United States Court of Appeals for the Federal Circuit

01-1374

ABBOTT LABORATORIES and
MITSUBISHI-TOKYO PHARMACEUTICALS, INC.
(formerly known as Tokyo Tanabe Co., Ltd.),

Plaintiffs-Appellants,

v.

DEY, L.P. and DEY, INC.,

Defendants-Appellees.

Thomas M. Durkin, Mayer, Brown & Platt, of Chicago, Illinois, argued for plaintiffs-appellants. On the brief was Stephen A. Miller.

J. Bruce McCubbrey, Coudert Brothers, of San Francisco, California, argued for defendants-appellees. With him on the brief were Robert D. Becker of San Francisco, California; and Darrell Prescott, of New York, New York.

Appealed from: U.S. District Court for the Northern District of Illinois

Judge Matthew F. Kennelly

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DECIDED: April 23, 2002

Before NEWMAN, GAJARSA, and PROST, Circuit Judges.

PROST, Circuit Judge.

Plaintiffs Mitsubishi-Tokyo Pharmaceuticals, Inc. and Abbott Laboratories appeal the decision of the United States District Court for the Northern District of Illinois granting defendants Dey L.P. and Dey, Inc. summary judgment of noninfringement of U.S. Patent No. 4,397,839 ("the '839 patent"). Because the district court improperly precluded plaintiffs from relying on the doctrine of equivalents to prove infringement, we vacate the judgment of noninfringement and remand for further proceedings in accordance with this opinion.

BACKGROUND

I

Tokyo Tanabe Company, Ltd., now known as Mitsubishi-Tokyo Pharmaceuticals, Inc., and its exclusive United States licensee, Abbott Laboratories, (collectively "Abbott") sued Dey, L.P. and Dey, Inc. (collectively "Dey") for infringement of the '839 patent and U.S. Patent No. 4,338,301 ("the '301 patent"). These patents relate to a lung surfactant composition for treating respiratory distress syndrome in premature babies. The '301 patent, filed on May 21, 1980, represents the work of Drs. Fujiwara, Tanaka and Takei in developing a surfactant having the desirable properties of rapid spreading in the lungs and of reducing ultra-alveolar surface tension. Claim 1 of the '301 patent reads as follows:

> Surface active material containing phospholipid, neutral lipid, total cholesterol, carbohydrate, protein and water, which material is obtained from lung tissue of a mammal with or without further phospholipid, characterized in that the phospholipid content is 75.0-95.5%, the neutral lipid content is 1.8-14.0%, the total cholesterol content is 0.0-3.0%, the carbohydrate content is 0.1-1.5%, the protein content is 0.5-5.0% and water content is 1.7-6.0%, all based on the dried weight of said material, the minimum and maximum surface tension ranges of the material estimated by Wilhelmy's method wherein the material is added dropwise to the surface of physiological saline in an amount of 0.3-0.8 µg per square centimeter of surface area thereof being 2.1-8.6 dynes/cm and 48.2-58.0 dynes/cm when surface areas are 21.0 cm^2 and 45.6 cm^2 respectively.

'301 patent, col. 17, l. 59 – col. 18, l. 6 (emphasis added).

The '301 patented surfactant was based on a composition labeled "TA-546." Dr. Tanaka, one of the three inventors of the '301 patent, "continued confirmatory studies on TA-546" and "discover[ed] that several important properties (i.e., surface tension-reducing capacity, spreadability over a liquid surface, and adsorbability to a gas-liquid

interface) of TA-546 can be enhanced by increasing the relative amount or content of free fatty acids to 1.0-27.7% based on the total weight of TA-546." '839 patent, col. 1, ll. 36-44 (emphasis added). TA-546 contained less than 1.0% free fatty acid, although the '301 patent makes no mention of this fact. Id. at col. 1, ll. 37-38; '301 patent, col. 5, Table I. Dr. Tanaka's discovery of the benefits of adding free fatty acids led him to file a new patent application on March 4, 1982, four months before the '301 patent issued on July 6, 1982. This new application issued as the '839 patent on August 9, 1983. Claim 1 of the '839 patent reads:

