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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



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(54) Title: CYCLIC BISAMIDES USEFUL IN FORMULATING INKS FOR PHASE-CHANGE PRINTING

(57) Abstract: Cyclic bisamides may be used to formulate inks for jet ink printing. The cyclic bisamide may be prepared from a cyclic diamine and acylic monocarboxylic acids. Conversely, the cyclic bisamide may be prepared from a cyclic diacid and acylic monoamines. The performance properties of the product may be enhanced by adding some additional difunctional reactant(s), e.g., diacid or diamine. A blend of bisamides may provide better performance properties than either of the component bisamides alone, where the blend includes at least one cyclic bisamide. The bisamides, in combination with an image-forming material, and optionally in combination with other materials, is taken to a molten form and then applied to a substrate to provide a printed substrate.

# INTERNATIONAL SEARCH REPORT

Interr plication No  
PCT/US2004/016010

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C09D11/00 C07C233/08 C07C233/58 C07C231/02

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 7 C09D C07C

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, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/87847 A (PAVLIN MARK S ; ARIZONA CHEM (US)) 22 November 2001 (2001-11-22) the whole document	1-13,35
X	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 06, 28 June 1996 (1996-06-28) & JP 8 048965 A (NISSHIN OIL MILLS LTD:THE), 20 February 1996 (1996-02-20) abstract	1-13,35
X	EP 0 307 933 A (UNION CAMP CORP) 22 March 1989 (1989-03-22) page 3, line 36 - page 4, line 25	1-13,35
X	US 4 816 549 A (RUMACK DANIEL T) 28 March 1989 (1989-03-28) column 2, line 49 - column 3, line 39; example 1	1-13,35

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document 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

22 September 2004

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16. 12. 2004

Name and mailing address of the ISA

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Schmitz, V

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/016010

## Box 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 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 fee, this Authority did not invite payment of any additional fee.
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.:

1-13, 35

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

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: 1-13,35

A non aqueous composition comprising an image forming material and a cyclic bisamide of formula (I) and a method of printing with the composition.

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2. claims: 14-28,36

A composition prepared by a special process comprising reacting a diamine of structure (IV), the process and a method of printing with the composition.

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3. claims: 29-34,37

A composition comprising a blend of a first and second bisamide, wherein the first bisamide is described by structure (I) and a method of printing with the composition.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern	Application No
PCT/US2004/016010	

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
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