

ABSTRACT

METHOD FOR GROWING MONOCRYSTALLINE DIAMONDS

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A method of forming mono-crystalline diamond by chemical vapour deposition, the method comprising the steps of:

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(a) providing at least one diamond seed;

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(b) exposing the seed to conditions for growing diamond by chemical vapour deposition, including supplying reaction gases that include a carbon-containing gas for growing diamond and include a nitrogen-containing gas; and

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(c) controlling the quantity of nitrogen-containing gas relative to other gases in the reaction gases such that diamond is caused to grow by step-growth with defect free steps.

[Figure 9]