NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

ARBMETRICS, LLC,
Plaintiff-Appellant

v.

DEXCOM INC.,
Defendant-Appellee

2020-1510

Appeal from the United States District Court for the Southern District of California in No. 3:18-cv-00134-JLS-MSB, Judge Janis L. Sammartino.

Decided: December 31, 2020

TIMOTHY EDWARD GROCHOCINSKI, Nelson Bumgardner Albritton P.C., Orland Park, IL, argued for plaintiff-appellant. Also represented by JOSEPH P. OLDAKER.

RICHARD T. MULLOY, DLA Piper LLP (US), San Diego, CA, argued for defendant-appellee. Also represented by STANLEY JOSEPH PANIKOWSKI, III; STUART ERIC POLLACK, New York, NY.

Before WALLACH, TARANTO, and CHEN, *Circuit Judges*.

CHEN, *Circuit Judge*.

This appeal arises from an infringement action Arbmetrics, LLC (Arbmetrics) filed in the United States District Court for the Southern District of California against Dexcom Inc. (Dexcom). Arbmetrics asserts that Dexcom's Continuous Glucose Monitoring (CGM) systems infringe U.S. Patent No. 6,343,225 ('225 patent). Based on the district court's claim constructions of either "emulsion" or "oxygen dissolving substance," the parties stipulated that Dexcom's accused products do not infringe the '225 patent. *See Arbmetrics, LLC v. Dexcom, Inc.*, No. 3:18-cv-00134, 2019 WL 7290541 (S.D. Cal. Dec. 30, 2019) (*Claim Construction Order*). Pursuant to the stipulation, the district court entered final judgment of noninfringement in favor of Dexcom. J.A. 2–4 (*Stipulation*); J.A. 7–8 (*Final Judgment*). Because we conclude that the district court did not err in its claim construction of oxygen dissolving substance, we *affirm*.

BACKGROUND

The '225 patent relates to "the field of electrochemical devices for detection and measurement purposes and more specifically an enzyme emulsion for use in an implantable miniature polarographic glucose sensor." '225 patent col. 1 ll. 4–7. The glucose sensor of the '225 patent is useful for long-term monitoring of blood glucose levels of individuals suffering from diabetes. Implantation of the device is "[p]referably . . . beneath the surface of the skin" or near the peritoneal cavity, putting the sensor directly in contact with biological fluids such as peritoneal or interstitial fluid, but not blood. *Id.* at col. 3 ll. 40–42, col. 6 ll. 58–67 ("All of the body tissues come into glucose equilibrium with the blood fairly rapidly[,] . . . [such that] placement of the device in contact with the blood is not . . . required."). The sensor includes a conductive electrode in contact with a stabilized enzyme emulsion comprising: (1) an oxidase

enzyme (e.g., glucose oxidase) and (2) a compound in which oxygen is extremely soluble (e.g., a perfluorocarbon liquid). *Id.* at Abstract. The enzyme emulsion can be stabilized by crosslinking the proteins (i.e., the oxidase enzyme and any carrier proteins) in the emulsion to form a gel. *Id.* at col. 8 ll. 29–41, col. 9 ll. 16–25.

Measurement of the blood glucose level occurs via an electrochemical reaction. *Id.* at col. 2 ll. 43–58. In the presence of oxygen, the oxidase enzyme oxidizes glucose, generating hydrogen peroxide. *Id.* The hydrogen peroxide then acts as an "electron carrier," moving "electrons from glucose (by way of glucose oxidase) to the electrode." *Id.* at col. 11 ll. 34–39. At the surface of the electrode, removal of electrons from hydrogen peroxide results in a measurable current. *Id.* Therefore, hydrogen peroxide serves as a "direct measure" of blood glucose levels. *Id.* at col. 2 ll. 52–54.

A challenge in developing glucose sensors is the limited amount of oxygen available to the oxidase enzyme. *Id.* at col. 4 ll. 10–13. Unlike glucose, oxygen is poorly soluble in biological fluids, resulting in a high glucose-to-oxygen ratio. *Id.* at col. 3 ll. 33–45. As a consequence, implantable glucose sensors "effectively measure [the amount of] oxygen instead of, or together with, [the amount of] glucose." *Id.* at col. 4 ll. 10–17. Emulsifying the oxidase enzyme in the sensor with a compound in which oxygen is extremely soluble, as described in the invention of the '225 patent, creates an oxygen reservoir, increasing the amount of oxygen available to the oxidase enzyme, reducing the electrode's sensitivity to oxygen, and correcting the glucose-oxygen imbalance. *Id.* at col. 5 ll. 20–25, col. 8 l. 61–col. 9 l. 6. Oxygen is no longer the limiting agent in the electrochemical reaction, enabling accurate measurement of blood glucose levels.