> A surface active material comprising (1) phospholipid, neutral fat, total cholesterol, free fatty acids, carbohydrate, protein and water, all of which are obtained from the lung tissue of a mammal, and (2) optionally at least one additional component selected from the group consisting of a phosphatidylcholine, a neutral fat and a free fatty acid, characterized in that the overall phospholipid content is 68.6-90.7%, the overall neutral fat content is 0.3-13.0%, the total cholesterol content is 0.0-8.0%, the overall free fatty acid content is 1.0-27.7%, the carbohydrate content is 0.1-2.0%, the protein content is 0.0-3.5%, and the water content is 2.1-5.2%, all based on the dry weight of the material, the surface tension of the material as measured at 15°-25° C. by Wilhelmy's method in which the material is added dropwise to the surface of physiological saline in an amount of 0.3-0.8 µg per square centimeter of the surface area thereof being 30.1-47.5 dynes/cm when the surface area is 54.0 cm^2.

'839 patent, col. 17, ll. 13-31 (emphases added).

The application for the '839 patent was filed as a separate and independent application—not as a continuation, divisional or continuation-in-part of the '301 application, even though the '301 application was pending at the time the '839 application was filed, and the applications shared common subject matter, a common inventor, and the same assignee. The same examiner also examined both the '839 and '301 applications. He initially rejected the pending claims of the '301 patent as being, among other things, prima facie obvious in light of three prior art articles. March 17,

1981 Examiner's Action at p. 2. In response to this rejection, the applicants argued as follows:

> The inventors of the invention covered by this application have studied the suggestions of these three references and discovered, through experimentation, that only a surface-active material having the chemical composition claimed and disclosed at Table I at page 4 of the application under the heading "Composition of the Material" have the property of rapid spreading and of ultra-alveolar surface tension reduction. The results obtained are caused by the particular and novel surface-active agent isolated, the method of using this agent on the ailment HMD, and the method of isolating the particular surface-active material.
>
> Accordingly, it is believed all of the claims define a patentable invention over the cited references, whether these references are taken separately or in combination.

July 1, 1981 Amendment at pp. 8-9 (emphasis added). After issuing a final rejection based on 35 U.S.C. § 112, ¶¶ 1 and 2, which was overcome by a September 3, 1981 Amendment After Final Rejection, the examiner issued a notice of allowance on December 17, 1981.[1]

The '839 application was filed on March 4, 1982, approximately three months after the examiner allowed the claims of the '301 application but before the '301 patent had issued. The examiner allowed the claims of the '839 application "because this application is an improvement over previously allowed patent claims; and no prior art was found which anticipates or makes obvious the instant claims."

The '839 and '301 patents have been involved in prior litigation before our court. In Forest Laboratories, Inc. v. Abbott Laboratories, 239 F.3d 1305, 57 USPQ2d 1794 (Fed. Cir. 2001), this court considered whether the district court erroneously granted Forest a judgment of noninfringement as a matter of law following a jury verdict of

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[1] While the claims were amended and arguments presented to the examiner, the substance of the Amendment After Final Rejection is not significant to our analysis in this case.

infringement. We affirmed the district court's decision because the jury's verdict was not supported by substantial evidence. Abbott failed to present any evidence that the accused products met the water limitation of the claims either literally or under the doctrine of equivalents. Id. at 1312-13, 57 USPQ2d at 1799-1800. We also stated that the above quoted argument from the '301 prosecution history was "an unmistakable assertion made to the PTO in support of patentability. . . . Accordingly, [Abbott] is estopped from asserting that the percentage of water in the surface active material is irrelevant." Id. at 1314, 57 USPQ2d at 1800.

II

Abbott began marketing the drug Survanta® in 1991 pursuant to its exclusive license under the '301 and '839 patents. Prior to the advent of Survanta®, neonatal respiratory distress syndrome had been a leading cause of death among premature infants. On November 19, 1999, Dey obtained approval from the United States Food and Drug Administration to market the surfactant Curosurf®. Curosurf® is manufactured in Italy by Chiesi Farmaceutici S.p.A. and imported and offered for sale in the United States by Dey. Dey first began offering Curosurf® for sale in the United States on February 14, 2000.

