

**United States Court of Appeals
for the Federal Circuit**

U.S. WATER SERVICES, INC., ROY JOHNSON,
Plaintiffs-Appellants

v.

**NOVOZYMES A/S, NOVOZYMES NORTH AMERICA,
INC.,**
Defendants-Cross-Appellants

2015-1950, 2015-1967

Appeals from the United States District Court for the
Western District of Wisconsin in No. 3:13-cv-00864-JDP,
Judge James D. Peterson.

Decided: December 15, 2016

MICHELLE MARIE UMBERGER, Perkins Coie, LLP, Mad-
ison, WI, argued for plaintiffs-appellants. Also represent-
ed by JOHN SINGLETON SKILTON, AUTUMN N. NERO, DAVID
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SANDERCOCK, Washington, DC.

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tle, WA, argued for defendants-cross-appellants. Also
represented by EWA M. DAVISON, PHILLIP DECKER,
ELIZABETH B. HAGAN; VIRGINIA KAY DEMARCHI, MICHAEL
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Before WALLACH, HUGHES, and STOLL, *Circuit Judges*.

WALLACH, *Circuit Judge*.

U.S. Water Services, Inc. and Roy Johnson (together, “U.S. Water”) sued Novozymes A/S and Novozymes North America, Inc. (together, “Novozymes”) in the U.S. District Court for the Western District of Wisconsin (“District Court”), alleging indirect infringement of U.S. Patent Nos. 8,415,137 (“the ’137 patent”) and 8,609,399 (“the ’399 patent”) (together, “the Patents-in-Suit”). Novozymes counterclaimed for declaratory judgment of noninfringement, invalidity, and inequitable conduct. The parties later filed cross-motions for summary judgment. The District Court granted Novozymes’s Motion in part, finding claims 1, 6, and 12–13 of the ’137 patent and claims 1–2, 5–12, 16–22, 25, 28–32, and 34–35 of the ’399 patent (collectively, “the Asserted Claims”) invalid as inherently anticipated by various prior art references. *U.S. Water Servs., Inc. v. Novozymes A/S*, 120 F. Supp. 3d 861, 868–82 (W.D. Wis. 2015). However, the District Court denied Novozymes’s Motion as to inequitable conduct by U.S. Water. *Id.* at 882–83.

U.S. Water appeals the District Court’s anticipation finding. Novozymes cross-appeals the District Court’s finding of no inequitable conduct. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1) (2012). We vacate-in-part, affirm-in-part, and remand for further proceedings consistent with this opinion.

BACKGROUND

I. The Relevant Patents

The technology at issue relates to the production of ethyl alcohol (i.e., ethanol) from a milled grain. Ethanol production yields an insoluble byproduct that deposits on, or “fouls,” the processing equipment. *See, e.g.*, ’399 patent

col. 1 ll. 34–38; J.A. 1376–90 (Confidential Material). The Patents-in-Suit disclose methods for reducing or preventing fouling. See '399 patent col. 3 ll. 21–24; '137 patent col. 1 ll. 50–53.

The Patents-in-Suit share a common specification and are related to one another as continuations of the application that also led to U.S. Patent No. 8,039,244 (“the '244 patent”) (collectively, “the Patent Family”).¹ J.A. 135, 144. The Patent Family generally claims methods of reducing fouling through the use of phytase.²

Each patent discloses the addition of the enzyme phytase at various points in the ethanol production process. For example, the '244 patent is entitled “Reducing Insoluble Deposit Formation in Ethanol Production” and discloses the addition of phytase after fermentation has finished. See '244 patent col. 12 ll. 9–13 (reciting “adding phytase to . . . thin stillage, backset, or [a] mixture thereof containing phytic acid or salts of phytic acid under conditions suitable for converting the insoluble phytic acid or phytic acid salts to soluble products”); *id.* col. 1 ll. 65–67 (“In an embodiment, the present method includes adding an enzyme with phytase activity to the ethanol-processing fluids after fermentation . . .”). The '399 patent is enti-

¹ A continuing patent application is “an application filed subsequently to another application, while the prior application is pending, disclosing all or a substantial part of the subject-matter of the prior application and containing claims to subject-matter common to both applications, both applications being filed by the same inventor or his legal representative.” *In re Febrey*, 135 F.2d 751, 757 (CCPA 1943) (internal quotation marks and citation omitted).

