



US5718760: Growth of colorless silicon carbide crystals

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Application Number: US1996000596526

IPC Class: C30B 029/36;

Class: <u>117/084</u>; <u>117/089</u>; <u>117/093</u>; <u>117/102</u>;

Field of Search: 117/84,89,93,95,102,937 423/446 437/22,100

Abstract: Large single crystals of silicon carbide are grown in a furnace

sublimation system. The crystals are grown with compensating levels of p-type and n-type dopants (i.e., roughly equal to levels of the two dopants) in order to produce a crystal that is essentially colorless. The crystal may be cut and fashioned into synthetic gemstones having extraordinary toughness and hardness, and a

brilliance meeting or exceeding that of diamond.

Attorney, Agent, or Firm:

Primary/Assistant Examiners:

Garrett; Felisa;

U.S. References:

(No patents reference this one)

Summa, Patent Attorney; Philip;

Patent	Inventor	Issued	Title
US4966860	Suzuki et al.	10 /1990	Process for producing a SiC semiconductor device
US5030580	Furukawa et al.	7 /1991	Method for producing a silicon carbide semiconductor device
US5433167	Furukawa et al.	7 /1995	Method of producing silicon-carbide single crystals by sublimation recrystallization process using a seed crystal

First Claim:

Show all 11 claims

That which is claimed:

1. A method of producing a colorless single crystal of silicon carbide comprising growing a single crystal of silicon carbide by a sublimation technique while introducing compensated levels of ptype and n-type dopants into a crystal lattice structure.

Foreign References:

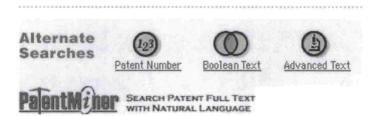
none

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Other References:

- Introduction to Ceramics, W. D. Kingery et al., Second Edition, John Wiley & Sons, pp. 676-679.
- Optical and Electronic Properties of SiC, W. H. Choyke, The Physics and Chemistry of Carbides, Nitrides and Borides, Manchester, England, Sep. 1989, pp. 1-25.





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