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(54) **Title:** ADHESIVE WITH TUNABLE POROSITY AND METHODS TO SUPPORT TEMPORARY BONDING APPLICATIONS

(57) **Abstract:** Compositions and methods are described for a temporary adhesive used to affix a work unit onto a carrier substrate whereby its porosity is tuned by choosing and adjusting the polymeric resin and filler components to provide sufficient adhesion to support a manufacturing process, and upon completion, there is advanced penetration of a liquid into the interfacial bond causing release of the work unit without harm. The temporary adhesive provides a tunable porosity that is dependent upon the mathematical calculation of the weight basis ratio of filler to binder, that is preferably greater than 0.4, more preferably greater than 1.0, and most preferably greater than 2.0. The temporary adhesive may be applied and cured in a variety of ways that meet the needs of the form of the work unit and objectives of the manufacturing process. The invention provides benefits of flexibility and reduced cost when establishing practices to handle difficult work units in the manufacture of semiconductors and flat panel displays.



INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

C09J 9/00 (2006.01)
H01L 21/02 (2006.01)

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 7/02, 9/00, 9/02, C09J 5/00-5/10, 11/00-11/08, 4/00-4/06, H01L 21/00-21/02, B29D 11/00

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)

DEPATISNET, Espacenet, PAJ, USPTO, Patentscope, PatSearch (RUPTO internal)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/127191 A2 (CORNING INCORPORATED) 08.11.2007, abstract, paragraphs [0009], [0034], [0041]-[0046]	1-22
X	US 2012/0282455 A1 (ENCAI HAO et al.) 08.11.2012, abstract, paragraphs [0043]-[0044], [0078]	1-22
A	US 2012/0152459 A1 (BASF SE) 21.06.2012, paragraphs [0002], [0008], claims	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"I" 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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

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