

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 435 298 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
14.07.2004 Bulletin 2004/29

(51) Int Cl. 7: B41M 5/32, G03C 1/498

(43) Date of publication A2:  
07.07.2004 Bulletin 2004/28

(21) Application number: 03104600.6

(22) Date of filing: 09.12.2003

(84) Designated Contracting States:  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HU IE IT LI LU MC NL PT RO SE SI SK TR  
Designated Extension States:  
AL LT LV MK

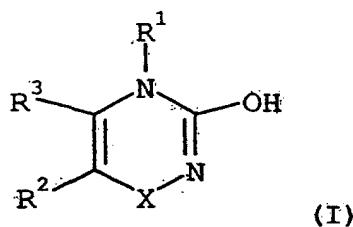
(30) Priority: 19.12.2002 EP 02102832

(71) Applicant: AGFA-GEVAERT  
2640 Mortsel (BE)

(72) Inventors:  
• Geuens, Ingrid  
Septestraat 27 2640 Mortsel (BE)  
• Loccufier, Johan  
Septestraat 27 2640 Mortsel (BE)  
• Drieghe, Vera  
Septestraat 27, 2640 Mortsel (BE)

### (54) Toning agents for use in thermographic and photothermographic recording materials

(57) A black and white monosheet thermographic recording material comprising a support and a thermosensitive element, the thermosensitive element containing a substantially light-insensitive organic silver salt, an organic reducing agent therefor in thermal working relationship therewith, a binder and at least one toning agent, characterized in that the at least one toning agent is represented by formula (I):



wherein R<sup>1</sup> is a hydrogen atom or an alkyl, an alkenyl, an alkynyl, a cycloalkyl, an alkaryl, an aryl, a heterocyclic or a heteroaryl group all of which may be optionally substituted; with the proviso that R<sup>1</sup> may not be a hydrogen atom if both R<sup>2</sup> and R<sup>3</sup> are both hydrogen atoms; R<sup>2</sup> and R<sup>3</sup> are independently a hydrogen or a halogen atom or an amino, amide, ester, carboxy, carbonato, alkyl, alkenyl, alkynyl, cycloalkyl, alkaryl, aryl, heterocyclic or heteroaryl group all of which may be optionally substituted; R<sup>2</sup> and R<sup>3</sup> may together represent the atoms necessary to complete a heteroaromatic ring with no more than one nitrogen atom, an alicyclic or a heterocyclic group which all may be optionally substituted; and X is a carbonyl group, or is -N-R<sup>4</sup>, where R<sup>4</sup> is an alkyl group. The element may also contain a photosensitive silver halide.



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim			
X	US 4 030 930 A (SASHIHARA KENJI ET AL) 21 June 1977 (1977-06-21) * column 1, line 64 - column 2, line 46; claim 1; tables 1,4 * ----- US 2002/012888 A1 (WADA YASUNORI) 31 January 2002 (2002-01-31) * paragraph [0020] *	1-9,11	B41M5/32 G03C1/498		
X	-----	1,11			
A	DATABASE WPI Section Ch, Week 200119 Derwent Publications Ltd., London, GB; Class E19, AN 2001-184959 XP002279436 -& JP 2000 314939 A (FUJI PHOTO FILM CO LTD) 14 November 2000 (2000-11-14) * compound S-14 * * abstract *	1-11			
A	----- DATABASE WPI Section Ch, Week 197736 Derwent Publications Ltd., London, GB; Class E13, AN 1977-63652Y XP002279437 -& JP 52 088329 A (FUJI PHOTO FILM CO LTD) 23 July 1977 (1977-07-23) * abstract *	1-11	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B41M G03C		
A	----- DATABASE WPI Section Ch, Week 199925 Derwent Publications Ltd., London, GB; Class E13, AN 1999-297998 XP002279438 -& JP 11 102047 A (FUJI PHOTO FILM CO LTD) 13 April 1999 (1999-04-13) * abstract * * paragraph [0039] *	1-11 -/-			
The present search report has been drawn up for all claims					
Place of search	Date of completion of the search	Examiner			
The Hague	10 May 2004	Bolger, W			
CATEGORY OF CITED DOCUMENTS					
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document					
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document					



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 03 10 4600

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 6 146 823 A (KATOH KAZUNOBU) 14 November 2000 (2000-11-14) * column 13, line 39; claims 1,2 * -----	1-11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	10 May 2004	Bolger, W	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 03 10 4600

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-05-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 4030930	A	21-06-1977	JP	980756 C	18-12-1979
			JP	50114217 A	08-09-1975
			JP	54015210 B	13-06-1979
			DE	2506320 A1	21-08-1975
			GB	1462016 A	19-01-1977
US 2002012888	A1	31-01-2002	JP	2001356447 A	26-12-2001
JP 2000314939	A	14-11-2000		NONE	
JP 52088329	A	23-07-1977		NONE	
JP 11102047	A	13-04-1999		NONE	
US 6146823	A	14-11-2000	JP	11295847 A	29-10-1999