

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT STEVEN CLOUGH
and MARIO ALBERTO PEREZ

Appeal No. 2000-0595
Application No. 09/025,400

HEARD: June 13, 2002

Before PAK, WARREN, and WALTZ, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1 and 3 through 9. The remaining claims pending in this application are claims 2 and 10 through 20, which stand withdrawn from further consideration as directed to a non-elected invention (Brief, page 3). We have jurisdiction pursuant to 35 U.S.C. § 134.

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According to appellants, the invention is directed to a method of making a melt blended composition useful as an adhesive for electronic applications, where the method requires melt blending at temperatures greater than 150°C. components including polyphenylene ether (PPE), polystyrene (PS), and an uncured epoxy (Brief, page 4). A copy of illustrative independent claim 1 is attached as an Appendix to this decision.

The examiner has relied upon Chao et al. (Chao), U.S. Patent No. 5,001,010, issued Mar. 19, 1991, as evidence of obviousness. The claims on appeal stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite due to the claimed term "curable epoxy" (Answer, pages 2-3). The claims on appeal also stand rejected under 35 U.S.C. § 103(a) as unpatentable over Chao (Answer, page 3). We reverse both of the rejections on appeal for reasons stated in the Brief, Reply Brief, and as set forth below.

OPINION

A. The Rejection under § 112, ¶2

The examiner states that the claimed term "curable epoxy" merely defines a "functionality" which is not curable in the

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absence of the denotation of a compound or resin containing more than one epoxy group, according to page 7, line 15 to page 8, line 19, of the specification (Answer, page 3). In other words, the examiner states that the term "epoxy" encompasses a single epoxy group which is not curable since at least two epoxy groups are required for reaction with the curing agent to obtain a crosslinked structure (*id.*).

The legal standard for definiteness of claim language is whether one of ordinary skill in the art would have been apprised of the scope of the claims in light of the teachings of the specification. See *In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). We disagree with the examiner's construction of the claimed term "curable epoxy." One of ordinary skill in this art would have clearly construed the word "curable" by its ordinary meaning as "capable of being cured." Thus the contested language of the claim only includes any "epoxy" which is capable of being cured, thus excluding the examiner's interpretation of "a single epoxy group which is not curable" (Answer, page 3). Accordingly, one of ordinary skill in this art would have known the scope of the claims, especially in

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light of the specification defining the various "curable epoxies" within the scope of the claims (specification, pages 7-8, as cited by appellants on page 6 of the Brief). Therefore, we cannot sustain the examiner's rejection under the second paragraph of section 112.

B. The Rejection under 35 U.S.C. § 103(a)

The examiner finds that Chao discloses a method of making a composition comprising blending at 55°C. PPE, bisphenol A diglycidyl ether polyepoxide, and an aluminum tris(acetylacetonate) curing agent in the presence of a solvent (Answer, page 3, citing col. 8, Example 2 of Chao). The examiner recognizes that the claimed PS is not exemplified by Chao but finds that grafted and ungrafted PS is suggested by Chao to modify the PPE (*id.*). The examiner also recognizes that the claimed melt blending at a temperature of greater than 150°C. is not recited by Chao (Answer, page 4).¹ The examiner finds that Example 2 of Chao "exhibits the evaporation of the organic solvent at about 150°C followed by curing at 240°C." *Id.* From

¹The examiner also recognizes that the examples of Chao do not disclose or suggest the claimed method "without addition of solvent" (Answer, page 4; see claim 7 on appeal). The examiner finds that the term "typically dissolved" in relation to the solvent of Chao suggests the absence of a solvent (*id.*). Since our decision need only consider claim 1 on appeal, as discussed below, we do not address this limitation of claim 7.

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this finding, the examiner concludes that "[i]t is well within the purview of Chao et al to melt blend the polyphenylene ether and curing agent with the liquid polyepoxide between the solvent evaporation temperature of about 150°C to below the curing temperature of 240°C in order to uniformly mix the components while preventing premature curing." *Id.* We disagree with the examiner's conclusion since it is without any factual basis on this record.

Regarding the melt blending step at temperatures greater than 150°C. as claimed by appellants (claim 1), the examiner has merely set forth a conclusionary statement that such a melt blending temperature would have been "within the purview of Chao" but has not supported this conclusion with any factual basis. See *In re Lee*, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). The examiner has failed to point out where Chao discloses or suggests "melt blending" of all components, much less melt blending at the temperatures required by claim 1 on appeal. The examiner's finding that Chao discloses blending at 55°C. (Answer, page 3) appears incorrect since Chao, in Example 2, teaches preparing a solution of the components in "hot toluene" without

specifying any temperature.² A glass cloth was impregnated with the mixed solution at 55°C. (col. 8, ll. 47-48) but the examiner has not shown any melt blending in Example 2 of Chao.

Furthermore, the examiner has provided no support for the basis of the conclusion quoted above, namely that melt blend temperatures of from 150°C. to 240°C. are desired "to uniformly mix the components while preventing premature curing." Answer, page 4.

For the foregoing reasons and those set forth in the Brief and Reply Brief, we determine that the examiner has not provided an adequate factual basis for the conclusion of obviousness. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967). Accordingly, the examiner's rejection under section 103(a) over Chao is reversed.

C. Summary

The examiner's rejection of claims 1 and 3-9 under 35 U.S.C. § 112, second paragraph, is reversed.

The examiner's rejection of claims 1 and 3-9 under 35 U.S.C. § 103(a) as unpatentable over Chao is reversed.

²Appellants and the examiner do not contest the fact that toluene boils at 111°C. (Brief, page 8), and therefore the temperature of the "hot toluene" must be below this temperature.

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The decision of the examiner is reversed.

REVERSED

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| CHUNG K. PAK |) | |
| Administrative Patent Judge |) | |
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| |) | BOARD OF PATENT |
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| CHARLES F. WARREN |) | APPEALS AND |
| Administrative Patent Judge |) | |
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| THOMAS A. WALTZ |) | |
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APPENDIX

1. A method of making a curable melt blended composition comprising the step of melt blending:

a) 60 to 99.9 weight percent of a thermoplastic polymer comprising

1) 1-99 weight percent of polyphenylene ether (PPE) polymer, and

2) 1-99 weight percent of a polystyrene (PS) polymer; and

b) 0.1 to 40 weight percent of an uncured epoxy component comprising

1) a curable epoxy, and

2) an effective amount of a curing agent for said curable epoxy; wherein the step of melt blending occurs at a temperature greater than 150°C and wherein the epoxy component of the resulting composition is substantially uncured.