

ABSTRACT**Fine powder of single-crystalline diamond particles and a method for the production thereof**

Provided are a fine powder of single-crystalline diamond having a sharp form, a narrow particle size range and a size of less than 50nm; and a method for producing the above fine powder in high efficiency. A method for producing a fine powder of single crystalline diamond, which comprises preparing a rough finely particulate diamond by the mechanical crushing of a single-crystalline raw material diamond, imparting hydrophilicity to the surface of the rough finely particulate diamond, subjecting a water slurry of the resultant rough finely particulate diamond having hydrophilicity being maintained in an weak alkaline state to the former classification step, to thereby remove an upper fraction having a D 50 value of 60 μ m+, adjusting the diamond concentration of the slurry being freed of the upper fraction to 0.1 wt % or less, subjecting the resultant slurry to centrifugal force, to thereby coagulate and separate a part containing the diamond having a relatively rough range of particle size from the slurry, and on the other hand, allow a water medium containing a fraction having a reduced average particle size to flow out from the centrifugal separation step as a flow-out fluid.