9.1 Large-Scale Continuous Manufacture of Nanomaterials for Conductive Inks

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Promethean Particles is a UK-based SME that designs and develops inorganic nanomaterial dispersions. The company technology is based on a patented reactor system that allows truly continuous hydrothermal or solvothermal synthesis of nanoparticles (patent WO2005077505). Promethean use small scale reactor systems for rapid prototyping to tune the optimum product for each application and backs this up with pilot-scale production facilities, as well as a multi-ton scale nanoparticle manufacturing plant (capacity more than 1000 tons per year). Our unique, liquid-based production process allows us to tailor the nanoparticles to get the best functionality for an end use application.

To address a market need for high-volume, cost-effective conductive materials, we manufacture copper nanodispersions using our novel continuous-flow process. Furthermore, we will be launching copper inks, based on these nanodispersions, which will be suitable for inkjet and screen printing applications in February of 2020. The scale of our production allows the large volume supply of high-quality products at a price which will enable the market to explore these next-generation materials for new and existing applications.