

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TORSTEN GOTTSCHALK-GAUDIG,  
HERBERT BARTHEL, and UWE SCHEIM

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Appeal 2008-6038  
Application 10/970,813<sup>1</sup>  
Technology Center 1700

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Decided: December 10, 2008

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Before CHUNG K. PAK, MARK NAGUMO, and KAREN M. HASTINGS,  
*Administrative Patent Judges.*

NAGUMO, *Administrative Patent Judge.*

DECISION ON APPEAL

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<sup>1</sup> Application 10/970,813, *Aqueous Polymer Dispersions*, filed 21 October 2004 and claiming the benefit under 35 U.S.C. § 119 of a German application filed 22 October 2003. The Specification is referred to as the “813 Specification,” and is cited as “Spec.” The real party in interest is listed as Wacker Chemie AG. (Appeal Brief under 37 C.F.R. § 41.37, filed 19 June 2007 (Response to Notice on Non-Compliant Appeal Brief), and 13 December 2006 (“Br.”), 1.)

## A. Introduction

Torsten Gottschalk-Gaudig, Herbert Barthel, and Uwe Scheim (“Appellants”) timely appeal under 35 U.S.C. § 134(a) from the Final Rejection<sup>2</sup> of claims 1-23. We have jurisdiction under 35 U.S.C. § 6(a). We REVERSE.

The subject matter on appeal relates to dispersions of organic compounds in water, with particles “partially wettable in water” acting as dispersants. The dispersions are said to be convertible to elastomers or resins useful as sealants, adhesives, and coating materials. Representative Claim 1 is reproduced from the Claims Appendix to the Principal Brief on Appeal:

### Claim 1

An aqueous dispersion prepared from ingredients, comprising:

- (A) at least one organic compound selected from the group consisting of organosilicon compounds, \* \* \* \* \*,
- (B) dispersant particles partially wettable with water, and
- (C) water.

(Br., Claims App. 1; the remaining organic compounds are not reproduced here as they are not involved in the rejection of record.)

The Examiner has maintained the following ground of rejection:<sup>3</sup>

Claims 1-23 stand rejected under 35 U.S.C. § 102(b) in view of Bertry.<sup>4</sup>

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<sup>2</sup> Office Action mailed 14 August 2006.

<sup>3</sup> Examiner’s Answer mailed 22 October 2007. (“Ans.”).

<sup>4</sup> Jean Louis Bertry et al., *Aqueous Polyorganosiloxane Emulsion for the Coating of Textiles*, U.S. Patent 5,998,536 (1999).

Appellants contend, *inter alia*, that the Examiner erred by ignoring the requirement that “claim [1] requires a silicone, partly wettable dispersant particles, and water.” (Br. 13, last paragraph.) Most particularly, Appellants argue that Bertry does not disclose dispersions in which the silicas can function as a dispersant. (Br. 9-10.) In support of their arguments, Appellants rely in part on a declaration by Dr. Torsten Gottschalk-Gaudig, one of the inventors, in support of the recitation of facts. (Br. 10.)

The Examiner responds that Bertry describes using partially hydrophobicized silica material that meets the requirements of limitation (B). (Ans. 4.) The Examiner discounts Dr. Gottschalk-Gaudig’s testimony as being evidence of unexpected results that is not relevant to the rejection for anticipation. (*Id.* at 7.)

The dispositive legal issue is one of claim construction: do the claims require an aqueous composition in which partially wettable particles function as a dispersant?

The dispositive factual issue is, does Bertry describe aqueous dispersions in which partially wettable silica particles function as dispersants?

## B. Findings of Fact

Findings of fact ("FF") throughout this Decision are supported by a preponderance of the evidence of record.

### The 813 Specification

1. According to the 813 Specification, “[t]he invention relates to aqueous dispersions of polymers which, following removal of water, can be

converted into elastomers or resins, to processes for preparing them, and to their use as sealants, adhesives and coating materials.” (Spec. 1:4-6.)

