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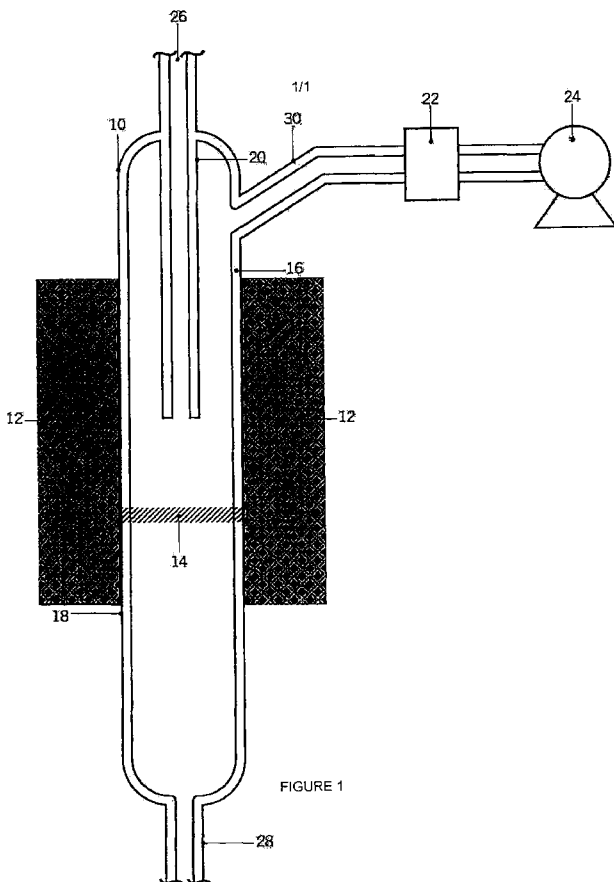
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(54) Title: FUNCTIONALIZED GRAPHENE SHEETS HAVING HIGH CARBON TO OXYGEN RATIOS

(57) Abstract: Functionalized graphene sheets having a carbon to oxygen molar ratio of at least about 23: 1 and method of preparing the same.



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International application No.

PCT/US 09/32947

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C01B 31/00 (2009.01)

USPC - 977/755, 788

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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USPC - 977/755, 788

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 423/445B, 445R, 448; 502/174, 180; 977/755, 788 (text limited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB; USPT; EPAB; JPAB); Google; Google Scholar

Search Terms Used: graphene, functionalized graphene, nanosheet, thermally exfoliated graphite oxide, TEGO, carbon, oxygen, ratio, C/O ratio, inert, reducing, temperature, heating, electrical conductivity, polyethylene, polypropylene

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/0092432 A1 (PRUD'HOMME et al.) 26 April 2007 (26.04.2007) para [0016]-[0017], [0047], [0053]-[0056], [0062], [0067], [0074]-[0075], [0086], [0141]	1-20
A	SCHNIEPP et al. Functionalized Single Graphene Sheets Derived from Splitting Graphite Oxide. The Journal of Physical Chemistry B, Vol 110, No. 17, 11 April 2006, pp. 8535-8539 [online], [retrieved on 2009-09-10]. Retrieved from the Internet <URL: http://www.princeton.edu/~cml/assets/pdf/pu_06_110schniepp.pdf >	1-20
A	US 2007/0131915 A1 (STANKOVICH et al.) 14 June 2007 (14.06.2007)	1-20
A	STANKOVICH et al. Synthesis of graphene-based nanosheets via chemical reduction of exfoliated graphite oxide. Carbon, 45, 06 March 2007, pp. 1558-1565 [online], [retrieved on 2009-09-10]. Retrieved from the Internet <URL: http://bucky-central.me.utexas.edu/RuoffsPDFs/Synthesis_of_graphene-based_nanosheets_via_chemical_reduction_of_exfoliated_graphite_oxide.pdf >	1-20

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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