

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROSHI KUBOTA, KATSUYA TAKEMURA
and TAKAO YOSHIHARA

Appeal No. 2005-0488
Application No. 09/851,274

ON BRIEF

Before KIMLIN, WALTZ and JEFFREY T. SMITH, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-4 and 9-20, all the claims pending in the present application. Claim 1 is illustrative:

1. A resist material comprising one or more surfactants having a fluorine substituent and between 10 and 2000 ppm of a non-ionic surfactant comprising one or more non-ionic surfactants having neither a fluorine substituent nor a silicon-containing substituent.

Appeal No. 2005-0488
Application No. 09/851,274

The examiner relies upon the following references as evidence of obviousness:

Kawabe et al. (Kawabe)	6,159,656	Dec. 12, 2000
Chen et al. (Chen)	6,174,661 B1	Jan. 16, 2001
		(filed Dec. 28, 1998)

Appellants' claimed invention is directed to a resist material comprising at least one surfactant having a fluorine substituent and a non-ionic surfactant in the recited amount. The non-ionic surfactant cannot have either a fluorine or silicon-containing substituent. According to appellants, the present invention provides "a resist material and a pattern formation method in which the coating property is improved, the occurrences of microbubbles in the solution is [sic, are] suppressed, and further occurrences of a variety of defects causing the yield reduction in the device manufacturing step are low" (page 2 of Brief, paragraph four).

Appealed claims 1-4 and 9-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawabe taken with Chen.

Appellants submit at page 2 of the Brief that "[f]or the purposes of this Appeal with respect to the outstanding obviousness rejection, claims 1-4 and 9-20 are to be considered standing or falling together, and accordingly, are grouped together in Group I" (last paragraph). Accordingly, even though

Appeal No. 2005-0488
Application No. 09/851,274

the ARGUMENT section of appellants' Brief discusses various claims on appeal, all the appealed claims stand or fall together with claim 1, and we will limit our consideration to the examiner's rejection of claim 1.

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the specification evidence relied upon in support thereof. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejection for the reasons set forth in the Answer, which we incorporate herein, and we add the following primarily for emphasis.

There is no dispute that Kawabe, like appellants, discloses a resist material comprising a surfactant having a fluorine substituent and provides the further teaching that "a non-ionic surfactant can be further added for the purpose of improving the applicability of each photosensitive resin composition of his invention or improving developability" (page 3 of Answer, last paragraph). Also, as emphasized by the examiner, Kawabe specifically discloses examples of non-ionic surfactants which have neither a fluorine nor a silicon-containing substituent,

Appeal No. 2005-0488
Application No. 09/851,274

e.g., polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, etc. (see column 45, lines 1-7). Indeed, all the examples listed by Kawabe in the cited paragraph have neither a fluorine nor a silicon-containing substituent. Accordingly, we are in complete agreement with the examiner that it would have been obvious for one of ordinary skill in the art to formulate a resist material within the scope of appealed claim 1. As for the recited amount of non-ionic surfactant of between 10 and 2000 ppm, we concur with the examiner that it would have been obvious for one of ordinary skill in the art to resort to routine experimentation to determine an optimum amount of non-ionic surfactant for achieving the desired level of applicability and developability. Moreover, it is well settled that where patentability is predicated upon a change in a condition of a prior art composition, such as a change in concentration or the like, the burden is on the applicant to establish with objective evidence that the change is critical, i.e., it leads to a new, unexpected result. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In the present case, as stated by the examiner, appellants have not proffered any such evidence which demonstrates that amounts of non-ionic surfactant

Appeal No. 2005-0488
Application No. 09/851,274

within the claimed range produce an unexpected result.

Appellants' disclosure at page 10 of the specification that "[t]he amount of the non-ionic surfactant containing neither a fluorine substituent nor a silicon containing substituent may be in the range of 10 to 2000 ppm" would seem to allay any suggestion of criticality (second paragraph, emphasis added).

Appellants submit that "merely failing to discuss or even acknowledge a non-ionic surfactant having neither a fluorine substituent nor a silicon-containing substituent clearly does not constitute a 'teaching' or even a 'suggestion' of a non-ionic surfactant having neither a fluorine substituent nor a silicon-containing substituent" (page 5 of Brief, second paragraph). However, the examiner's rejection is based upon much more than Kawabe simply being silent about the nature of the non-ionic surfactant. Rather, Kawabe expressly discloses a specific number of non-ionic surfactants having neither a fluorine substituent nor a silicon-containing substituent which correspond to the non-ionic surfactants disclosed in the present specification. The fact that appellants may have discovered an additional advantage of including the non-ionic surfactants disclosed by Kawabe in a resist material comprising a surfactant having a fluorine

Appeal No. 2005-0488
Application No. 09/851,274

substituent does not militate against the obviousness of formulating the claimed resist material. It is not required for a finding of obviousness that the motivation of one of ordinary skill in the art be the same as appellants' motivation. In re Kemps, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996); In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991).

Appellants further contend that Examples 1-6 and Comparative Examples 1-6 of the present specification are evidence of nonobviousness. Appellants maintain that Comparative Example 6 illustrates "that a surfactant having a fluorine substituent without an addition of the non-ionic surfactant results in a large number of contaminants on the pattern surface and a large number of liquid particles" (page 8 of Brief, first paragraph). However, appellants point to no evidence that such a result would be considered unexpected by one of ordinary skill in the art, particularly in light of the Kawabe teaching with respect to the advantages of adding the specified non-ionic surfactants. See In re Merck & Co., 800 F.2d 1091, 1099, 231 USPQ 375, 381 (Fed. Cir. 1986), In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). Comparative evidence must establish not only

Appeal No. 2005-0488
Application No. 09/851,274

superior results, but also that the results would be truly unexpected in view of the prior art.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
)	
)	
)	
)	
THOMAS A. WALTZ)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
)	
JEFFREY T. SMITH)	
Administrative Patent Judge)	

ECK:clm

Appeal No. 2005-0488
Application No. 09/851,274

Myers, Bigel, Sibley & Sajovec
P.O. Box 37428
Raleigh, NC 27627