ABSTRACT

HIGH POROSITY SUPERABRASIVE RESIN PRODUCTS AND METHOD OF MANUFACTURE

A superabrasive product, such as a superabrasive tool, includes a superabrasive grain component and a porous continuous phase that includes a thermoplastic polymer component in which the superabrasive grain component is distributed. A superabrasive product precursor to the superabrasive product includes a superabrasive grain component, a bond component and a polymer blowing agent of encapsulated gas. A method of forming a superabrasive product includes combining a superabrasive, a bond component and a polymer blowing agent of encapsulated gas to form, for example, a superabrasive product precursor. The combined superabrasive, bond component and polymer blowing agent of encapsulated gas are heated to a temperature and for a period of time that causes release of at least a portion of the gas from encapsulation within the blowing agent.

Fig. 1