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(54) Title: UNDERLAYER COATING COMPOSITION BASED ON A CROSSLINKABLE POLYMER

(57) Abstract: The present invention relates to an underlayer coating composition capable of being crosslinked comprising a polymer, a compound capable of generating a strong acid, and optionally a crosslinker, where the polymer comprises at least one absorbing chromophore and at least one moiety selected from an epoxy group, an aliphatic hydroxy group and mixtures thereof. The invention further relates to a process of imaging the underlayer coating compositions.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. C09D163/00 C09D133/00 G03F7/09

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 G03F

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/030320 A (AZ ELECTRONIC MATERIALS USA [US]) 23 March 2006 (2006-03-23) page 9, line 1 - page 13, line 4; claims	1-20
X	US 2007/099108 A1 (ABDALLAH DAVID J [US] ET AL) 3 May 2007 (2007-05-03) claims; examples	1-20
X	US 6 309 790 B1 (JUNG MIN-HO [KR] ET AL) 30 October 2001 (2001-10-30) claims	1-20
X	GB 2 364 317 A (HYNIX SEMICONDUCTOR INC [KR]) 23 January 2002 (2002-01-23) page 7, line 21 - page 8, line 19; claims	1-20

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/067329 A (BREWER SCIENCE INC [US]) 14 August 2003 (2003-08-14) claims	1-20
A	DD 275 125 A1 (PHYSIKALISCH TECHN INST DER AD [DD]) 10 January 1990 (1990-01-10) claims	1
A	US 2007/105040 A1 (TOUKHY MEDHAT A [US] ET AL) 10 May 2007 (2007-05-10) [0015]	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2008/002064

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006030320 A	23-03-2006	EP 1805561 A2	11-07-2007
		JP 2008513567 T	01-05-2008
		KR 20070051363 A	17-05-2007
		US 2006058468 A1	16-03-2006
US 2007099108 A1	03-05-2007	CN 101296952 A	29-10-2008
		EP 1966255 A1	10-09-2008
		WO 2007052132 A1	10-05-2007
		KR 20080063762 A	07-07-2008
US 6309790 B1	30-10-2001	CN 1266843 A	20-09-2000
		DE 19962663 A1	21-09-2000
		FR 2791056 A1	22-09-2000
		GB 2347927 A	20-09-2000
		IT T0991092 A1	14-06-2001
		JP 4121683 B2	23-07-2008
		JP 2000264921 A	26-09-2000
		JP 2008197624 A	28-08-2008
		KR 20000060410 A	16-10-2000
		NL 1014639 C2	28-12-2001
		NL 1014639 A1	18-09-2000
		TW 234689 B	21-06-2005
GB 2364317 A	23-01-2002	CN 1331256 A	16-01-2002
		CN 1974697 A	06-06-2007
		DE 10133717 A1	24-01-2002
		JP 3602077 B2	15-12-2004
		JP 2002097231 A	02-04-2002
		KR 20020002907 A	10-01-2002
		US 2002127789 A1	12-09-2002
WO 03067329 A	14-08-2003	AU 2002361686 A1	02-09-2003
		EP 1470446 A1	27-10-2004
		JP 2006504807 T	09-02-2006
		US 2003162125 A1	28-08-2003
DD 275125 A1	10-01-1990	NONE	
US 2007105040 A1	10-05-2007	CN 101305321 A	12-11-2008
		EP 1960837 A2	27-08-2008
		WO 2007054813 A2	18-05-2007
		KR 20080066869 A	16-07-2008