United States District Court,
N.D. Illinois, Eastern Division.

SUPERIOR GRAPHITE CO,
Plaintiff.
v.
TIMCAL SA, Timcal America Inc., and Timcal Canada Inc,
Defendants.

May 8, 2006.

Granger Cook, Jr. and David Lesht, Cook, Alex, McFarron, Manzo, Cummings & Mehler, Ltd., Chicago, IL, for Plaintiff.

Joseph P. Della Maria, Jr. and John David Silk, Rothschild, Barry & Myers, P.C., Chicago, IL, Jason E. Stach, John D. Livingstone, Roger D. Taylor and Virginia L. Carron, Finnegan Henderson Farabow, et al., Atlanta, GA, for Defendants.

MEMORANDUM OPINION AND ORDER

JOAN B. GOTTSCHALL**, District Judge.**

Plaintiff Superior Graphite Co. ("Superior") has brought suit against defendants Timcal SA, Timcal America Inc. and Timcal Canada Inc. (collectively "Timcal"), alleging infringement of its Patent No. 6,287,694 ("the '694 patent"). The parties have asked the court to construe the term "bulk volume" as it is used in the claims of the '694 patent. Timcal argues that "bulk volume" is not amenable to construction and renders the claims of the '694 patent indefinite. Superior argues that "bulk volume" as it is used in the patent is well understood by those of skill in the relevant art. This court finds that the term "bulk volume" is not indefinite and construes the term as discussed below.

I. Background

Superior's '694 patent describes a method for producing exfoliated graphite particles possessing low thermal and electrical resistivity, suitable for use in alkaline dry cell batteries. Briefly, the '694 patent describes a method by which purified mineral flake or synthetic graphite is intercalated with a graphite intercalation compound ("GIC"), typically a strongly oxidizing acid, that inserts between the lamellae, or layers, of the graphite structure. Upon rapid heating, the acid GIC expands, forcing the lamellae of the graphite to separate, expanding the graphite into an accordion-like configuration. The expanded graphite is subsequently air-milled, which further delaminates and separates it, yielding a fine graphite particulate with a greater surface area than graphite particles milled to the same particulate size but not intercalated and expanded. When employed in the active material in the positive electrode of an alkaline dry cell battery, the increased surface area to mass ratio of the delaminated graphite particles produced in this manner results in greater conductivity of the electrode, resulting in better performance and extended useful battery life. Superior filed the application for the '694 patent on March 13, 1998.

After preliminary claim construction briefing, the parties agree that the only term necessary for the court to construe is "bulk volume." As an example, claim 14 of the '694 patent states:

14. A method for making expanded graphite from lamellar graphite comprising:

a) providing lamellar graphite particles having at least a minimal purity;

b) intercalating the lamellar graphite particles with an expandable graphite intercalation method;

c) expanding the graphite intercalation compound to exfoliate the graphite particles; and

d) air milling the exfoliated graphite particles to further delaminate them to create an exfoliated graphite product having a surface area to mass ratio of at least 18 m^2/g and a *bulk volume* of at least 20 ml/g.

II. Analysis

Claim construction is a question of law for the court to decide. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). The Federal Circuit sitting en banc recently clarified the appropriate methodology for a court to use when performing claim construction. Phillips v. AWH Corp., 415 F.3d 1303 (Fed.Cir.2005) (en banc). The words of the claims in a patent are to be given the ordinary and customary meaning that would have been attributed to them by a person of ordinary skill in the art at the time the invention was made. Id. at 1312-13. The person of ordinary skill in the art is deemed to have read the term in the context of entire patent, including the claims themselves, the specification, and the prosecution history. Id. at 1313. The claims, specification, and prosecution history are so-called intrinsic evidence.

Extrinsic evidence is everything "external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Id. at 1317. Review of technical dictionaries and treatises can be helpful to the court in understanding the technology of the invention and can assist the court in determining the meaning of terms to those of skill in the art of the invention. Id. at 1318. Where extrinsic evidence conflicts with the intrinsic evidence of the patent, however, the intrinsic evidence controls. *Id*.

