



ASX ANNOUNCEMENT

FOR IMMEDIATE RELEASE TO THE MARKET

PPK Group Limited – ASX Code: PPK

14 July 2020

PPK INVESTMENT IN 3D DENTAL TECHNOLOGY LIMITED

- PPK announces its third GLOBAL industry vertical application to incorporate Boron Nitride Nanotubes (BNNT) in the molecular matrix for new dental nanocomposites partnering with Dr David Dunn and Deakin University (“Deakin”)
- Objective is to develop a range of materials with far superior physical properties and excellent aesthetic values
- Global Dental Implants and Prosthetics Market size USD\$4.6 Billion in 2019⁽¹⁾

PPK Group Limited (ASX Code: PPK) is pleased to announce the company has agreed to partner with Deakin, who will provide the research and development expertise, and industry partner Dr David Dunn, a noted aesthetic dentist with more than 25 years clinical and diagnostic experience in cosmetic dentistry and dental implants.

This will be the third industry vertical application that PPK and Deakin have entered into that will benefit from the use of innovative incorporation of BNNT into a traditional GLOBAL industry. Initial ownership of the venture vehicle, 3D Dental Technology Limited, will be PPK (45%), David Dunn (45%) and Deakin (10%) with funding provided by all three shareholders in proportion to their investment. Deakin will be contracted to provide research and development which will occur over the duration of the project.

The 3D Dental Technology Project focuses on the development of new nanocomposites for a variety of dental materials including Zirconia, Lithium disilicate, Alumina and Composite resins based on the incorporation of BNNT in the molecular matrix of these materials. Although mechanically hard, current ceramic composite structures like veneers, crowns and bridges are considered to have an unacceptably high failure rate. BNNT provides incredible micro-tensile strength in ceramics while having no impact on colour, being non-toxic, not impacted by salivary flow or food acids and should remain stable in a nanocomposite indefinitely.

These new nanocomposites represent innovative forms of materials for use in prosthetic and implant dentistry including inlays, onlays, veneers, crowns and a variety of both tooth and implant supported bridge constructions.

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To summarise, Dr David Dunn, CEO of DD Technologies Pty Ltd said:

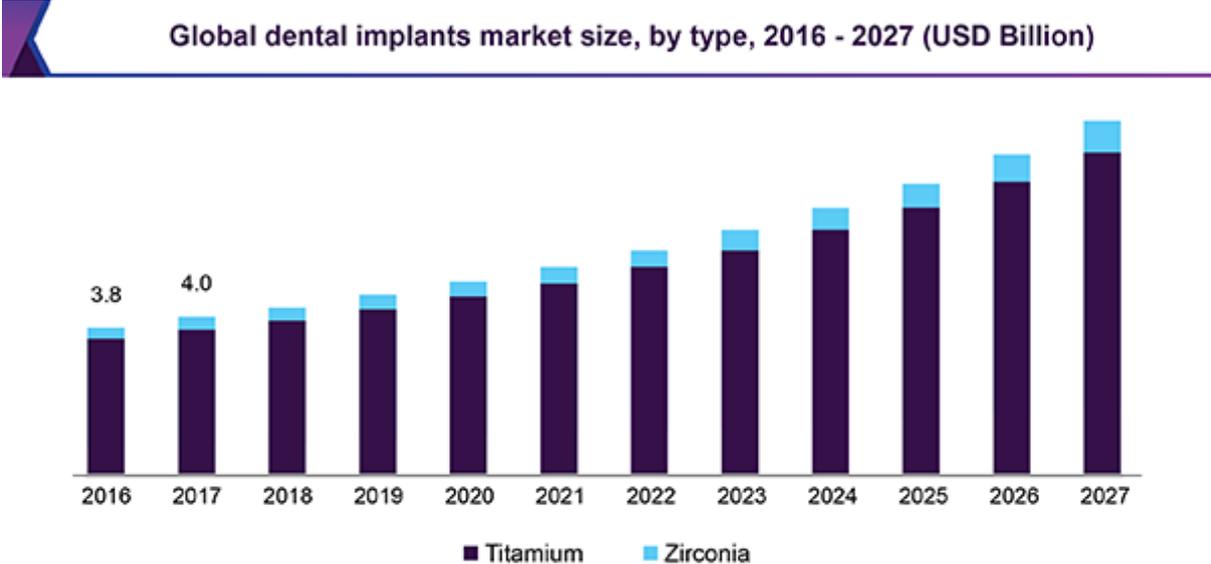
“The utilization of BNNT and the emergence of 3D printing, or additive manufacturing, is a new and exciting area for significant advancement of ceramic prosthetics in Dentistry. The opportunity exists for high strength, aesthetic ceramic materials for dental applications across a broad spectrum of uses.

This BNNT Application project has the potential to be the “holy grail” of ceramic materials with enhanced mechanical and optical properties providing superior longevity and ideally improved aesthetic properties. Successful use of these nanocomposites and potentially with 3D printing fabrication will reduce complexity, costs and significantly reduce the potential for failure.

The application of these new materials will be relevant in every Dental practice and Dental laboratory worldwide.”

Market Size

Global Dental Implants and Prosthetics Market was valued at USD\$4.6 Billion in 2019, registering a CAGR of 9% from 2019 to 2023.



Source: www.grandviewresearch.com

(1) Grand View Research - Market Analysis Report March 2020

Authorised by the Board. For further information contact:

Robin Levison
Executive Chairman of PPK Group Limited
On 07 3054 4500.

About PPK Group Limited

PPK has two business units within its Group structure:

PPK Mining Equipment (PPKME) business unit: Designs, manufactures, and services the industry renowned range of COALTRAM flameproof and explosion proof diesel Load Haul Dump (LHD) utility vehicles as well as other OEM underground diesel vehicles. PPKME has also made material progress towards electrification of a battery underground man transporter vehicle to meet industry demands and best practice.

PPK BNNT business unit: Is leading the world in the development, manufacture and commercialisation of Boron Nitride Nanotubes (BNNT). BNNT have extraordinary mechanical properties: they are stronger than metal or carbon fibre, extremely flexible, excellent thermal conductors, optically and infrared transparent, chemically stable, able to withstand extreme temperatures. They have neutron shielding capability and are electrical insulators. PPK holds a 20 year exclusive licence agreement over the BNNT technology.

PPK has a 3 pronged strategy to expand and profit from the BNNT technology:

- To produce BNNT in commercial quantities. Production at 99% purity continues with ongoing development focussed on the expansion of production capacity and improved efficiencies;
- To supply BNNT to select industries to enable further research and development into the blending/infusing of BNNT into conventional materials. This process can be transformative in terms of reduced weight and increased strength; and
- To maintain an ongoing equity interest in selected BNNT product applications. PPK currently holds: a 45% interest in Craig Ballistics, an armaments business (announced 28 October 2019); a 58% interest in LiS Energy Limited which is furthering the application of BNNT in lithium sulphur batteries (announced 10 June 2020); and a 45% interest in 3D Dental Technology Limited which is testing the potential to infuse BNNT into a broad range of dental prosthetics and other dental applications (announced today).