

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 000191-0145-WO1	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2019/065099	International filing date ( <i>day/month/year</i> ) 6 December 2019 (06-12-2019)	(Earliest) Priority Date ( <i>day/month/year</i> ) 7 December 2018 (07-12-2018)
Applicant  ABRAMS, ROBERT S.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

- the international application in the language in which it was filed  
 a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b.  This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.  **Certain claims were found unsearchable** (See Box No. II)

3.  **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- the text is approved as submitted by the applicant  
 the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant  
 the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 4a

- as suggested by the applicant  
 as selected by this Authority, because the applicant failed to suggest a figure  
 as selected by this Authority, because this figure better characterizes the invention

b.  none of the figures is to be published with the abstract

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2019/065099

## 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.: 46  
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:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
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:

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.:

### 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.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2019/065099

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61M5/315 C08J7/12 B23K26/364  
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)  
A61M C08J B23K

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	US 2017/281873 A1 (KANEKO HIROYUKI [JP] ET AL) 5 October 2017 (2017-10-05) paragraph [0010] - paragraph [0095]; figures 1-8	1-45
X	WO 2015/118958 A1 (SUMITOMO RUBBER IND [JP]) 13 August 2015 (2015-08-13) paragraph [0001] - paragraph [0043]; figures 1-3	1-4, 9-12, 21-26, 29, 31, 39-42, 45

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

"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 18 February 2020	Date of mailing of the international search report 25/02/2020
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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 Knaus-Reinbold, S
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2019/065099

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>EP 3 058 975 A1 (SUMITOMO RUBBER IND [JP]) 24 August 2016 (2016-08-24)</p> <p>paragraph [0013] - paragraph [0079]; figures 1-3</p> <p style="text-align: center;">-----</p>	<p>1-4, 9-12, 21-26, 29,31, 39-42,45</p>
X	<p>EP 3 409 311 A1 (SUMITOMO RUBBER IND [JP]) 5 December 2018 (2018-12-05)</p> <p>paragraph [0001] - paragraph [0057]; figure 1</p> <p style="text-align: center;">-----</p>	<p>1,3,4,8, 12, 21-26, 29,31, 39-42</p>

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2019/065099

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 2017281873	A1	05-10-2017	CN 107261259 A	20-10-2017
			EP 3225270 A1	04-10-2017
			JP 2017176540 A	05-10-2017
			US 2017281873 A1	05-10-2017
			US 2018289897 A1	11-10-2018
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WO 2015118958	A1	13-08-2015	CN 105682716 A	15-06-2016
			DE 15746538 T1	09-03-2017
			EP 3053619 A1	10-08-2016
			JP 6270265 B2	31-01-2018
			JP 2015146871 A	20-08-2015
			US 2016287800 A1	06-10-2016
			WO 2015118958 A1	13-08-2015
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EP 3058975	A1	24-08-2016	CN 105879163 A	24-08-2016
			EP 3058975 A1	24-08-2016
			JP 6610920 B2	27-11-2019
			JP 2016151328 A	22-08-2016
			US 2016235919 A1	18-08-2016
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EP 3409311	A1	05-12-2018	CN 108973184 A	11-12-2018
			EP 3409311 A1	05-12-2018
			JP 2018201841 A	27-12-2018
			US 2018344939 A1	06-12-2018
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 46

The present application contains 46 claims. There are so many dependent claims (1,29,46), and they are drafted in such a way that the claims as a whole are not in compliance with the provisions of clarity and conciseness of Article 6 PCT, as they create a smoke screen in front of the skilled reader when assessing what should be the subject-matter to search. The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19).

The extent of the search was consequently limited to claim 1 to 45, which appears to comprise a reasonable definition of what is understood to be the invention for which protection is sought.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.