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(54) **SOLVENTHERMAL SYNTHESIS OF NANOSIZED TWO DIMENSIONAL MATERIALS**

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CPC ***C01G 39/06*** (2013.01); *C01P 2002/08* (2013.01); *C01P 2004/04* (2013.01); *C01P 2004/24* (2013.01)

(58) **Field of Classification Search**
CPC . C01G 39/06; C01P 2002/08; C01P 2004/24; C01P 2004/04
See application file for complete search history.

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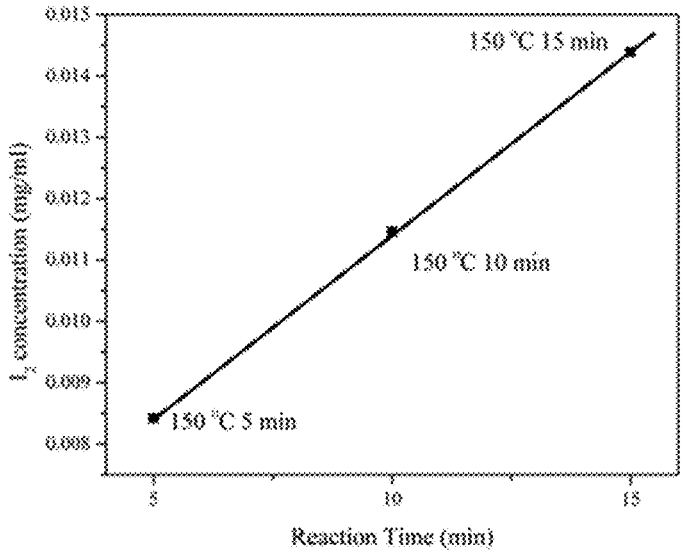
(57) **ABSTRACT**

A process of forming two dimensional nano-materials that includes the steps of: providing a bulk two dimensional material; providing lithium iodide; suspending the lithium iodide and bulk two dimensional material in a solvent forming a solution; initiating a solvent thermal reaction forming a lithiated bulk two dimensional material. The resulting lithiated bulk two dimensional material may be exfoliated after the solvent thermal reaction forming a two dimensional layered material.

18 Claims, 6 Drawing Sheets