

29 October 2020

# FGR to Work with TPR<sup>2</sup> to Progress Fire Retardant Coatings

## HIGHLIGHTS

- First Graphene and TPR<sup>2</sup> have entered into an NDA to complete due diligence with the view to commercialisation of PureGRAPH<sup>®</sup> enhanced fire retardant coatings.
- Exfire is the Australasian distributors of TPR<sup>2</sup> coatings
- USA-based TPR<sup>2</sup> fire and thermal experience spans over 20 years in military and proprietary, private research & development plus countless applications of coatings.
- Test work with the University of Adelaide has shown FireStop™ to be significantly more effective and efficient on several timber cladding substrates. Adhesion testing was also completed on timber, aluminium and plastic substrates.

First Graphene Limited ("ASX: FGR" or "the Company"), is pleased to advise it has agreed with TPR<sup>2</sup> and its Australian distributor Exfire to work on the commercialisation of a fire retardant coating utilising FGR's PureGRAPH<sup>®</sup>.



## FireStop™ Background

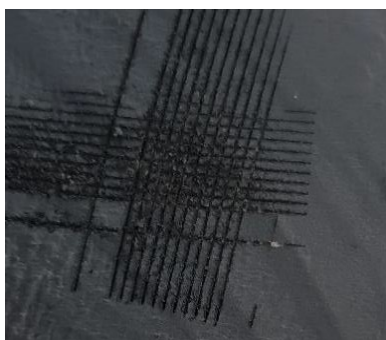
FGR holds the global licencing rights to a graphene-based fire-retardant coating from the University of Adelaide (UoA). Development of the FireStop™ product has been conducted over a three-year period in collaboration with the UoA, as part of the Company's participation as a Tier-1 member of the ARC Research Hub for Graphene Enabled Industry Transformation. Patents have progressed to National Phase and are in the examination phase in Australia, Europe and the United States of America.

Following the successful development of a fire-retardant coating formulation the product was tested according to the UL94<sup>1</sup>, Limited Oxygen Index (LOI), adhesion and weathering standard test methods with simultaneous testing of commercially available products. Performance in the UL94 and LOI test were evaluated in relation to the thickness of coating required for effective fire protection against commercial products.

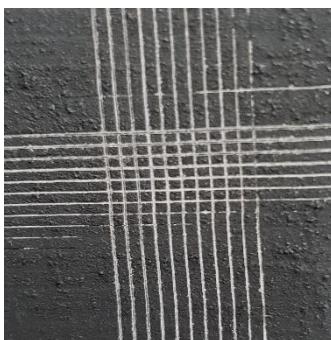
The UoA has continued development work on FireStop™ using FGR's graphene as the primary ingredient after confirming it is well-suited for the purpose. Test work has involved extensive bench scale tests for the preparation of FireStop™ solutions at different graphene concentration levels.

Different coating thicknesses have been evaluated and results showed FireStop™ coatings are effective at only 33% of the thickness of competitor products. This has obvious commercial advantages, particularly if effectiveness is achieved with only one coat. Early stage analysis has shown the cost of FireStop™ is significantly less than competitor products making it a preferred product both on technical and economic grounds.

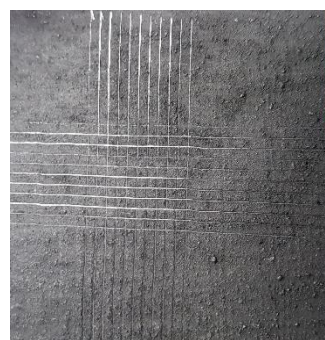
Testing of FireStop™ has been undertaken on several timber cladding substrates, and adhesion testing completed on timber, aluminium and plastic.



Wood (Pine)



Plastic (Acrylic)



Metals (Aluminium)

<sup>1</sup> UL94 refers to Underwriters Laboratories a USA Test House which develops and performs internationally respected test methods for product safety and quality. UL94 is the recognised test method for flammability and evaluates both the burning and afterglow times and dripping of the burning test specimen.

## ASX ANNOUNCEMENT



These developments are of particular value at a time when many standard industry fire retardants contain halogenated materials and these are being phased out for environmental reasons.

The Company will now work with TPR<sup>2</sup>, and its Australian distributor Exfire, with the intent of completing due diligence and moving towards commercialising FGR's PureGRAPH® in a new fire-retardant coating technology.

# ASX ANNOUNCEMENT



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## 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 is 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 TPR<sup>2</sup>

*TPR<sup>2</sup> fire and thermal experience dates back from over 20 years in military and proprietary, private research & development plus countless applications of coatings.*

## PureGRAPH<sup>®</sup> Range of Products

*PureGRAPH<sup>®</sup> 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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*With authority of the board, this announcement has been authorised for release, by Peter R. Youd Director, Chief Financial Officer and Company Secretary.*