² “Phytase is an enzyme known to be capable of breaking down the phytic acid found in plant material.” '399 patent col. 5 ll. 39–40.

tled “Reducing Insoluble Deposit Formation in Ethanol Production” and the ’137 patent is entitled “Preventing Phytate Salt Deposition in Polar Solvent Systems.” The patents’ claims disclose the introduction of phytase into the production process under certain conditions, but they do not disclose precisely when the phytase should be added and under what conditions. *See, e.g.*, ’399 patent col. 12 ll. 44–48 (reciting “providing . . . phytase in the ethanol processing fluid” to reduce “the formation of insoluble deposits of phytic acid and/or salts of phytic acid”); ’137 patent col. 12 ll. 33–38 (reciting “adding phytase to an ethanol processing fluid . . . under conditions suitable for converting the insoluble phytic acid or phytic acid salts to soluble products”). *But see id.* col. 1 ll. 58–60 (“The method can include: adding an agent to the ethanol-processing fluids *after* fermentation . . .” (emphasis added)).

II. The Prior Art

The District Court found that either International Publication No. WO 01/62947 A1 (“Veit”), J.A. 1580–610, or U.S. Patent No. 5,756,714 (“Antrim”) inherently anticipated the Asserted Claims. *U.S. Water*, 120 F. Supp. 3d at 878–82. Veit is entitled “Fermentation with a Phytase” and explains that ethanol production from whole grains involves four steps: (1) milling, (2) liquefaction,³ (3) saccharification,⁴ and (4) fermentation. Veit p. 2 ll. 24–29. Veit discloses that adding phytase during the

³ Liquefaction is the process of breaking down (i.e., hydrolyzing) the milled grain material into sugars. “The hydrolysis may be carried out . . . enzymatically by alpha-amylase treatment [e.g., phytase].” Veit p. 3 ll. 9–11.

⁴ Saccharification is a process for “produc[ing] low molecular sugars . . . [extracted during liquefaction] that can be metabolized by yeast [after further hydrolysis].” Veit. p. 3 ll. 28–30.

saccharification and fermentation stages of ethanol production can result in “increases [in] the fermentation and ethanol yields.” *Id.* p. 5 l. 29; *see id.* p. 1 ll. 7–8, p. 2 ll. 15–19, p. 8 ll. 4–11 (further describing the process for adding phytase at either step). Antrim is entitled “Method for Liquefying Starch” and discloses a method for liquefying corn starch that “relates to the removal, and/or inactivation of an enzyme inhibiting composition from a granular starch prior to or during liquefaction.” Antrim col. 1 ll. 14–16. The enzyme inhibiting composition is “comprise[d of] a form of phytate” that “acts to inhibit [alpha]-amylase hydrolysis of a starch solution during low pH liquefaction.” *Id.* col. 5 ll. 30–36. Antrim is directed at a more efficient liquefaction process through the use of enzymes. *See id.* col. 4 ll. 6–21 (summarizing the objectives of the invention).

DISCUSSION

U.S. Water argues that the District Court erred in granting summary judgment of invalidity based on inherent anticipation because the District Court expressly acknowledged the existence of a disputed material fact. Novozymes challenges the District Court’s inequitable conduct finding. After discussing the applicable standard of review, we address these arguments in turn.

I. Standard of Review

This court reviews the grant of summary judgment under the law of the regional circuit in which the district court sits. *Classen Immunotherapies, Inc. v. Elan Pharm., Inc.*, 786 F.3d 892, 896 (Fed. Cir. 2015). The Seventh Circuit reviews a district court’s grant of summary judgment de novo. *Greer v. Bd. of Educ.*, 267 F.3d 723, 726 (7th Cir. 2001). Summary judgment is proper only “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a); *see Celotex Corp. v. Catrett*, 477 U.S. 317, 322–23 (1986). A

genuine dispute exists when “the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).

II. Anticipation

U.S. Water argues that the District Court erred in granting summary judgment based on a finding that the Patents-in-Suit are inherently anticipated by Veit and Antrim. That is so, U.S. Water contends, because the District Court acknowledged the existence of a genuine dispute as to a material fact. Appellants’ Br. 35. We agree with U.S. Water.

A. Legal Framework

Although “the anticipation inquiry first demands a proper claim construction,” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1294 (Fed. Cir. 2002), claim construction is not an issue in this case, *see* Appellants’ Br. 29–52. Thus, we begin with the prior art. A reference is anticipatory under 35 U.S.C. § 102(b) (2006)⁵ if “the prior art reference . . . disclose[s] each and every feature of the claimed invention, either explicitly or inherently.” *Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1375 (Fed. Cir. 2006) (citation omitted).

Even if a prior art reference does not explicitly disclose all features of the claimed invention, we have found that the reference inherently may do so. *See Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed.

