

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HADI K. MAHABADI, MICHAEL F. CUNNINGHAM
and HEATHER M. WRIGHT

Appeal No. 1997-3392
Application 08/297,946

ON BRIEF

Before OWENS, TIMM and DELMENDO, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-15 and 17-30, which are all of the claims remaining in the application.

THE INVENTION

The appellants claim a process for making toner particles having specified morphologies, and toners produced by this

process. Claims 1 and 25 are illustrative:

1. A process for producing toner particles, comprising:

(a) providing a mixture of partially polymerized monomer or comonomers until a degree of conversion is within about 1% to about 5% of the onset of gel-effect;

(b) forming a suspension of the partially polymerized monomer or comonomers;

(c) suspension polymerizing the partially polymerized monomer or comonomers while commencing starved feed addition of a second monomer or comonomers;

(d) selecting a starting time of said starved feed addition into said suspension undergoing polymerization to form said toner particles;

wherein said toner particles have a particle morphology selected from the group consisting of core-shell, pseudo core-shell having a composition gradient between a shell and a core, and a polyblend of a low molecular weight dispersed phase in a high molecular weight continuous phase.

25. Toner particles having a pseudo core-shell microcapsule morphology produced by the process of claim 1, said particles consisting of a shell and a core having a composition gradient between said shell and said core.

THE REFERENCES

Sacripante et al. (Sacripante)	5,213,934	May 25,
1993		
Cunningham et al. (Cunningham)	5,306,593	Apr. 26,
1994		

Appeal No. 1997-3392
Application 08/297,946

THE REJECTIONS

The claims stand rejected as follows: claims 1-15 and 17-30 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the appellants regard as the invention, and under 35 U.S.C. § 112, first paragraph, enablement and written description requirements, claim 25 under 35 U.S.C. § 102(b) as being anticipated by Sacripante, and claims 1-4, 7-15, 17-22, 29 and 30 under 35 U.S.C. § 103 as being unpatentable over Cunningham.

OPINION

We reverse the aforementioned rejections.

Rejection under 35 U.S.C. § 112, second paragraph

The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of the appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. See *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

The examiner argues that in claim 1, step (a), it is not clear what is being converted because, in the examiner's view, in claim 5, which depends from claim 1, there is no conversion of monomer or comonomers to a polymer product, and it is not clear what is converted in claim 1 such that claim 5 is within the scope of claim 1 (answer, pages 10, 11, 25 and 28-29). The examiner applies the same reasoning to the rejection of claim 23 (answer, page 11). Claim 5 recites that in claim 1, step (a), a mixture is formed by dissolving a polymer in a monomer or comonomers, and claim 1, step (a), recites that a mixture of partially polymerized monomer or comonomers is provided until a degree of conversion is within about 1% to about 5% of the onset of gel effect. Thus, it is clear that claim 1 is open to all of the conversion being provided by conversion of the monomer or comonomers, whereas claim 5 requires that at least some of the conversion is provided by a dissolved polymer.

The examiner argues that it is not clear in claims 1, 20 and 25 how a pseudo core-shell has a core and a shell since "pseudo" usually means false or pretended (answer, pages 10-12). A pseudo core-shell, the examiner argues, does not have

a true core and a true shell. *See id.* The examiner gives only her interpretation of "pseudo core-shell", but does not set forth what she considers to have been the interpretation of this term by one of ordinary skill in the art in view of the specification and the prior art. The specification indicates that a pseudo core-shell polymer has a gradual gradient of composition (page 4) and has a less distinct boundary region between the core and shell than does a core-shell polymer (page 16). This less distinct boundary, i.e., gradient, is shown in the appellants' figure 2. Thus, it would have been reasonably clear to one of ordinary skill in the art, in view of the appellants' specification, that a pseudo core-shell polymer is one having a core and a shell with a concentration gradient between them and, accordingly, having a core-shell boundary which is less distinct than that of a core-shell polymer.

The examiner argues that it is not clear in claims 4 and 22 from what the temperature is reduced (answer, pages 10-11). The temperature reduction, the examiner argues, does not necessarily correspond to the point of obtaining the desired

Appeal No. 1997-3392
Application 08/297,946

degree of conversion recited in claims 2 and 20, from which claims 4 and 22, respectively, depend (answer, pages 27-28). Claims 2 and 20 require polymerizing until a particular degree of conversion is reached, and stopping the polymerization by reducing a temperature of the partially polymerized monomer. Thus, it would have been clear to one of ordinary skill in the art that the temperature which is reduced is that of the polymerization and that the temperature is reduced from the polymerization temperature to a temperature at which the polymerization is stopped.