Like claim construction, claim indefiniteness is a question of law. Marley Mouldings Ltd. v. Mikron Industries, Inc., 417 F.3d 1356, 1359 (Fed.Cir.2005). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed.Cir.2005) (quoting Personalized Media Communications., L.L.C. v. Int'l Trade Comm'n, 161 F.3d 696, 705 (Fed.Cir.1998)).

The requirement that claim language be sufficiently definite arises from 35 U.S.C. s. 112 para. 2 which states: "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." If a person of ordinary skill in the art can reasonably understand the claim when read in light of the specification, the claim is not indefinite. Marley Mouldings, 417 F.3d at 1359 ("The statute is satisfied if a person skilled in the field of the invention would reasonably understand the claim when read in the context of the specification."). "When a claim 'is not insolubly ambiguous, it is not invalid for indefiniteness.' " Id. at 1361 (quoting Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1372 (Fed.Cir.2004)). The Federal Circuit has recently emphasized that the court must keep in mind the presumption of validity when determining whether a claim in invalid for indefiniteness:

In this regard it is important to note that an issued patent is entitled to a statutory presumption of validity. *See* 35 U.S.C. s. 282 (2000). "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of validity and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal." Exxon Research & Eng'g v. U.S., 265 F.3d 1371, 1375 (Fed.Cir.2001) (citation omitted). In this way we also follow the requirement that clear and convincing evidence be shown to invalidate a patent. *See* Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed.Cir.2001).

Datamize, 417 F.3d at 1347-48.

Timcal argues that the term "bulk volume" as used in the '694 patent is indefinite, rendering the claims invalid, because the patent does not specify the method used to measure bulk volume. According to Timcal, the calculation of bulk volume depends on the method used to determine it, and because no method of measuring bulk density is specified in the patent, the term is devoid of meaning. Thus, Timcal argues that the claims of the '694 patent which include a bulk volume limitation are indefinite. In order to be sufficiently definite, Timcal argues, the patent would need to specify: (1) whether it refers to "loose bulk density," "tapped bulk density," or "packed bulk density"; and (2) the precise procedures for measuring the bulk density such as the type of measuring instrument and the method of adding material to that instrument among other things.

Superior argues that, although no method of measuring bulk density is provided in the patent itself, a person of ordinary skill in the art would understand how to measure it. Superior argues that "bulk density" has a recognized meaning in the graphite processing industry: loose bulk density measured using the Scott volumeter. FN1

FN1. In its initial claim construction contention, Superior proposed a broader definition of bulk volume, "the physical measurement of the volume to unit mass ratio of the air milled graphite which physical property is the mathematical inverse of the measured bulk density (mass to unit volume ratio) value." In response to Timcal's contention that the term is indefinite, Superior provided a narrower construction, loose bulk density measured using the Scott volumeter. Since the dispute in this case involves the view of one of ordinary skill in the art, the court finds that it is appropriate to consider Superior's narrower proposed construction.

A. ***Intrinsic Evidence***

If a claim term is unambiguous after reviewing the intrinsic evidence (i.e., the claims, the specification, and the prosecution history of the patent), the court need not consider extrinsic evidence, such as the expert declarations submitted by the parties. Intel Corp. v. VIA Technologies, Inc., 319 F.3d 1357, 1367 (Fed .Cir.2003) (holding that if a claim not indefinite after construed it in light of the intrinsic evidence, "reference to extrinsic evidence is improper"). Thus, the court will first review the claims, specification, and prosecution history of the '694 patent.

In this case, at least to a lay person, the intrinsic evidence provides little guidance as to the meaning of "bulk volume." The claims themselves indicate that bulk volume is a ratio of volume per unit mass (or more specifically ml/g). The specification indicates that bulk volume is the inverse of bulk density. '694 Patent, Col. 4, ll. 2-3 ("a bulk volume of approximately 20 ml/g (or a bulk density of 0.050 g/cc"). FN2 The prosecution history provides little additional information, except that the bulk density as used in the ' 694 patent is not the "true density." *See* Ex. B, Tab 18 to Timcal's Preliminary Claim Construction Contentions.