⁵ In passing the Leahy-Smith America Invents Act (“AIA”), Congress amended § 102. *See* Pub. L. No. 112-29, § 3(b), 125 Stat. 284, 285–87 (2011). However, because the applications that led to the Patents-in-Suit were filed before March 16, 2013, the pre-AIA § 102(b) applies. *See id.* § 3(n)(1), 125 Stat. at 293.

Cir. 2003). “[A]nticipation by inherent disclosure is appropriate only when the [single prior art] reference discloses prior art that must *necessarily* include the unstated limitation.” *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002) (citation omitted). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *Cont’l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991) (internal quotation marks and citations omitted). Rather, “[t]he inherent result must inevitably result from the disclosed steps” *In re Montgomery*, 677 F.3d 1375, 1380 (Fed. Cir. 2012).

B. The District Court’s Finding

The District Court analyzed the Asserted Claims of the Patents-in-Suit and found seven common elements shared by these claims. *U.S. Water Servs.*, 120 F. Supp. 3d at 868. After comparing these common elements with the disclosures in Veit and Antrim, the District Court concluded that “[t]he evidence of record show[ed] beyond genuine dispute that the expressly disclosed elements, one through six, [were] disclosed in Veit and Antrim.” *Id.* at 872; *see id.* at 868. As to the last element, “thereby reducing the formation of insoluble deposits,” the District Court determined that “the critical issue” was whether Veit or Antrim inherently disclosed “adding phytase for the purpose of reducing deposits.” *Id.* at 872.

In addressing this issue, the District Court explained that “the critical facts that are relevant to the court’s anticipation analysis are not in dispute.” *Id.* at 881. In particular, the District Court observed that “[t]he [P]atents-in-[S]uit describe a method for using phytase in terms of ranges for dosage, temperature, and pH; Veit and Antrim disclose the same method, using overlapping and often narrower ranges.” *Id.* On this basis, the District

Court determined that “summary judgment [was] appropriate because the evidence of record establishe[d] that deposit reduction [was] a natural result of the methods for adding phytase during ethanol production that Veit and Antrim disclose.” *Id.* at 878. The District Court added that, although “Veit and Antrim do not expressly identify the benefit that U.S. Water’s patents identify, they nevertheless inherently disclose that benefit.” *Id.* at 879. Thus, the District Court determined either Veit or Antrim inherently disclose element seven.

C. A Genuine Dispute as to a Material Fact Bars Summary Judgment Based on Inherent Anticipation

We must determine whether the District Court overlooked a genuine dispute about a material fact—whether the reduction of “insoluble deposits of phytic acid or salts of phytic acids” as recited in the Asserted Claims was inherent in either Veit or Antrim through the use of phytase. In reaching this conclusion, “we must view the evidence and draw all inferences in a way most favorable to the nonmoving party.” *Bombard v. Fort Wayne Newspapers, Inc.*, 92 F.3d 560, 562 (7th Cir. 1996) (citation omitted).

The District Court correctly identified that “[t]he issue on which this case ultimately turns is whether Veit [or] Antrim inherently disclose using phytase to reduce deposits in ethanol production machinery.” *U.S. Water Servs.*, 120 F. Supp. 3d at 878. However, it erred in finding no genuine dispute of material fact as to whether the Patents-in-Suit are inherently anticipated because “the prior art discloses the conditions that will necessarily result in phytase reducing deposits.” *Id.* at 879. The District Court erred in deeming irrelevant the fact that “U.S. Water . . . adduced evidence[, including expert testimony,] . . . that practicing Veit and Antrim will not *always* result in deposit reduction.” *Id.* The District Court recognized this was conflicting evidence that went

to the core of an inherent anticipation analysis, but concluded this evidence did not preclude summary judgment. *Id.* at 879. By disregarding this evidence, the District Court improperly made credibility determinations and weighed conflicting evidence. *See Anderson*, 477 U.S. at 255 (“Credibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge, [when] he is ruling on a motion for summary judgment . . .”).