Abbott sued Dey on March 21, 2000, for infringement of the '301 and '839 patents, seeking damages and a preliminary and permanent injunction prohibiting Dey from using, selling or offering Curosurf® for sale in the United States. Dey counterclaimed for a declaratory judgment of noninfringement and invalidity. On May 19, 2000, Abbott formally moved for a preliminary injunction based only on the '839 patent, because the '301 patent expired six days later on May 25, 2000. Beginning on

July 6, 2000, the district court held an evidentiary hearing on Abbott's motion. Abbott attempted to prove infringement under the doctrine of equivalents, conceding that Curosurf® did not literally meet claim 1's limitation of 68.6%-90.7% phospholipid. Abbott's tests of the Curosurf® paste found that one sample contained 91.8% phospholipid while another sample contained 94.5% phospholipid. Abbott presented expert testimony that the phospholipid content of Curosurf® was insubstantially different from the phospholipid component of the claimed surfactant because "95 percent [phospholipid] would work exactly the same" as the claimed phospholipid amount. Abbott's expert also testified that "it really doesn't matter whether it is 80 or 85 or 90 or 95 or probably even 99. As long as you have enough phospholipids to get to make this a monolayer, and they are in great excess, it really doesn't matter terribly what the composition is."

On July 25, 2000, the district court denied Abbott's motion for a preliminary injunction. Abbott Labs. v. Dey, L.P., No. 00-C-1725 (N.D. Ill. July 25, 2000) (the "July 25th Order"). While the court concluded that Abbott "introduced evidence sufficient to show that the phospholipid in Curosurf® performs substantially the same overall function as the phospholipid in the surface active material claimed in the '839 patent, and it does so in substantially the same way to obtain substantially the same overall result as the surface active material claimed in the '839 patent," the court precluded Abbott from relying on the doctrine of equivalents. Id. at 4-5. The court reasoned as follows:

> Because the '839 patent was issued as an improvement over a prior claimed invention, it is not entitled to the broad range of equivalents it might be if it was a pioneer patent instead; only a more restricted, narrow range of equivalents is available. The plaintiffs made no effort to narrow the range of equivalents available on the phospholipid element; instead they offered testimony suggesting that a phospholipid percentage as high

> as 99.99% would have functioned in the same way, effectively and improperly reading out the phospholipid range limitation altogether.

Id. at 5 (citations omitted). The court also denied the motion for a preliminary injunction because it believed that a "hypothetical claim" that literally contained a range of phospholipid up to 94.5% would not have been allowed over the prior art '301 patent. Id. at 6-7.

Abbott appealed the July 25th Order to our court. The parties had fully briefed the appeal and were preparing for a June 7, 2001, oral argument when the district court granted Dey summary judgment of noninfringement. See Abbott Labs. v. Dey, L.P., No. 00-C-1725 (N.D. Ill. May 21, 2001) (the "May 21st Order"). We then granted a motion to dismiss Abbott's appeal without prejudice to the parties raising the same issues in an appeal of the district court's summary judgment of noninfringement.

In its opinion granting summary judgment of noninfringement, the district court concluded that "a competitor would reasonably believe, based on the specification and claims of the '839 patent, and the prosecution history of the '301 patent, that the patentee relinquished the right to exclude any surface active material containing, among other things, more than 90.7% phospholipid based on dry weight." Id. at 4. With respect to how the claims of the '839 patent contributed to such an estoppel, the district court reasoned that

> the patentee chose to include specific percentage ranges for each chemical component in the surface active material, and by doing so he created a record that fairly notified the public that he was surrendering the right to exclude material comprised of even the same components in different percentages. The plaintiffs cannot recapture that surrendered subject matter through the doctrine of equivalents; nor can they recapture through the doctrine of equivalents the higher phospholipid percentage surrendered from the '301 patent with the issuance of the '839 patent.