2. “Previously,” the 813 Specification continues, “aqueous dispersions of organopolysiloxanes generally have been stabilized by means of organic emulsifiers.” (Spec. 1:24-25.)

3. Existing aqueous dispersions of polymers convertible to elastomers are said to provide poor adhesion to substrates due to the high emulsifier content needed to provide storage stability. (Spec. 2:9-13.)

4. In the words of the 813 Specification, “[t]he dispersions of the invention are preferably substantially free from conventional, purely organic, surface-active substances . . . Examples include nonionic, cationic and anionic emulsifiers (‘organic emulsifiers’).” (Spec. 3:11-15.)

5. Component A is broadly described as “all . . . compounds it has been possible to disperse to date.” (Spec. 9-10.)

6. Component A is said to be comprised preferably of organosilicon compounds. (Spec. 7:1-2.)

7. Ingredient B is said to comprise partly water-wettable particles. (Spec. 9:12-13.)

8. The 813 Specification states most generally that “[c]omponent (B) *preferably* comprises particles having a contact angle THETA of from 0 to 180°, . . . measured in each case at the water-air phase boundary at a temperature of 25° C and under the pressure of the surrounding atmosphere, . . . and a surface energy gamma of from 30 to 72.5 mJ/m<sup>2</sup> . . . ”. (Spec. 10:7-13; emphasis added.)

9. We understand this statement to mean that a surface is considered to be partly wettable by water if the contact angle is neither  $0^\circ$  (when the solid surface would be completely wetted) nor  $180^\circ$  (when the solid surface is completely unwetted, i.e., completely non-interactive with water).

10. Component (B) is further characterized as having “in particular” a diameter of 10-600 nm (Spec. 9:20-24), and a BET surface area of 30-500 m<sup>2</sup>/g (*id.* at 10:1-3).

Bertry

11. Bertry describes aqueous polyorganosiloxane emulsions said to be suitable for coating textiles. (Bertry, abstract; 2:36-38.)

12. The emulsions are described as containing an organopolysiloxane that is a precursor of an elastomer, preferably an inorganic filler, and other ingredients, but lacking a surfactant. (Bertry 2:39-43.)

13. Instead of a surfactant, the emulsion is obtained by direct emulsification in an aqueous solution of a protective hydrocolloid. (Bertry 2:43-47.)

14. The protective hydrocolloid is said to be “a polymer possessing both hydrophilic groups and groups which are compatible with the silicone phase.” (Bertry 2:47-50.)

15. The preferred protective hydrocolloid is said to be a poly(vinyl-alcohol) (PVA) or a PVA mixture. (Bertry 2:55-56.)

16. The inorganic fillers are said to be preferably a silica having a BET surface area of at least 50 m<sup>2</sup>/g, and a mean size of less than 0.1  $\mu\text{m}$  [100 nm]. (Bertry 7:6-11.)

17. According to Bertry, the silicas can be treated with organosilicon compounds such as chlorosilanes, and can increase their weight up to 20% of their starting weight during treatment. (Bertry 7:17-28.)

18. The inorganic fillers are described as being used in amounts ranging from 0.5 to 50 weight % of the weight of the silicone phase of the formula. (Bertry 7:43-45.)

19. Somewhat more particularly, Bertry describes the silicas as being a reinforcing filler in the preferred “polyaddition formula” (Bertry 9:60-63) and in the preferred “polycondensation formula” (*id.* at 10:14-17).

20. The polyaddition and polycondensation formulas are said to be crosslinked in the presence of a metal catalyst and optionally in the further presence of a crosslinking agent or an amine. (Bertry 5:63-67.)

Gottschalk-Gaudig Declaration<sup>5</sup>

21. Dr. Gottschalk-Gaudig testifies that “*Bertry* does not utilize any partly wettable dispersant particles, nor is it the intention of *Bertry* to utilize particles of any type to stabilize his dispersions.” (Decl. 2, ¶ 4.)