We find that the record evidence demonstrates that “there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party,” *id.* at 249 (citation omitted), and that summary judgment was therefore inappropriate. Specifically, the testimony of U.S. Water’s experts (i.e., Eric Dorn, Dr. George Reed, and Rodney Simms) demonstrates that there is a dispute as to whether adding phytase in the manner disclosed in Antrim or Veit will necessarily lead to a reduction of insoluble organometallic salt deposits as claimed in the Patents-in-Suit. For example, these experts testified that there are numerous factors affecting the ultimate reduction of insoluble organometallic salt deposits. *See* J.A. 760 (Dr. Reed stating that “[n]umerous factors can impact the ability of phytases to convert phytic acid to its hydrolysis products during ethanol processing”), 854 (Mr. Dorn stating that “if the treatment specifics and process conditions are not correct, no process fouling reduction may be observed in the plant” and that, if “the phytase dosage is reduced below its critical dosage value or a process condition or parameter is changed and not corrected for appropriately,” the fouling can reappear as if no phytase had been added), 855 (Mr. Dorn also stating that “one can remove a large majority of the phytate and not have any measureable effect on the rate of process fouling”), and 1025 (Mr. Simms stating that “one can employ phytase enzyme according to Antrim . . . and Veit in ways that could sufficiently affect the phytic acid and phytates

present to improve liquefaction and fermentation, but which would be insufficient to have any effect on the formation of deposits . . .”). The testimony from U.S. Water’s experts demonstrates that a genuine dispute as to a material fact remained and that, consequently, the District Court improperly granted summary judgment on inherent anticipation.

III. Inequitable Conduct

Novozymes argues that the District Court erred in granting summary judgment of no inequitable conduct. *See* Cross-Appellants’ Br. 56–68. In particular, Novozymes contends that the District Court failed to recognize a genuine dispute as to a fact material to the inequitable conduct inquiry. *Id.* at 63–68. We disagree.

A. Legal Framework

“Inequitable conduct is an equitable defense to patent infringement that, if proved, bars enforcement of a patent.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1285 (Fed. Cir. 2011) (en banc). A finding of inequitable conduct as to “any single claim renders the entire patent unenforceable” and may “render unenforceable other related patents and applications in the same technology family.” *Id.* at 1288 (internal quotation marks and citations omitted). “Inequitable conduct occurs when a patentee breaches his or her duty to the [U.S. Patent and Trademark Office (‘USPTO’)] of candor, good faith, and honesty.” *Ferring B.V. v. Barr Labs., Inc.*, 437 F.3d 1181, 1186 (Fed. Cir. 2006) (internal quotation marks and citation omitted); *see* 37 C.F.R. § 1.56(a) (2015) (explaining that a party appearing before the USPTO has “a duty to disclose . . . all information known to that individual to be material to patentability”).

“A party seeking to prove inequitable conduct must show . . . that the patent applicant made misrepresentations or omissions material to patentability, that he did so

with the specific intent to mislead or deceive the [US]PTO, and that deceptive intent was the single most reasonable inference to be drawn from the evidence.” *Ohio Willow Wood Co. v. Alps S., LLC*, 813 F.3d 1350, 1357 (Fed. Cir. 2016) (citations omitted). “To prove the element of materiality, a party claiming inequitable conduct ordinarily must show that the patentee withheld or misrepresented information that, in the absence of the withholding or misrepresentation, would have prevented a patent claim from issuing.” *Id.* (internal quotation marks and citation omitted). “Specific intent to commit acts constituting inequitable conduct may be inferred from indirect and circumstantial evidence[,] . . . [b]ut deceptive intent must be the single most reasonable inference drawn from the evidence.” *Id.* at 1358 (internal quotation marks and citations omitted).

B. Relevant Facts

Novozymes bases its inequitable conduct charge on representations made by U.S. Water about the application that led to the ’244 patent and, thus, the Patent Family. Specifically, following the examiner’s rejection of certain claims in the application as obvious over certain prior art such as Veit, U.S. Water amended the proposed claims in the application to change the stage at which phytase was added. *See* J.A. 2222–30 (Amendments to the Claims), 2309–17 (further Amendments to the Claims). U.S. Water narrowed its claims to add phytase specifically to “the thin stillage, backset, or mixture thereof.” J.A. 2222–26. As a result, U.S. Water argued the amended claims overcame Veit, where “phytase is added before fermentation” to “release nutrients so that yeast are more efficient at fermentation.” J.A. 2228, 2229. The ’244 patent subsequently issued in October 2011 with the amended claim language. J.A. 1344.