In January 2018, Arbmetrics filed a patent infringement action against Dexcom asserting infringement of claims 1, 2, 5, 7, and 8 of the '225 patent. J.A. 2. During

claim construction, the district court construed seven terms. On appeal, Arbmetrics disputes five of these constructions. Claims 1 and 5 include the terms at issue.

Claim 1 is directed to an implantable sensor and recites:

> 1. An implantable sensor for sensing a concentration of an organic substrate, the sensor comprising:
>
> a conductive *electrode*; and
>
> a stabilized enzyme *emulsion in contact with* the *electrode*, the enzyme *emulsion* comprising:
>
> an oxidase enzyme that quantitatively oxidizes the organic substrate;
>
> a water immiscible *oxygen dissolving substance* emulsified into intimate contact with the enzyme to provide oxygen; and
>
> a protein crosslinking agent to crosslink and insolubilize the enzyme forming a stabilized gel comprising crosslinked protein and particles of said *oxygen dissolving substance*.

'225 patent at claim 1 (emphases added to disputed terms).

Claim 5 depends from claim 1 and recites:

> 5. The implantable sensor of claim 1, wherein the *oxygen dissolving substance* is selected from the group consisting of perfluorocarbons, silicone oils, fluorosilicone oils, aromatic and aliphatic *hydrocarbon oils or solids*, carotenoids and steroids.

Id. at claim 5 (emphases added to disputed terms).

Relevant to this appeal, the district court adopted the following construction for oxygen dissolving substance: "a substance in which oxygen is preferentially soluble in comparison to water." *Claim Construction Order*, 2019 WL 7290541, at *9. The district court rejected Arbmetrics's

proposal to construe oxygen dissolving substance to mean "a substance (a particular kind of matter with uniform properties) having a higher oxygen solubility or higher oxygen permeability than at least one of a hydrocarbonaceous polymer and an oxyhydrocarbon polymer." *Id.* at *8; J.A. 1727.

In view of the *Claim Construction Order*, the parties stipulated the following: "Arbmetrics and Dexcom agree that all of Dexcom's accused products do not meet either the 'emulsion' or the 'oxygen dissolving substance' limitations of all asserted claims of the '225 patent as construed by the [district court]." J.A. 2. The district court then entered final judgment of noninfringement in favor of Dexcom. J.A. 7–8. Arbmetrics appeals to this court. We have jurisdiction over the appeal pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

Arbmetrics challenges the district court's construction of the following terms: "oxygen dissolving substance," "emulsion," "in contact with," "electrode," and "hydrocarbon oils or solids." We address only the district court's construction of oxygen dissolving substance as it dispositive in view of Arbmetrics's stipulation of noninfringement. *See Starhome GmbH v. AT&T Mobility LLC*, 743 F.3d 849, 854 (Fed. Cir. 2014) ("Where, as here, a plaintiff concedes noninfringement by stipulation, we need only address the district court's construction of the pertinent claim [term]."); *see also Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1368 (Fed. Cir. 2003) (noting that when a party stipulates to noninfringement following claim construction, "we need only address the district court's construction of the [relevant] claims").

Claim construction is a question of law. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841–42 (2015). "[W]hen the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along

with the patent's prosecution history)," we review that construction de novo. *Id.* at 841. We review any "subsidiary factual findings [on extrinsic evidence] under the 'clearly erroneous' standard." *Id.* at 838.

Arbmetrics argues that the district court's construction of oxygen dissolving substance is "incorrect for two reasons: (1) it incorrectly defines the term in relation to the [oxygen] solubility of water instead of adopting the patentee's disclaiming statements made during prosecution, and (2) it defines the term only in relation to solubility instead of solubility or permeability." Appellant's Br. at 22. Pointing to the prosecution history, Arbmetrics contends that patentee excluded graphite, nylon, polyethylene, and polystyrene from the definition of oxygen dissolving substance when distinguishing the invention over the prior art, an "unequivocal disclaimer that must be accounted for in the construction of the term 'oxygen dissolving substance.'" *Id.* at 23. Regarding inclusion of permeability as an alternative to solubility in the term's construction, Arbmetrics argues that "the '225 patent specification uses the concepts of oxygen permeability and solubility interchangeably in the context of a material's 'oxygen dissolving' properties." *Id.* at 27. Arbmetrics thus concludes "that the term 'oxygen dissolving substance' should be construed to mean: 'a substance having a higher oxygen solubility or higher oxygen permeability than particles of graphite, polyethylene, polystyrene, and nylon.'" *Id.* at 28. We disagree.

