

Title (en)

METHOD AND DEVICE FOR ULTRA-FINE MILLING AND MIXING SOLID MATERIALS

Title (de)

VERFAHREN UND VORRICHTUNG ZUR ULTRAFEIN-MAHLUNG UND -MISCHUNG VON FESTEN MATERIALIEN

Title (fr)

PROCEDE ET DISPOSITIF DE BROYAGE ET DE MELANGE ULTRA-FIN DE MATERIAUX SOLIDES

Publication

**EP 1100620 B1 20040317 (DE)**

Application

**EP 99939380 A 19990716**

Priority

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Abstract (en)

[origin: US2001016467A1] In a method for ultrafine grinding of solid particulate material to mean particle sizes far below 1 micrometer and/or for mixing of powder and agglomerate material with mean particle sizes in the range of nanometers, the material to be ground and/or mixed and an grinding/mixing additive are filled into a cooled grinding chamber containing loose grinding media. By motion of the grinding media relative to adjacent media and to the walls of the grinding chamber the material is ground to the desired particle size and/or is finely mixed. Subsequently the additive is removed from said material. For the production of particle sizes in the range of nanometers and/or for mixing particles of this size range, the method comprises that grinding and/or mixing is carried out in a cooled atmosphere in the presence of a fine grained solidified additive which is chemically inert to said material, preferably water ice or solid carbon dioxide, at temperatures below their melting or sublimation temperature. Subsequently said additive is removed from said material by evaporation. The additive can be evaporated or is volatile at temperatures below 50° C. at ambient pressure. An apparatus for carrying out such method is disclosed.

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