The examiner argues that claims 14 and 15 are indefinite because they are incomplete in that they do not recite the essential cooperative relationship between the starting of the starved feed addition and the toner morphology (answer, pages 11 and 30). The relevant issue is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of the appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. "The function of claims is (a) to point out what the invention is

Appeal No. 1997-3392
Application 08/297,946

in such a way as to distinguish it from what was previously known, i.e., from the prior art; and (b) to define the *scope of protection* afforded by the patent. In both of those aspects, claims are not technical descriptions of the disclosed inventions but are legal documents like the descriptions of lands by metes and bounds in a deed which *define the area conveyed but do not describe the land.*" *In re Vamco Mach. & Tool, Inc.*, 752 F.2d 1564, 1577 n.5, 224 USPQ 617, 625 n.5 (Fed. Cir. 1985). Claims 14 and 15 require controlling the starved feed addition such that, respectively, core-shell and pseudo core-shell morphologies are produced. The area circumscribed by the claims, therefore, would have been reasonably clear to one of ordinary skill in the art.

The examiner argues that claim 28 is indefinite because it merely recites that the component used to control the molecular weight is selected during the starved feed addition, and does not recite that an addition of that component actually takes place (answer, page 12). The specification teaches that the molecular weight is controlled by varying the amount of the components recited in claim 28 which are present

in the reaction medium when the starved feed polymer is added (page 11). Thus, although "selecting" is not the best choice of terms, it would have been reasonably clear to one of ordinary skill in the art, in view of the specification, that "selecting an amount of at least one component" requires that the at least one component is actually present during the starved feed addition.

For the above reasons, we reverse the rejections under 35 U.S.C. § 112, second paragraph.

*Rejection under 35 U.S.C. § 112,
first paragraph, enablement requirement*

Regarding enablement, a predecessor of our appellate reviewing court stated in *In re Marzocchi*, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971):

[A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. . . .

. . . .

. . . it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain *why* it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure.

The examiner argues that 1) the steps in the appellants' claims do not necessarily make polymers having the recited morphologies, i.e., the claims do not recite steps, such as the timing of the starved feed addition, which are required to make the recited morphologies, and 2) the claims do not recite any steps which are different than those of Cunningham, who does not disclose making the appellants' recited morphologies (answer, pages 6-7 and 12-16).

As discussed above, the claims must define the scope of protection of the invention, but need not provide a technical description of the claimed invention. Such a description is to be provided in the specification. The appellants' specification describes how the desired polymer morphology is obtained (pages 8-11). The examiner has not provided evidence which shows that this description is incorrect or inaccurate. Consequently, the examiner has not carried the burden of

Appeal No. 1997-3392
Application 08/297,946

establishing a *prima facie* case of nonenablement. We therefore reverse the examiner's rejection under 35 U.S.C. § 112, enablement requirement.

*Rejection under 35 U.S.C. § 112,
first paragraph, written description requirement*

In order for the appellants' specification to provide written descriptive support for the invention presently claimed, all that is required is that it reasonably convey to one of ordinary skill in the art that as of the filing date of the application, the appellants were in possession of the presently-claimed invention; how the specification accomplishes this is not material. See *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983); *In re Edwards*, 568 F.2d 1349, 1351-2, 196 USPQ 465, 467 (CCPA 1978); *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). It is not necessary that the application describe the presently-claimed invention exactly, but only sufficiently clearly that one of ordinary skill in the art would recognize from the disclosure that the appellants invented it. See *Edwards*, 568 F.2d at 1351-2, 196 USPQ at 467; *Wertheim*, 541 F.2d at 262, 191 USPQ at 96. "[T]he PTO has the initial

Appeal No. 1997-3392
Application 08/297,946

burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims." *Wertheim*, 541 F.2d at 263, 191 USPQ at 97.

The examiner argues that the specification does not disclose a process which makes a pseudo core-shell polymer having a gradient between its core and shell as recited in the appellants' claims (answer, pages 7-8 and 16-17).

