Abstract: Described herein are friction reducing polymers comprising two or more recurring units wherein at least one recurring unit is an acrylic acid or acrylamide monomer and at least one recurring unit is a vinyl monomer selected from a vinyl alcohol, a vinyl ester, and a vinyl ether.
# INTERNATIONAL SEARCH REPORT

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC(8):** C09K 8/58, 8/04 (2014.01)

**USPC:** 166/285; 507/256

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)

**IPC(8):** C09K 8/58, 8/04 (2014.01)

**USPC:** 166/285; 507/256

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 2010/0218950 A1 (STARKEY et al.) 02 September 2010; paragraphs [0021]-[0022]</td>
<td>14, 16-17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>A</td>
<td>US 2011/0269651 A1 (BISMARK et al.) 03 November 2011; entire document</td>
<td>1-17</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

- 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

- "X" 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

- "Y" 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

- "Z" 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

- "S" document member of the same patent family

Date of the actual completion of the international search: 04 July 2014 (04.07.2014)

Date of mailing of the international search report: 27 March 2015

Name and mailing address of the ISA/US:

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No., 571-273-3201

Authorized officer: Shane Thomas
PCT Helpdesk: 571-272-4300
PCT OIS: 571-272-7774

Form PCT/ISA/2 10 (second sheet) (July 2009)