22. Rather, according to Dr. Gottschalk-Gaudig, “*Bertry* incorporated very fine particles (‘reinforcing fillers’) into an organopolysiloxane composition which is then dispersed with the aid of a surface active substance, namely, a protective colloid.” (Decl. 2, ¶ 4.)

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<sup>5</sup> Evidence Appendix 1, attached to Appellants’ principal Brief, Declaration under Rule 132 of Dr. Torsten Gottschalk-Gaudig, dated “24.02.2006,” and filed 7 March 2006 (“Decl.”).

23. Dr. Gottschalk-Gaudig testifies further that “the particles, having been incorporated into the organopolysiloxane composition, will not be available at the interface between the continuous aqueous phase and the dispersed organic phase, and therefore cannot function as a dispersant.” (Decl. 2, ¶ 5.)

24. Dr. Gottschalk-Gaudig reports Example 1, which is said to be an example of the claimed invention, and Comparative Examples 2–5, which are said to attempt to replicate the procedures used by Bertry with partly wettable and non-wettable silicas. (Decl. 2-4.)

25. Dr. Gottschalk-Gaudig does not report the contact angles of the silicas with water.

26. We have no reason to conclude that the contact angle with water of the so-called hydrophobic or non wettable silicas described by Dr. Gottschalk-Gaudig is 180°.

27. Inventive Example 1 is said to have resulted in a viscous white oil-in-water dispersion. (Decl. 3:1-2.)

28. Comparative Examples 2, 4, and 5 are said to have resulted in visco-elastic flow resistant mixtures, while Comparative Example 3 is said to have resulted in a white foamy mixture with separated dry silica. In no case was an aqueous dispersion obtained. (Decl. 5-6.)

## C. Discussion

The burden is on the Appellants to demonstrate reversible error in the Examiner’s rejection. *See, e.g., Gechter v. Davidson*, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (“[W]e expect that the Board’s anticipation analysis be conducted on a limitation by limitation basis, with specific fact findings for

each *contested* limitation and satisfactory explanations for such findings.") (emphasis added). "To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997) (citation omitted).

During examination, "the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997)

The disputed portion of claim reads, "[a]n aqueous dispersion prepared from ingredients, comprising: . . . , (B) dispersant particles partially wettable with water, . . .".

The Examiner appears to have interpreted the claims as covering an aqueous dispersion prepared from ingredients (A), (B), and (C), in which ingredient (B), namely, "dispersant particles partially wettable with water," need be present only as a starting material for the ultimate aqueous dispersion. Although it is arguable that the plain language of claim 1, read in a vacuum, might support the Examiner's reading, that reading is not consistent with the weight of the evidence in the supporting 813 Specification. The entire supporting disclosure indicates that Appellants are trying to prepare aqueous polymer dispersions without using conventional surfactants by replacing the conventional surfactants with ingredient (B), "dispersant particles partially wettable with water." By so doing, the high emulsifier content thought to be the cause of poor adhesion to substrates of products prepared from the aqueous dispersions

(Spec. 2:9-13) is avoided. Consistently, when the claims recite the presence of surface-active agents, they are said to be present at less than 2% by weight (claim 15), or at concentrations less than the critical micelle concentration (claims 13 and 14). Moreover, and consistently, claim 2, which depends from claim 1, recites the condition that the aqueous dispersion is “substantially free from conventional, nonparticulate, purely organic surface active substances . . .” In light of the 813 Specification, the sensible and proper reading of claim 1<sup>6</sup> is thus that the claimed aqueous dispersion contains partially wettable particles that act as dispersant particles, i.e., they stabilize the dispersion.