Id. at 5. Regarding the preclusive effect of the specification, the district court stated that

> the patentee unequivocally disclosed in the specification of the '839 patent that the chemical composition set out in the patent—like the chemical composition set out in the '301 patent—was significant and that the changes made in that composition (specifically the increase in free fatty acids and the necessary corresponding decrease in one or more of the other components of the material) were similarly significant. The plaintiffs should not now be able to argue that those percentage ranges place no limit on their right to exclude competitors' products . . . .

Id. at 4-5.

With respect to whether the prosecution history of the '301 patent contributed to the estoppel, the district court admitted that it had "no authority for the proposition that the prosecution history of one patent is controlling when analyzing an estoppel claim related to another patent." Id. Nevertheless, the district court felt that "at least in this case, where the patent-in-suit discloses an improvement of the product and process disclosed in the earlier patent, consideration of the earlier patent's prosecution history makes good sense." Id.

Abbott appeals the district court's summary judgment of noninfringement of the '839 patent. The only claims at issue are independent claim 1 and its dependent claims 9 and 12-15. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

This court reviews a grant of summary judgment de novo, drawing all reasonable factual inferences in favor of the non-moving party. See, e.g., Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986). Summary judgment is appropriate when there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. Id. at 247-48. The various legal limitations on the application of the

doctrine of equivalents are to be determined by the court as a matter of law. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 39 n.8 (1997).

Abbott argues that the district court's summary judgment should be reversed because the district court improperly precluded Abbott from relying on the doctrine of equivalents to prove infringement. According to Abbott, the district court: (1) impermissibly relied on the prosecution history of the '301 patent to create an estoppel with respect to the '839 patent; (2) performed an erroneous hypothetical claim analysis by failing to compare the hypothetical claim as a whole to the prior art; (3) mistakenly interpreted Abbott's expert testimony as "vitiating" the phospholipid claim limitation; and (4) improperly limited the claims to their literal scope because the claims recite numeric ranges. We address each of these arguments in turn.

I

The first step in a prosecution history estoppel analysis is to determine which claim limitations are alleged to be met by equivalents. Then, the court must determine whether the limitations at issue were amended during prosecution of the patent. If they were not, amendment-based estoppel will not bar the application of the doctrine of equivalents. However, even if the claim limitation has not been amended, an argument-based estoppel may nevertheless arise based on statements made by the applicant during prosecution. See, e.g., Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979, 52 USPQ2d 1109, 1113 (Fed. Cir. 1999); Pharmacia & Upjohn Co. v. Mylan Pharms., Inc., 170 F.3d 1373, 1376-77, 50 USPQ2d 1033, 1036 (Fed. Cir. 1999). It is undisputed that the phospholipid limitation of claim 1 was not amended during prosecution of the '839 patent; thus, there can be no amendment-based estoppel with respect to this claim

limitation. Nor have the parties identified any statements in the '839 prosecution history that allegedly give rise to an argument-based estoppel. Absent any basis for an estoppel in the prosecution history of the '839 patent, the district court relied instead on the prosecution history for the '301 patent.

In its discussion of prosecution history estoppel, the district court cited Pharmacia & Upjohn Co. v. Mylan Pharmaceuticals, Inc. for the proposition that "[p]rosecution history estoppel precludes a patentee from obtaining under the doctrine of equivalents coverage of subject matter it relinquished—whether by amendment of claims or by arguments made to obtain allowance of claims—during the prosecution of its application." May 21st Order at 3-4. In Pharmacia, we also stated that in order to determine what subject matter an applicant surrenders during prosecution, we must ask "whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter." Pharmacia, 170 F.3d at 1377, 50 USPQ2d at 1036 (quoting Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1457, 46 USPQ2d 1169, 1175 (Fed. Cir. 1998) (en banc)). Pharmacia further noted that "[w]e have also stated that the prosecution history should be objectively viewed from the perspective of one skilled in the art." Id. at n.21. The district court concluded that "a competitor would reasonably believe, based on the specification and claims of the '839 patent, and the prosecution history of the '301 patent, that the patentee relinquished the right to exclude any surface active material containing, among other things, more than 90.7% phospholipid based on dry weight." May 21st Order at 4 (emphasis added).

