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(54) Title: THE SILICA MONOLITHIC PARTICLES, THE CHROMATOGRAPHIC STATIONARY PHASE COMPRISING THEM, AND THEIR MANUFACTURING METHOD

[Fig. 1]



(57) Abstract: This invention is about silica monolithic particles, chromatographic stationary phases comprising them, and their manufacturing methods. The manufacturing process of silica monolithic particles of this invention includes three steps: the step for formation of bulk monolith (step 1) through sequential heating at three different temperatures, the step for powdering the silica monolith (step 2), and the step for calcination of the powdered silica monolith at 400-800 °C (step 3). In this invention, the manufacturing process for silica monolith particles becomes much simpler by removing the sieving and washing steps in comparison with the previous methods, causing great reduction of production cost. In addition, silica monolith particles with reduced average particle size and increased average pore size are obtained in this invention. Thus the stationary phases comprising the silica monolith particles of this invention result in high separation performance in liquid chromatography.



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INTERNATIONAL SEARCH REPORT

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PCT/KR2011/007487**A. CLASSIFICATION OF SUBJECT MATTER*****C01B 33/18(2006.01)i, B01J 20/283(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)

C01B 33/18; B01J 45/00; B05D 3/02; B32B 5/22; B32B 3/26; C08G 18/00; B01D 15/08

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: silica, monolith, heating, clacining, chromatographic stationnary phase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-2007-0112940 A (INHA-INDUSTRY PARTNERSHIP INSTITUTE) 28 November 2007 See abstract, claims 1-14	1-10
A	US 6210570 B1 (ROBERT R. HOLLOWAY) 03 April 2001 See abstract, example	1-10
A	US 2006-0019084 A1 (LAURENCE T. PEARSON) 26 January 2006 See abstract, example 2, claims 1-6	1-10
A	US 2010-0204355 A1 (NICHOLAS LEVENTIS et al.) 12 August 2010 See abstract, claims 1-3	1-10

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"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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INTERNATIONAL SEARCH REPORT

Information on patent family members

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