Around the same time, U.S. Water was involved in litigation against ChemTreat, Inc. (“ChemTreat”) for unre-

lated claims. *See, e.g.*, J.A. 4888–902 (Complaint, Order, and Joint Motion for Dismissal). As part of the litigation, ChemTreat moved for summary judgment of non-infringement of the '244 patent, arguing that the '244 patent's claims were limited to adding phytase after fermentation while ChemTreat instructed its customers to add phytase during fermentation. *See* J.A. 2941. U.S. Water argued that adding phytase during fermentation was equivalent to adding phytase to the backset, i.e., the post-fermentation fluid, because it is recycled back into fermentation. *See* J.A. 2941; *see also* J.A. 3285 (Declaration). During a hearing, the presiding judge questioned U.S. Water about the seemingly contradictory statements it had made to the court in the Declaration and those it made to the USPTO during prosecution of the '244 patent. *See* J.A. 2962 (The court: "It seemed to me that you . . . repeatedly and very clearly kept saying our process isn't about adding phytase at the fermentation stage."), 2964 (similar), 2966 (similar). The court ultimately found that ChemTreat did not infringe the '244 patent because it taught its customers to add phytase before or during fermentation. J.A. 4898.

While the litigation with ChemTreat remained ongoing and after the court identified the apparent discrepancy, U.S. Water amended the continuation application that led to the '137 patent. This amendment canceled all pending claims and replaced them with new claims. J.A. 2540–53 (Amendment dated July 20, 2012). The new claims broadly required "adding phytase to an ethanol processing fluid in the plant." J.A. 2541, 2545. The amended claims also identified the differences with claim 1 of the '244 patent, which sought to narrow the claimed subject matter. *See* J.A. 2545.

A third-party later identified this purported distinction to the USPTO during the prosecution of the '399 patent. *See* J.A. 5046–68, 5399–404. In particular, the third-party asserted that the claims of the '399 patent

were not limited by where the phytase was added. *See* J.A. 5051–52 (“The claims in the present application [i.e., the application that led to the ’399 patent] recite adding phytase to ethanol processing fluids with no further limitation to the type of fluid to which the phytase is added.”). The examiner noted in the file history that she reviewed the third-party’s submission along with Veit and other prior art references. *See* J.A. 5399–404.

C. The District Court Did Not Err in Finding a Lack of Materiality

The District Court determined that Novozymes failed to demonstrate a genuine dispute over either materiality or intent, and that the law did not require a finding of inequitable conduct. *U.S. Water Servs.*, 120 F. Supp. 3d at 883. As to materiality, the District Court determined that “Novozymes falls short of establishing the but-for materiality” of the information disclosed in the ChemTreat litigation. *Id.* Specifically, the District Court observed that the amendment of the continuation application that led to the ’137 patent “set out the amended claim with differences with claim 1 of the ’244 patent highlighted,” such that it “would have been amply clear to the examiner that the patentees were seeking a claim that was broader in the sense that the after-fermentation limitation was removed.” *Id.* Furthermore, the District Court determined that “th[e] third-party submission provides one more reason that the examiner knew she had to evaluate the allowability of the broader claims over the prior art, particularly Veit” *Id.*

Novozymes argues that “[t]here is at least a genuine issue of fact that the ChemTreat litigation documents withheld by U.S. Water from the [USPTO] are material.” Cross-Appellants’ Br. 63 (emphasis omitted). Novozymes contends that the Patents-in-Suit would not have issued had the examiner been aware of these documents and disclosures. *Id.* at 64–65.

There is no genuine dispute about this material fact. The record contains no suggestion that, but-for the disclosures made during the ChemTreat litigation, the examiner would not have issued the Patents-in-Suit. Instead, the record shows that the examiner was aware of the differences between the pending claims of the Patents-in-Suit and the '244 patent, whether as discussed in U.S. Water's Declaration or the third-party's submission. *See* J.A. 5399–404. The examiner reviewed the third-party's submission and the relevant prior art, *see* J.A. 5399–404, but found that the evidence did not affect the ultimate patentability determination. U.S. Water did not withhold or misrepresent information to the USPTO. *See Fiskars, Inc. v. Hunt Mfg. Co.*, 221 F.3d 1318, 1327 (Fed. Cir. 2000) (“An applicant is not required to tell the [US]PTO twice about the same prior art, on pain of loss of the patent for inequitable conduct.”).

Finally, Novozymes also contests the District Court's finding of no intent to deceive the USPTO. Cross-Appellants' Br. 66–68. However, because we find no error in the District Court's determination under the materiality prong of the inequitable conduct analysis, we need not address intent. *See Ohio Willow Wood*, 813 F.3d at 1357 (explaining that a party alleging inequitable conduct must prove materiality *and* intent); *Therasense*, 649 F.3d at 1290 (same).

CONCLUSION

We have considered the parties' remaining arguments and find them unpersuasive. Accordingly, the decision of the U.S. District Court for the Western District of Wisconsin is

VACATED–IN–PART, AFFIRMED–IN–PART, AND REMANDED

COSTS

Each party shall bear its own costs.