



ASX ANNOUNCEMENT

FOR IMMEDIATE RELEASE TO THE MARKET

PPK GROUP LIMITED – ASX Code: PPK

THURSDAY, 3 DECEMBER 2020

INVESTMENT IN WHITE GRAPHENE LIMITED

PPK Group Limited (ASX Code: PPK) continues with its strategy to become a technology commercialisation business and is pleased to announce its seventh technology project being White Graphene Limited (WGL).

The project will operate under the Joint Venture Research Agreement with Deakin University (Deakin), BNNT Technology Limited (BNNTTL) and PPK with PPK holding a 65% interest, Deakin a 25% interest and BNNTTL a 10% interest.

The WGL venture is structured similar to the success of BNNTTL with:

- WGL having an exclusive 20-year global license to commercialise Deakin's patented technology;
- A research and development agreement with Deakin to continue the work that is in progress; and
- PPK to manage the funding and commercialisation of White Graphene.

PPK has assisted WGL with raising \$2.800 million of seed capital to complete the research and development and build a prototype manufacturing plant for high manufacturing volume with high purity.

Relationship between BNNT and White Graphene

As PPK shareholders are already aware, Boron Nitride Nanotubes (BNNT) are considered the ultimate 3-D molecular structure with a host of incredible properties including ultra-high strength, remarkable thermal conductivity, extreme flexibility, radiation shielding properties and ability to withstand extremely high temperatures. They are the holy grail of material science.

White Graphene is the name given to Boron Nitride Nanosheets (BNNS) which are a flat 2-D flake only as thick as a single molecule. Although they don't possess the same high strength, they do share some of the other properties of BNNT such as high thermal conductivity, electrical insulation and radiation shielding.

The lower cost to produce White Graphene enables the wider PPK commercialisation group of companies to expand their potential market by offering a cheaper alternative for certain sectors where all the extra benefits of BNNT may not be required.

PPK GROUP LIMITED

ABN: 65 003 964 181

Level 27, 10 Eagle St, Brisbane QLD 4000
GPO Box 754, Brisbane Qld 4001
Tel: +61 7 3054 4500 Fax: +61 7 3054 4599

Applications for White Graphene are virtually endless, including thin-film photovoltaics, microelectronics, advanced battery and supercapacitor technology, optics, bioengineering, water filtration, nanocomposites and advanced polymers & ceramics, thermal management in electronics, heat resistant paints, inks and corrosion protection coatings.

A combination of BNNT and White Graphene may also be used to complement each other in certain applications.

White Graphene shares similar properties as traditional carbon-based graphene with a few key differences, the most notable being that graphene is electrically conductive and only stable up to 400°C whereas White Graphene is electrically insulating and can withstand more than 850°C.

It should be noted the Graphene market is growing at a phenomenal rate and is expected to continue expanding at a CAGR of 38.7% from 2020 to 2027. There has been a growing number of public announcements from ASX listed companies recently regarding their advances in graphene production, including First Graphene (ASX:FGR), Archer Materials (ASX:AXE), Talga (ASX:TLG), and Comet Resources (ASX:CRL)

White Graphene is poised to benefit from the excitement generated by graphene and potentially offers a better alternative in many markets. It is better for corrosion protection paints and coatings due to its unique electrical insulation properties that would prevent galvanic corrosion in metals. It is also a better additive to light coloured paints due to its greater transparency to visible light, resulting in more accurate colour matching. White Graphene is potentially a better candidate for metal and ceramic composites due to its higher thermal stability. It is better for enhancing polymers and resins requiring transparency, and it is better for thermal dissipation and packaging in electronics due to its electrical insulation.

Ben Spincer, Executive Director, Deakin Research Innovations added "White Graphene Limited is the latest entity established in the partnership between Deakin University and the PPK Group to commercialise Australian expertise in advanced nanomaterials.

We are excited by this new opportunity to work with an Australian partner to scale up the manufacture of White Graphene at Deakin's ManuFutures facility in Geelong.

The partnership will see significant investment in future research, create new job opportunities and help cement Geelong's position at the vanguard of advanced manufacturing."

This announcement has been made and authorised by the PPK Group Board.

For further information contact:

Robin Levison

Executive Chairman of PPK Group Limited

On 07 3054 4500.