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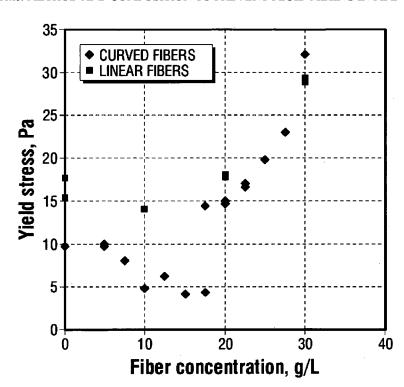
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[Continued on next page]

(54) Title: METHOD AND COMPOSITION TO PREVENT FLUID MIXING IN PIPE



is related in general to fluid compositions and methods for servicing subterranean wells. Particularly, the invention relates to the use of a fiberladen fluid to separate two wellboreservice fluids as they travel through a tubular body, preventing their commingling. The invention obviates the need for mechanical devices such as wiper plugs, or special adjustment of the wellbore-service fluids' rheological properties.

(57) Abstract: The present invention



- (74) Agent: VANDERMOLEN, Matthieu; Etudes & Productions Schlumberger, 1, rue Henri Becquerel - BP 202, 92142 Clamart Cedex (FR).
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Category	oration of document, with indication, where appropriate, or the relevant passages	nelevant to claim No.
Χ	EP 2 085 447 A1 (SCHLUMBERGER SERVICES	1-10,
	PETROL [FR]; SCHLUMBERGER TECHNOLOGY BV [NL]; SC) 5 August 2009 (2009-08-05)	13-15
Υ	paragraph [0016]; claims 1,6,10,18	11,12
	paragraph [0021] paragraphs [0014], [0015]	
Υ	WO 2005/059058 A2 (HALLIBURTON ENERGY SERV	12
	INC [US]; CHATTERJI JITEN [US]; GRAY DENNIS W) 30 June 2005 (2005-06-30) claims 1,12-14	
Υ	US 4 439 328 A (MOITY RANDOLPH M [US]) 27 March 1984 (1984-03-27) column 2, line 40 - line 42	11
	column 7, line 46 - column 8, line 65	
	-/	

Y Further documents are listed in the continuation of Box C.	X See patent family annex.
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "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	"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 "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 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
Date of the actual completion of the international search 6 April 2011	Date of mailing of the international search report $13/04/2011$
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Dantinne, Patrick

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/005837

	ation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
A	MATS NIGAM: "Challenges in pulp processing", 12TH ERCOFTAC NPC MEETING, 29 May 2008 (2008-05-29), 30 May 2008 (2008-05-30), pages 1-19, XP002571006, internet Retrieved from the Internet: URL:www.mech.kth.se/ercoftac/events/NPC12/presentations//Nigam.pdf [retrieved on 2010-03-01] page 3 - page 7	1-15	
A	Hanjiang Xu, Cyrus K. Aidun: "Characteristics of fiber suspension flow in a rectangular channel", International Journal of Multiphase Flow, vol. 31 1 March 2005 (2005-03-01), pages 318-336, XP002571007, DOI: 10.1016/j.ijmultiphaseflow.2004.12.003 Retrieved from the Internet: URL:http://www.sciencedirect.com/science? ob=ArticleURL&_udi=B6V45-4FD9T1W-1&_user=9 87766&_coverDate=03%2F01%2F2005&_rdoc=1&_f mt=high&_orig=search&_sort=d&_docanchor=&v iew=c&_acct=C000049880&_version=1&_urlVers ion=0&_userid=987766&md5=0764960862c4a5c45 d95db334a0b81d7 [retrieved on 2010-03-02] the whole document	1-15	
A	R.M. AHMED AND N.E. TAKACH: "Fiber sweeps for hole cleaning", SOCIETY OF PETROLEUM ENGINEERS, no. 113746, 1 April 2008 (2008-04-01), - 2 April 2008 (2008-04-02), pages 1-12, XP002571008, The Woodlands the whole document	1-15	

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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Patent document cited in search report		Publication date	,	olication date
EP 2085447	A1	05-08-2009	WO 2009080358 A1 02	-07-2009 -07-2009 -01-2011
WO 2005059058	A2	30-06-2005	NONE	
US 4439328	Α	27-03-1984	NONE	