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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
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MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
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[Continued on next page]

(54) Title: STATIC MIXER AND METHOD OF MIXING A PLURALITY OF FLUIDS

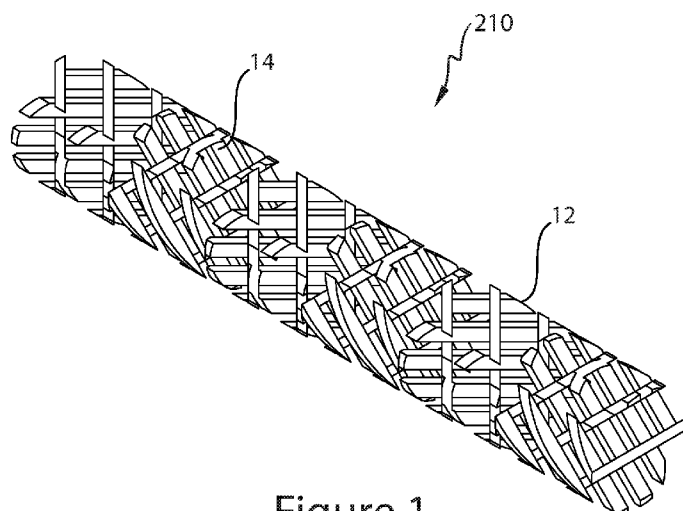


Figure 1

(57) Abstract: A static mixer created using an additive process is disclosed. The static mixer is enabled to homogenously blend two fluids flowing in a pipe. The static mixer exhibits zero contact angle in relation to the two fluids being mixed within the pipe. The static mixer exhibits a first contact angle with the first fluid and a second contact angle with the second fluid. The first contact angle is either between 0 and 30 or greater than 85. The second contact angle is either between 0 and 30, or greater than 85.



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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2015/065652

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01F5/06
ADD.

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)
B01F

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/113627 A1 (M A E S P A [IT]; ROVELLINI MARCO [IT]) 11 October 2007 (2007-10-11)	1-6,9,10
A	page 1, paragraph 1 - paragraph 2 page 4, paragraph 9 - page 5, paragraph 2 page 7, paragraph 2 page 8, paragraph 3 - page 9, paragraph 2 -----	7,8,12
X	DE 20 2014 002444 U1 (FERE DOSIER UND KLEBSYSTEME GMBH [DE]) 15 April 2014 (2014-04-15)	1-4,6,10
A	paragraph [0024] - paragraph [0027] paragraph [0043] ----- -/-	5,7-9,12



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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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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Date of the actual completion of the international search

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06/06/2016

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2015/065652

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/032810 A2 (VELOCYS INC [US]; TONKOVICH ANNA LEE [US]; FANELLI MADDALENA [US]; ARO) 22 March 2007 (2007-03-22) page 4, line 14 - line 23 page 11, line 29 - page 12, line 12 page 26, line 10 - line 20 page 38, line 12 - page 39, line 11 -----	1-10,12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/065652

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-10, 12

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10, 12

Static mixer exhibiting contact angles with two fluids which are between zero and 30 or greater than 85, wherein the static mixer comprises surface structures or wherein the static mixer is heated or cooled prior to contacting the fluids or during use with the fluids.

1.1. claims: 1-10

Static mixer exhibiting contact angles with two fluids which are between zero and 30 or greater than 85, wherein the static mixer comprises surface structures.

1.2. claim: 12

Static mixer exhibiting contact angles with two fluids which are between zero and 30 or greater than 85, wherein the static mixer is heated or cooled prior to contacting the fluids or during use with the fluids.

2. claims: 11, 13-15

Method using a static mixer with surfaces exhibiting contact angles with two fluids which are between zero and 30 or greater than 85, wherein the difference between the contact angles for the two fluids is greater than 60.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2015/065652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007113627 A1	11-10-2007	AT 490814 T CN 101443102 A EP 1888215 A1 WO 2007113627 A1	15-12-2010 27-05-2009 20-02-2008 11-10-2007
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