Compositions comprising a substrate having a layer thereover, the layer comprising a fluoropolymer and a nanofiller. Compositions comprising a substrate having a layer thereover, the layer comprising a fluoropolymer and a clay material. Methods for preparing a composite coating material solution, comprising: preparing a first solution comprising a fluoropolymer and an acetate; preparing a second solution comprising a clay material and a nanofiller suspension; and mixing the first and second solutions to form a composite coating material solution. Methods for applying a composite material layer to a substrate, comprising depositing a solution onto a substrate, wherein the solution comprises a clay material and fluoropolymer. Methods for applying a composite material layer to a substrate, comprising depositing a solution onto a substrate, wherein the solution comprises a fluoropolymer and a nanofiller.
### INTERNATIONAL SEARCH REPORT

**PCT/US2009/053308**

#### A. CLASSIFICATION OF SUBJECT MATTER

INV.: C09D133/16 C08K3/22

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)

- C09D
- C08K

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 practical, search terms used)

- EPO-Internal
- CHEM ABS Data

#### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>WO 2004/037944 A1 (JOHNSON &amp; SON INC S C [US]) 6 May 2004 (2004-05-06) claims 1,7-9,11-14</td>
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Further special documents are listed in the continuation of Box C

- See patent family annex

**Date of the actual completion of the international search**

17 August 2010

**Date of mailing of the international search report**

30/11/2010

**Name and mailing address of the ISA/Authorized officer**

European Patent Office, P B 5818 Patentlaan 2 NL - 2280 HV RIVIERA
Tel (+31-70) 340-2040
Fax (+31-70) 340-3016

Mi ao, Kathryn
**DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>KR 2008 0074410 A (NAT UNIV PUKYONG IND UNIV COOP [KR]) 13 August 2008 (2008-08-13) the whole document</td>
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## INTERNATIONAL SEARCH REPORT

**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:

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see additional sheet
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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__

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1-18
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**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

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2005)
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-18

...composition comprising a substrate having a layer..., comprising a fluoropolymer and a nanofiller.

2. claims: 19-26

...composition comprising a substrate having a layer, ..., comprising a fluoropolymer and a clay material.

3. claims: 27-36

...method of preparing a composite coating material solution, comprising : preparing. ...solution comprising a fluoropolymer and an acetate; ...solution comprising a clay material and a nanofiller suspension; and mixing. ...solutions to form a composite coating material solution.

4. claims: 37-41

...method of preparing a composite coating material solution, comprising : preparing. ...solution comprising a fluoropolymer, a silicone material, and a clay-based metalworking fluid; ...solution comprising a rosin solution and a nanofiller composition; and mixing. ...solutions to form a composite coating material solution.

5. claims: 42-47

...method of applying a composite material layer to a substrate, comprising depositing a solution. ...comprises a clay material and fluoropolymer.

6. claims: 48-53

...method of applying a composite material layer to a substrate, comprising depositing a solution ..., comprises a fluoropolymer and a nanofiller.
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