The specification discloses that the pseudo core-shell polymer has a gradual gradient of composition (page 4) and has a less distinct boundary region between the core and shell than does a core-shell polymer (page 16). This less distinct boundary, i.e., gradient, is shown in the appellants' figure 2. Thus, the specification reasonably conveys to one of ordinary skill in the art that as of the filing date of the application, the appellants were in possession of process which makes a polymer having a morphology in which there is a composition gradient between a core and a shell as recited in the appellants' claims. Accordingly, we reverse the rejection under 35 U.S.C. § 112, first paragraph, written description

Appeal No. 1997-3392
Application 08/297,946

requirement.

Rejection under 35 U.S.C. § 102(b)

In order for a claimed invention to be anticipated under 35 U.S.C. § 102(b), all of the elements of the claim must be found in one reference. See *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Sacripante discloses a core-shell toner composition in which a polyfunctional reagent links the core binder and the shell, or alternatively, functionalities on the shell monomer react with the core binder monomer to graft some of the core binder molecules onto the shell structure (col. 2, line 56 - col. 3, line 4; col. 3, line 59 - col. 4, line 6).

The examiner argues that the appellants' claim 25 does not recite to what the composition gradient refers and that, therefore, Sacripante appears to disclose a polymer having the compositional and structural requirements of the appellants' claim 25 (answer, page 8). In the examiner's view, the chemical bonding between the core and shell, which Sacripante calls a "sealant layer" (col. 2, line 50), is a composition

gradient between a core and a shell, since part of the core binder is chemically grafted to the shell polymer and there is less core binder grafted to the shell polymer closer to the outer surface of the shell (answer, pages 17-18). The examiner has not established, however, that one of ordinary skill in the art would have interpreted "composition gradient between said shell and said core" in the appellants' claim 25 as including a grafting of the core binder to the shell.

When we give "composition gradient" its broadest reasonable interpretation in view of the appellants' specification, see *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983), we observe that the specification refers to a gradual gradient (page 4) and crudely shows such a gradient in figure 2. Thus, it reasonably appears that one of ordinary skill in the art would have interpreted the appellants' term "composition gradient" as requiring a region of gradual change in composition between the core and shell, and excluding a grafting at the core/shell boundary.

Accordingly, we find that the examiner has not carried the burden of establishing that all of the limitations of the appellants' claim 25 are found in the applied reference. Hence, we reverse the rejection under 35 U.S.C. § 102(b).

Rejection under 35 U.S.C. § 103

Cunningham discloses a process for making a toner having a high molecular weight polymer contained in a matrix of lower molecular weight polymer (col. 5, lines 55-62). Cunningham teaches that "the starved feed monomer is not more hydrophilic than the existing polymer/monomer particle to ensure that the starved feed monomer diffuses into the interior of the particle and does not form a shell around the exterior of the particle" (col. 4, lines 7-11).

The examiner argues that Cunningham's process steps and materials are the same as those of the appellants and that, therefore, the appellants' toner morphologies must be obtained using Cunningham's process (answer, pages 9-10 and 18-24).

The appellants, however, disclose that variation of the starting time of the starved feed addition can be used to control the polymer morphology such that, *inter alia*, a

Appeal No. 1997-3392
Application 08/297,946

polyblend morphology is produced, and disclose how to control the molecular weights of the phases of the polyblend (specification, pages 8-11). The examiner has not pointed out where Cunningham discloses process steps for producing a polyblend of a low molecular weight dispersed phase in a high molecular weight continuous phase, rather than making Cunningham's polyblend of a high molecular weight dispersed phase in a lower molecular weight continuous phase. Also, the examiner has not explained why Cunningham would have fairly suggested, to one of ordinary skill in the art, carrying out the disclosed process such that the high and low molecular weight domains of the polyblend are reversed relative to those desired by Cunningham. The examiner, therefore, has not carried the burden of establishing a *prima facie* case of obviousness of the appellants' claimed invention over Cunningham. Consequently, we reverse the rejection under 35 U.S.C. § 103.

DECISION

The rejections of claims 1-15 and 17-30 under 35 U.S.C. § 112, first paragraph, enablement and written description

Appeal No. 1997-3392
Application 08/297,946

requirements, and second paragraph, claim 25 under 35 U.S.C.
§ 102(b) over Sacripante, and claims 1-4, 7-15, 17-22, 29 and
30 under 35 U.S.C. § 103 over Cunningham, are reversed.

REVERSED

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TERRY J. OWENS)	
Administrative Patent Judge)	
)	
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)	BOARD OF PATENT
CATHERINE TIMM))
Administrative Patent Judge)	APPEALS AND
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Appeal No. 1997-3392
Application 08/297,946

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