Based in part on our opinion in Forest Laboratories, 239 F.3d at 1314, 57 USPQ2d at 1800, Dey argues that the applicant for the '839 patent surrendered any

scope of equivalents by arguing during prosecution of the '301 application that "only a surface active material having the chemical composition claimed [by the '301 patent] has the property of rapid spreading and of ultra-alveolar surface tension reduction." We disagree that this statement creates an estoppel with respect to the '839 patent. The statement was merely a characterization of the particular composition claimed by the '301 patent and how it differed from the known prior art. The composition of the '839 patent is a different composition, defined by claims that the examiner concluded were patentably distinct from the claims of the '301 patent. In addition, given that the statement was made before the '839 patent was even filed, it is not unreasonable to conclude that the statement has no applicability to surfactants that might be characterized or discovered in the future.

We also believe that the relationship, if any, between the '839 and '301 patents is insufficient to render particular arguments made during prosecution of the '301 patent equally applicable to the claims of the '839 patent, as was done by the district court. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 862 n.16, 9 USPQ2d 1289, 1296 n.16 (Fed. Cir. 1989) (finding no estoppel between two commonly owned patents because the '949 "application was filed more than one year after the '141 patent issued"); Sextant Avionique S.A. v. Analog Devices, Inc., 172 F.3d 817, 836, 49 USPQ2d 1865, 1878 (Fed. Cir. 1999) (Smith, J., dissenting) ("We have never based a finding of prosecution history estoppel on a statement made by a different applicant during prosecution of an unrelated application, nor have we ever hinted that competitors should examine the file histories of applications other than the one in suit in order to determine the scope of equivalents that may be accorded the patent."); cf. Elkay, 192

F.3d at 979, 52 USPQ2d at 1113 (relying on statements made during prosecution of a first patent to construe the claim language of a second patent, wherein both patents were continuations from a common application and used similar claim language).

It is true that the '839 and '301 patents are commonly owned by Abbott, and the inventor of the '839 patent is one of the three inventors of the '301 patent. However, the '839 application was not filed as a continuation, continuation-in-part, or divisional application of the '301 application. These applications have no formal relationship and were presented to the patent office as patentably distinct inventions. See In re Berg, 140 F.3d 1428, 1435 n.7, 46 USPQ2d 1226, 1231 n.7 (Fed. Cir. 1998) (noting, in the context of considering a double patenting rejection, that two applications filed by the same inventor were "not related as by continuation, continuation-in-part, or divisional" and that filing such two separate applications implied "that each application is independent and patentably distinct"). The invention of the '839 patent was also based on the continuing studies of Dr. Tanaka, as opposed to the earlier combined efforts of the three inventors of the '301 application. The specification of the '839 patent makes clear that Dr. Tanaka's independent and additional research led to the discovery of the improved surfactant described and claimed by the '839 patent. See '839 patent, col. 1, ll. 35-45. Under these circumstances, we do not see a basis for concluding that statements made about the characteristics of the surfactant claimed by the '301 patent should be attributed to the improved surfactant claimed by the '839 patent, simply because the applications had a common assignee, one common inventor, and similar subject matter. We therefore conclude that the above-quoted statements from the

prosecution history of the '301 patent do not create an estoppel with respect to the '839 patent.

II

We next consider the district court's hypothetical claim analysis and whether the prior art limits the scope of equivalents of claim 1 of the '839 patent. The district court denied Abbott any range of equivalents on the basis that the '839 patent was an "improvement" of the '301 patent, instead of a pioneer patent. July 25th Order at 5. A pioneer patent by definition will have little applicable prior art to limit it, whereas an improvement patent's scope is confined by the existing knowledge on which the improvement is based. See, e.g., Augustine Med., Inc. v. Gaymar Indus., Inc., 181 F.3d 1291, 1301, 50 USPQ2d 1900, 1907 (Fed. Cir. 1999) ("Without extensive prior art to confine and cabin their claims, pioneers acquire broader claims than non-pioneers who must craft narrow claims to evade the strictures of a crowded art field."). However, the fact that a patent is an improvement patent does not automatically preclude application of the doctrine of equivalents. "That a claim describing a limited improvement in a crowded field will have a limited range of permissible equivalents does not negate the availability of the doctrine [of equivalents] vel non." Warner-Jenkinson, 520 U.S. at 27 n.4.