While we begin our claim construction analysis with the language of the claim itself, *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc), the claims "do not stand alone. Rather, they are part of 'a fully integrated written instrument,' . . . consisting principally of a specification that concludes with the claims," *id.* at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995) (en banc)). "For that reason, claims 'must be read in view of the specification, of which they are a part.'" *Phillips*, 415 F.3d at 1315 (quoting

Markman, 52 F.3d at 979). Additionally, we recognize that "the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention." *Id.* at 1317. But the prosecution history "is less useful for claim construction" than the claim language and written description. *Id.*

The written description supports the district court's use of water rather than substances such as graphite and polyethylene as the benchmark for construing oxygen dissolving substance. A goal of the '225 patent's invention is to address "impediments to successful implantable glucose sensors." '225 patent col. 3 ll. 33–45. These impediments include the limited availability of oxygen—due to its poor solubility—in the biological fluids surrounding the sensor. *Id.* Because the oxygen dissolving substance functions to resolve this issue by concentrating oxygen in the sensor, that substance must be one in which oxygen has a greater solubility than it does in the surrounding biological fluids. *See Apple Comput., Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 25 (Fed. Cir. 2000) ("[A] claim must be interpreted in light of the teachings of the written description and purpose of the invention described therein.").

Importantly, the solubility of oxygen in the surrounding biological fluids is close to the solubility of oxygen in water,[1] making water a suitable proxy for the fluids. Moreover, the written description disparages water as a poor oxygen dissolving substance as compared to the examples of substances the patent identifies as serving as an oxygen dissolving substance for purposes of the invention. *See, e.g.*, '225 patent col. 10 ll. 25–30 ("Because the perfluorocarbon is emulsified into tiny particles, there is an intimate

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[1] At oral argument, Arbmetrics acknowledged that the solubility of oxygen in the bodily fluids abutting the glucose sensor was close to the solubility of oxygen in water. Oral Arg. at 2:55–4:20.

association between the oxygen carrying perfluorocarbon and the oxygen-requiring enzyme. This limits the distance that oxygen must diffuse through a poor oxygen carrier such as water."); col. 13 ll. 2–4 ("An advantage is that steroids, like perfluorocarbons, are much better at dissolving oxygen than is water."). We therefore agree with the district court that, in view of the written description, water is the correct benchmark for construing oxygen dissolving substance.

Turning next to the prosecution history, nothing therein dictates use of an alternative benchmark or construction. Arbmetrics argues that graphite, nylon, polyethylene, and polystyrene, i.e., substances allegedly disclaimed during prosecution, *see* Appellant's Br. at 23, are the appropriate references for construing the term oxygen dissolving substance. But use of these substances as benchmarks would broaden the claims beyond what is disclosed in the written description: graphite, nylon, polyethylene, and polystyrene all have *lower* oxygen solubility than water.[2] *See* J.A. 3483 ("Oxygen is not preferentially soluble in graphite—it is barely soluble at all. Nor is oxygen particularly soluble in nylon, polyethylene, or polystyrene."). Accordingly, Arbmetrics's suggested construction is impermissible as "[r]epresentations [made] during prosecution cannot enlarge the content of the specification." *Biogen, Inc. v. Berlex Labs., Inc.*, 318 F.3d 1132, 1140 (Fed. Cir. 2003); *see also Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1319 (Fed. Cir. 2006) ("Where, as here, the written description clearly identifies what his invention is,

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[2] At oral argument, Arbmetrics explained that it wanted the term oxygen dissolving substance to capture a wider range of substances and that graphite, nylon, polyethylene, and polystyrene have a decidedly lower oxygen solubility than water or bodily fluids. Oral Arg. at 5:02–5:49.

an expression by a patentee during prosecution that he intends his claims to cover more than what his specification discloses is entitled to little weight."). Arbmetrics's proposed construction, which relies on a benchmark that is "barely soluble at all," is also plainly inconsistent with the purpose of the invention: to create an oxygen reservoir in the glucose sensor through use of a substance with high oxygen solubility.

Last, we cannot accept Arbmetrics's proposal to include permeability as an alternative to solubility in the construction of oxygen dissolving substance. Appellant's Br. at 26, 28 (submitting that either "higher oxygen solubility *or* higher oxygen permeability" can be used as measures of a substance's oxygen dissolving properties (emphasis added)). Although the written description may contemplate oxygen dissolving substances having *both* high oxygen solubility *and* permeability, *see* '225 patent col. 8 ll. 48–54, nothing in the claims, written description, or prosecution history supports an understanding of "oxygen dissolving substance" as having high oxygen permeability without high oxygen solubility. As a result, we agree with the district court that "permeability has no place in the construction of this term." *Claim Construction Order*, 2019 WL 7290541, at *8.

Thus, we affirm the district court's claim construction that an "oxygen dissolving substance" is "a substance in which oxygen is preferentially soluble in comparison to water." Because the district court's construction is correct and Arbmetrics conceded noninfringement by stipulation under this construction, we affirm the judgment of noninfringement.

CONCLUSION

We have considered the parties' remaining arguments but find them unpersuasive. For the foregoing reasons, we conclude that the district court properly construed the term

oxygen dissolving substance and properly entered final judgment of noninfringement. Therefore, we *affirm*.

AFFIRMED

COSTS

Costs to appellee.