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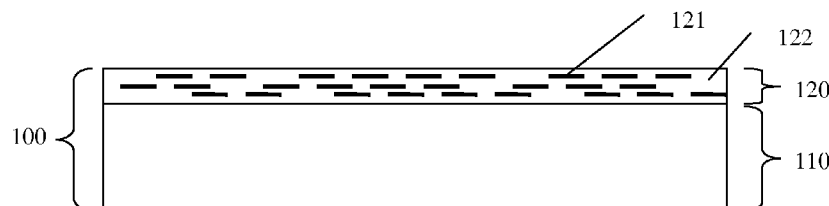
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FIG. 1



(57) Abstract: A composite includes a substrate, a binder layer disposed on a surface of the substrate; and a nanofiller layer comprising nanographene and disposed on a surface of the binder layer opposite the substrate. In addition, a nano-coating layer for coating a substrate includes multiple alternating layers of the binder layer and the nanofiller layer. Articles coated with the nano-coating layer prepared from alternating layers of nanofiller layer and binder layer have improved barrier properties, and may be used in down-hole applications.



A. CLASSIFICATION OF SUBJECT MATTER**B32B 27/06(2006.01)i, B32B 7/12(2006.01)i, B32B 27/04(2006.01)i**

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)

B32B 27/06; B32B 9/00; C09K 21/02; B05D 3/02; B32B 15/04; B32B 3/00; H01B 1/04; C08K 3/04; B44C 1/22; B05D 1/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: substrate, binder layer, nanofilter, nanographene

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008-0220282 A1 (Boz Z. Jang et al.) 11 September 2008. See abstract; and claims 1 and 14.	1-20
A	US 2010-0021708 A1 (Jing Kong et al.) 28 January 2010. See abstract and claim 1.	1-20
A	WO 2010-002770 A1 (Dow Global Technologies Inc. et al.) 07 January 2010. See abstract, claims 1-2 and pages 2-6.	1-20
E	US 2011-0123776 A1 (Hyeon-jin Shin et al.) 26 May 2011. See abstract; claims 1 and 9; and Paragraph [0041].	1,2
PA	US 2011-0014457 A1 (Nathaniel J Quitoriano et al.) 20 January 2011. See abstract and claims 1-3.	1-20



Further documents are listed in the continuation of Box C.



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INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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