To determine the scope of the doctrine of equivalents in light of the prior art, a court can consider a "hypothetical claim" that literally recites the range of equivalents asserted to infringe. "The pertinent question then becomes whether that hypothetical claim could have been allowed by the PTO over the prior art." Wilson Sporting Goods Co. v. David Geoffrey & Assocs., 904 F.2d 677, 684, 14 USPQ2d 1942, 1948 (Fed. Cir.

1990). In this case, the hypothetical claim would be claim 1 of the '839 patent with the phospholipid limitation changed to have a range of 68.6% to 94.5%. In order for this hypothetical claim to be anticipated, "a single, prior art document [must] describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation." Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1282, 54 USPQ2d 1673, 1679 (Fed. Cir. 2000) (emphasis added). Likewise, to make the hypothetical claim obvious, the court must find that "the differences between the subject matter sought to be patented [i.e., the hypothetical claim] and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a) (1994) (emphasis added).

The district court erred by comparing only the phospholipid limitation of claim 1 to the '301 patent (the only prior art considered by the court), while ignoring other limitations of the claim. The '301 patent describes a phospholipid range of 75.0%-95.5%, which overlaps the hypothetical claim's range of 68.6%-94.5%. The district court therefore concluded that the asserted range of equivalents was too broad because it encompassed the prior art. We disagree because the '301 patent fails to disclose the claim limitation of free fatty acids in the amount of 1.0%-27.7%. In fact, the '301 patent does not make any reference to a surfactant containing free fatty acids, although the '839 patent acknowledges that TA-546 "contains less than 1.0% of free fatty acids." '839 patent, col. 1, l. 38. It was this discovery that TA-546 "can be enhanced by increasing the relative amount or content of free fatty acids" that distinguished the '839

surfactant from the one described by the '301 patent. Id. at ll. 43-44. Thus, the '301 patent cannot anticipate the hypothetical claim that literally covers the accused device, because the '301 patent does not disclose each and every limitation of that claim. We also have no basis for concluding that Abbott's hypothetical claim would be obvious over the '301 patent. On the contrary, the addition of free fatty acids distinguished the surfactant claimed by the '839 patent from the surfactant described by the '301 patent. The addition of free fatty acids is no less significant with respect to the hypothetical claim and, on this basis, an examiner could have determined that the hypothetical claim was nonobvious. See Wilson Sporting Goods, 904 F.2d at 684, 14 USPQ2d at 1948.

A corollary to the district court's conclusion that Abbott's hypothetical claim would not have been allowed was the idea that increasing the amount of phospholipid

> necessarily required a corresponding decrease in one or more of the material's other components. Thus, the change in percentages and the ratio among various components must indeed have been significant to the patent examiner, and the Court has no reason to believe the claim would have been allowed without the alterations made to the percentage ranges of both free fatty acid and phospholipid.

July 25th Order at p. 7. It is true that if a hypothetical surfactant contained 99.9% phospholipid, the surfactant could not, as a matter of simple math, also contain the claimed element of at least 1.0% free fatty acid. However, for a surfactant such as Curosurf® having an upper limit of 94.5% phospholipid, the surfactant can still contain the remaining elements of the claimed surfactant within their specified ranges, including a free fatty acid component of at least 1.0%, which is not found in the '301 patent. Thus, a hypothetical claim with an upper limit of 94.5% phospholipid continues to distinguish over the '301 patent for the same reason as the originally drafted claim: the addition of free fatty acids in the claimed range of 1.0%-27.7%.

As can be seen from a proper application of a hypothetical claim analysis wherein the claim as a whole is compared to the prior art, the scope of equivalents asserted by Abbott is not so broad as to encompass the prior art before us. The prior art does not preclude Abbott from relying on the doctrine of equivalents to prove infringement.

