



(51) International Patent Classification:

C08L 31/04 (2006.01) C09J 133/06 (2006.01)
C08L 33/06 (2006.01) C08K 5/37 (2006.01)
C09J 131/04 (2006.01)

(21) International Application Number:

PCT/IB2019/054923

(22) International Filing Date:

12 June 2019 (12.06.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201810678157.8 27 June 2018 (27.06.2018) CN

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- 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))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(54) Title: UV-CURABLE COMPOSITION AND ADHESIVE FILM, ADHESIVE TAPE AND BONDING MEMBER CONTAINING THE SAME

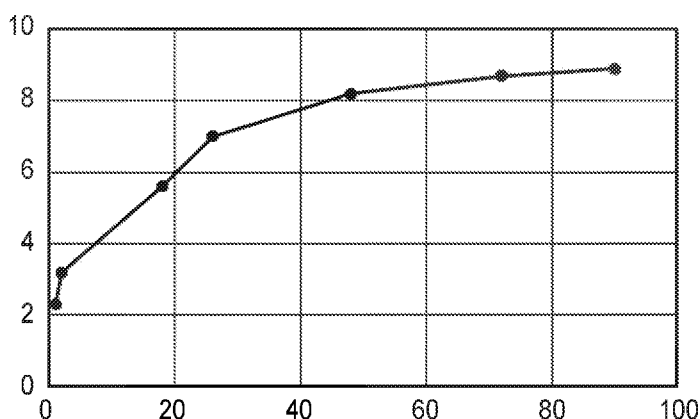


FIG. 1

(57) Abstract: The present disclosure relates to a UV-curable composition and adhesive film, adhesive tape and bonding member containing the same. Said UV-curable composition is a UV-curable composition catalyzable by photobase. Said UV-curable composition comprises (1) acrylic polymer and/or ethylene-vinyl acetate copolymer; (2) curable components, comprising polyfunctional mercaptan and polyfunctional epoxy resin; and a (3) photobase generator. The composition of the present disclosure can be coated into an adhesive tape or adhesive film; such adhesive tape or film possesses initial adhesion before UV curing is carried out and can have the strength of a semi-structural adhesive or a structural adhesive after UV curing is carried out.



(88) Date of publication of the international search report:
27 February 2020 (27.02.2020)

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2019/054923

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C08L31/04 C08L33/06 C09J131/04 C09J133/06 C08K5/37
 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)
 C09J C08L C09D

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, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 3 133 132 A1 (DAINIPPON PRINTING CO LTD [JP]) 22 February 2017 (2017-02-22) paragraph [0109] example 1 table 1 -----	1,2,6-9, 13,16,17 3-5, 10-12, 14,15
Y	EP 2 128 213 A1 (HITACHI CHEMICAL CO LTD [JP]) 2 December 2009 (2009-12-02) page 115 -----	3-5, 10-12, 14,15
A	JP 2016 194447 A (DAINIPPON PRINTING CO LTD) 17 November 2016 (2016-11-17) paragraph [0024] - paragraph [0027] ----- -/--	1-17

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 17 December 2019	Date of mailing of the international search report 03/01/2020
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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 Fischer, Brigitte
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2019/054923

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP S55 125155 A (YOKOHAMA RUBBER CO LTD) 26 September 1980 (1980-09-26) abstract the whole document -----	1-17
Y	WO 2016/195970 A1 (3M INNOVATIVE PROPERTIES CO [US]) 8 December 2016 (2016-12-08) page 20, line 15 - line 19 claims 1,5 examples 1,2; table 8 -----	1-17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2019/054923

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.:

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: 1-17(partially)

A UV-curable composition, comprising:(1) (meth)acrylic polymer; the glass transition temperature Tg for said (meth)acrylic polymer being -50 to 47°C;(2) curable components, comprising polyfunctional mercaptan and polyfunctional epoxy resin; said polyfunctional mercaptan being a mercaptan compound having 2 or more sulfydryl groups in its molecule, and preferably having more than 3 sulfydryl groups; said multi-functional epoxy resin is an epoxy resin having 2 or more epoxy groups in each of its molecule on average; and(3) photobase generator; adhesive film comprising the composition; adhesive tape comprising the adhesive film; bonded member comprising the composition, the film or the tape.

1.1. claims: 1-17(partially)

A UV-curable composition, comprising:(1) (meth)acrylic polymer and ethylene-vinyl acetate copolymer; the glass transition temperature Tg for said (meth)acrylic polymer and ethylene-vinyl acetate copolymer being -50 to 47°C;(2) curable components, comprising polyfunctional mercaptan and polyfunctional epoxy resin; said polyfunctional mercaptan being a mercaptan compound having 2 or more sulfydryl groups in its molecule, and preferably having more than 3 sulfydryl groups; said multi-functional epoxy resin is an epoxy resin having 2 or more epoxy groups in each of its molecule on average; and (3) photobase generator; adhesive film comprising the composition; adhesive tape comprising the adhesive film; bonded member comprising the composition, the film or the tape.

2. claims: 1-17(partially)

A UV-curable composition, comprising:(1) ethylene-vinyl acetate copolymer; the glass transition temperature Tg for said ethylene-vinyl acetate copolymer being -50 to 47°C;(2) curable components, comprising polyfunctional mercaptan and polyfunctional epoxy resin; said polyfunctional mercaptan being a mercaptan compound having 2 or more sulfydryl groups in its molecule, and preferably having more than 3 sulfydryl groups; said multi-functional epoxy resin is an epoxy resin having 2 or more epoxy groups in each of its molecule on average; and(3) photobase generator; adhesive film comprising the composition; adhesive tape comprising the adhesive film; bonded member comprising the composition, the film or the tape.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2019/054923

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