tile floor with NaLS and on steel floor with glycerine
- Sole crack resistance
- Tear strength
- Abrasion (TPU)
- Tensile
- Hydrolysis
- Fuel oil resistance
- Chemical exposure (NaOH)

Steel Blue are continuing to test different applications and processes, with ongoing measuring of outcomes by Viclab Pty Ltd. The collaboration has led to successful manufacturing of prototypes, which are currently being wear trialled in a variety of working environments.

The new boot from Steel Blue incorporates innovative technology with new design solutions to provide significant improvements to safety footwear protection and comfort.

Steel Blue and First Graphene recently held a project review meeting at the Graphene Engineering and Innovation Centre in Manchester, where the above test results and ongoing testing steps were discussed.

Chief Technology Officer, Dr Andy Goodwin, will present at the Polymers in Footwear conference and exhibition in Berlin on 19th and 20th November 2019. The presentation will be made jointly with Steel Blue's Head of Innovation, Neil Wright. First Graphene Ltd and Steel Blue will explain how PureGRAPH® has enabled the development of a range of unique boot component technologies and user benefits that have the potential to revolutionise the safety boot market.

Craig McGuckin, Managing Director for First Graphene Ltd., said, "*The development work with Steel Blue provides yet another example of how we are collaborating with innovative companies to develop revolutionary new products. Graphene is helping our customers to develop products not seen with traditional technologies. PureGRAPH® additives are a key enabler in taking elastomers, composites, coatings and concrete materials to a new level and we will continue to seek out further new applications and markets where graphene can add value.*"

ASX Announcement

19 March 2019



Steel Blue Head of Product Innovation, Neil Wright (left) with First Graphene Chief Technology Officer, Dr Andy Goodwin at the Graphene Engineering and Innovation Centre following a successful project review.

About First Graphene Ltd (ASX: FGR)

First Graphene Ltd. is the leading supplier of high-performing, graphene products. The company has a robust manufacturing platform based upon captive supply of high-purity raw materials and an established 100 tonne/year graphene production capacity. Commercial applications are now being progressed in composites, elastomers, fire retardancy, construction and energy storage.

First Graphene Ltd. is publicly listed in Australia (ASX:FGR) and has a primary manufacturing base in Henderson, near Perth, WA. The company was recently incorporated in the UK as First Graphene (UK) Ltd. and is a Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK.

About Steel Blue

Steel Blue is a 100% Australian-owned premium safety footwear manufacturer that continually innovates to provide comfortable, safe and durable work boots. Featuring patented Trisole® Comfort Technology, Ortho Rebound® Footbed and supple leather, all Steel Blue boots are backed by a 100% Comfort Guarantee.

Established in 1995, Steel Blue is Australia's leading supplier of safety boots and the only one to receive the Australian Physiotherapy Association endorsement. Steel Blue began exporting in 1996 and now services New Zealand, Europe, USA, Papua New Guinea, South-East Asia, West Africa, the Middle East, Trinidad and Tobago.

About The University of Manchester

The University of Manchester is the home of graphene – it is where the one-atom thick material was first isolated. Today we have an unrivalled breadth of academic expertise and work in collaboration with dozens of partners. By leveraging the research power along with the vast infrastructure we have put in place we can leverage the investment in fundamental science and facilities to collaboratively generate value, IP and skills needed for the development of products and applications.

PureGRAPH® Range of Products

PureGRAPH® graphene powders are available in tonnage volumes with lateral platelet sizes of 20µm, 10µm and 5µm. The products are high performing additives, characterised by their high quality and ease of use.

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