III

The doctrine of equivalents "is not a license to ignore or erase structural and functional limitations of the claim." Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581, 37 USPQ2d 1365, 1373 (Fed. Cir. 1996) (quoting Perkin-Elmer Corp. v. Westinghouse Elec. Corp., 822 F.2d 1528, 1532, 3 USPQ2d 1321, 1324 (Fed. Cir. 1987)). The district court believed that Abbott "offered testimony suggesting that a phospholipid percentage as high as 99.99% would have functioned in the same way [as the claimed phospholipid], effectively and improperly reading out the phospholipid range limitation altogether." July 25th Order at 5.

Abbott's expert testified, however, that there is an upper limit to the acceptable amount of phospholipid:

> In my opinion, there is an upper limit. And we know that because pure lipids, when it was a hundred percent, didn't work, and we tried that in kids . . . and it was unsuccessful with pure phospholipids. We know that pure phospholipids don't move very fast. . . . So somewhere you need enough other material in there to allow the lipid molecules to move fast. And I know that, from my own experiments, somewhere between .5, .1 percent, even as low as .01 percent in some experiments of the protein would make these phospholipids able to make it to the surface. So a hundred percent would not be right, but very close to a hundred percent could still work. . . . 95 percent would work exactly the same.

Thus, while an exact number cannot be stated any more precisely than "less than 100%," an upper limit does exist. Abbott's expert also testified that 95% phospholipid,

an amount relevant to the Curosurf® product accused of infringement, would be exactly the same as the claimed phospholipid. Although this testimony expands the upper limit beyond the range literally recited by the claim, it does not eliminate the upper limit altogether. In addition, Abbott only asserts an upper limit of 94.5%. An examination of what happens in the extreme outer ranges of phospholipid content is therefore irrelevant to the scope of equivalents asserted by Abbott.

Because Abbott's application of the doctrine of equivalents to a phospholipid upper limit of 94.5% does not eliminate the upper limit of phospholipid from the claim, Abbott should not be precluded on this basis from relying on the doctrine of equivalents in this case.

IV

As a further basis for precluding Abbott from relying on the doctrine of equivalents, the district court reasoned that "the patentee chose to include specific percentage ranges for each chemical component in the surface active material, and by doing so he created a record that fairly notified the public that he was surrendering the right to exclude material comprised of even the same components in different percentages. The plaintiffs cannot recapture that surrendered subject matter through the doctrine of equivalents." May 21st Order at 5.

The fact that a claim recites numeric ranges does not, by itself, preclude Abbott from relying on the doctrine of equivalents. For example, in Jeneric/Pentron, Inc. v. Dillon Co., 205 F.3d 1377, 54 USPQ2d 1086 (Fed. Cir. 2000), the claim at issue was for a porcelain composition that recited numeric percentage ranges for each component of the composition. While this court agreed with the Jeneric/Pentron district court's claim

construction that the claim language "indicates that the invention's chemical components should be limited to the precise ranges set forth therein," we also stated that "the district court will have the opportunity to adjudicate fully the merits of infringement under the doctrine of equivalents." Id. at 1381, 1384, 54 USPQ2d at 1089, 1091. Thus, while the numeric ranges limited the literal scope of the claims, we did not preclude Jeneric/Pentron from applying the doctrine of equivalents simply because the claim recited numeric ranges for the components of the claimed composition. Likewise, in Forest Laboratories, we applied the doctrine of equivalents to the water element of claim 1 of the '839 patent, which requires 2.1%-5.2% water. See Forest Labs., 239 F.3d at 1313, 57 USPQ2d at 1800. We therefore do not find a basis for precluding Abbott from relying on the doctrine of equivalents simply because the claim recites numeric ranges for the components of the claimed surfactant.

CONCLUSION

For the foregoing reasons, we conclude that the district court erroneously precluded Abbott from relying on the doctrine of equivalents to prove infringement by Dey. We therefore vacate the district court's summary judgment of noninfringement and remand this case for further proceedings in accordance with this opinion.

VACATED and REMANDED