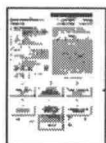



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US5718760: Growth of colorless silicon carbide crystals

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IPC Class: **C30B 029/36;**

Class: **117/084;** [117/089;](#) [117/093;](#) [117/102;](#)

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: **Summa, Patent Attorney; Philip;**
 Primary/Assistant Examiners: **Garrett; Felisa;**

U.S. References: (No patents reference this one)

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 p-type and n-type dopants into a crystal lattice structure.

Foreign References: **none**

(No patents reference this one)

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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