Notwithstanding the Examiner’s erroneous claim interpretation, the rejection for anticipation must be affirmed if the weight of the evidence is that all the components recited in the claims are present and perform their required functions. In the present case, Appellants do not dispute that Bertry describes compositions containing ingredient (A), an organosilicon compound, and ingredient (C), water. Although Appellants repeatedly assert that the treated silicas described by Bertry are non-wettable, claim 1 requires that the dispersant particles be “partially wettable with water.” We turn to the 813 Specification for guidance as to the meaning of this limitation. The 813 Specification states most generally that “component (B) *preferably* comprises particles having a contact angle THETA of from 0 to 180°, . . . measured at the water-air phase boundary at 25° C and one atmosphere, . . . and a surface energy gamma of from 30 to 72.5 mJ/m<sup>2</sup> . . . ”.

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<sup>6</sup> The argument applies equally to independent claims 12 and 21, which recite the presence of dispersant particles in an equivalent way, and which the Examiner has not rejected separately.

(Spec. 10:7-13; emphasis added.) As limitations of preferred embodiments are not to be read into the claims, the term “partially wettable” does not serve to distinguish ingredient (B) from similar substances described in the prior art. The limitation that the particles of (B) have contact angle with water be between 0 and 180° excludes particles that are completely wettable by water, or that are completely nonwettable by water. However, all liquids interact with solid surfaces to some extent, so it is not credible that there are any solids that have a contact angle of 180° with water. In any event, there is no credible evidence that any of the silicas described by Bertry have contact angles with water of 180°. It thus appears that the compositions described by Bertry could have properties that bring them within the ambit of Appellants’ claimed subject matter.

Particles that meet the limitations of ingredient (B) must be dispersant particles in the aqueous dispersion. That is, they must have the function of stabilizing the dispersion in a manner similar to surfactants, i.e., interacting with the continuous water phase at the same time that they interact with the organic compound phase. In this regard, the Examiner has relied solely on the disclosure of Bertry, which does disclose very similar coated silica particles.<sup>7</sup>

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<sup>7</sup> It may be that the Examiner was misled by many of Appellants’ arguments regarding the alleged non-wettability of the treated silicas described by Bertry. As indicated *supra*, the broad definition of the term “partially wettable” provided by the 813 Specification shows that the coated silica particles described by Bertry, no matter how hydrophobic, do not have contact angles of 180°. Hence, the Bertry particles are, by Appellants’ definition, “partially wettable.” Dr. Gottschalk-Gaudig’s testimony to the contrary is irrelevant as definitions provided by the 813 Specification control the meaning of terms in the claims.

Appellants, however, have submitted the declaration of Dr. Gottschalk-Gaudig, who testifies that the coated silica particles described by Bertry show no sign of acting as dispersant particles in the compositions of Bertry or in compositions intended to test the Examiner's thesis that Bertry anticipates the claimed subject matter. Rather than resulting in dispersions stabilized by the silica particles, visco-elastic flow-resistant mixtures were obtained. The Examiner criticizes the declarational evidence on the grounds that, as evidence of unexpected results, it is not relevant to the question of anticipation. (Ans. 6-7.) This criticism is misdirected, as Dr. Gottschalk-Gaudig submitted the declaration as evidence that the properties of the compositions and the silicas disclosed by Bertry are not within the scope of the claim limitations. The Examiner has not directed our attention to evidence that the Declaration is unreliable or inaccurate in its characterizations of the Examples and Comparative Examples it provides. Nor has the Examiner explained why the Comparative Examples should be regarded as showing that the Bertry coated silica particles function as dispersants.

On the present record, we determine that the preponderance of the evidence shows the Examiner erred in finding that Bertry anticipates the subject matter of claim 1. As the Examiner's arguments regarding the other independent claims as well as all of the dependent claims rely on the same erroneous claim construction, we conclude that all of the rejections must be REVERSED.

Appeal 2008-6038  
Application 10/970,813

**D. Order**

We REVERSE the rejection of claims 1-23 under 35 U.S.C. § 102(b) in view of Bertry.

**REVERSED**

PL Initial:  
sld

BROOKS KUSHMAN P.C.  
1000 TOWN CENTER  
TWENTY-SECOND FLOOR  
SOUTHFIELD, MI 48075