FN2. The inverse of 20 ml/g is 0.050 g/cc, as a ml is the equivalent of a cc and 0.050 equals 1/20.

Based on the intrinsic evidence, the parties agree that "bulk volume" is the mathematical inverse of bulk density. The intrinsic evidence, however, does not indicate the method of measuring bulk density.

B. ***Person of Ordinary Skill in the Art***

Since the intrinsic evidence does not resolve the issue, the court must review the extrinsic evidence

submitted by the parties to determine whether the failure to specify a method for determining bulk volume renders the claims indefinite. The court views this evidence to determine how a person of ordinary skill in the art would have interpreted this term. In doing so, it is helpful to determine the description of a person of ordinary skill in the art.

Timcal states that a person of ordinary skill in the art has at least a four-year college degree in a field that is related to graphite or its uses and has at least four years of experience working with graphite. Alternatively, Timcal states that a person can possess ordinary skill if he does not have a four-year degree but has a combination of equivalent education and experience. Timcal's Response at 4 n. 6. Superior simply states that a person of ordinary skill in the art is a person experienced in the field of processing graphite through education, experience, or both. Superior's Response at 4. Since the parties' definitions are consistent for the most part and the court agrees with them, the court need not comment further on the qualifications of a person of ordinary skill except to note that, since the '694 patent relates to processing graphite, some experience or knowledge as to graphite processing is necessary to be a person of ordinary skill in the art. That having been said, since Timcal has the burden to prove indefiniteness by clear and convincing evidence, the court will review Timcal's evidence first.

C. ***Extrinsic Evidence Upon Which Timcal Relies***

Timcal argues that the term "bulk volume" is devoid of meaning without reference to the method of measuring it. In support of its argument, Timcal relies on the declaration of Dr. John Fischer ("Dr .Fischer"). Ex. L to Timcal's Response. Dr. Fischer has a doctorate degree in nuclear science and engineering and is currently a professor of materials science and engineering at the University of Pennsylvania. Dr. Fischer declared that Superior's proposed definition for "bulk volume" could include both loose bulk volume and tapped bulk volume. After reviewing the intrinsic evidence of the '694 patent, Dr. Fischer concluded that nothing in it informed those of skill in the art as to which was intended.

Dr. Fischer relied in part on the Patent Application No. 09/213,544 ("the ' 544 application"). Ex. D to Timcal's Preliminary Claim Construction Contentions. As part of that application, the applicant included a table which showed testing data for various samples and reported, among other properties, the Scott density (g/cm^3), bulk volume (g/cm^3), and tap density (g/cm^3). FN3 Dr. Fischer declared that the bulk volume measurement reported in the '544 application is significantly different from the tap density reported. Other than the '544 application, Dr. Fischer reviewed only the intrinsic evidence of the ' 694 patent in making his declaration.

FN3. It is curious that this application used the same units of measure for bulk *volume* and tap *density*. Bulk volume should have been the inverse.

Timcal relies on several ASTM standards to show that "[n]umerous other detailed standards [besides the Scott method] also exist for how to measure specific types of 'bulk volume/bulk density' of carbon and graphite materials." Timcal's Response at 9 (citing its Ex. O). Dr. Fischer did not reference any of these standards in his declaration, and thus Timcal has not provided any evidence that these standards are used to measure bulk density in the field of the '694 patent.

A review of the specification of the '694 patent and the ASTM procedures cited by Timcal shows that it is unlikely that any of these standards apply to testing the type of product disclosed in the '694 patent. First, some of the standards are directed toward testing metal powders. *See* ASTM Standard B703-05, Standard Test Method for Apparent Density of Powders Using Arnold Meter, at 1 n. 1 ("This test method is under the jurisdiction of ASTM Committee B09 on Metal Powders and Metal Powder Products and is the direct responsibility of Subcommittee B09.02 on Base Metal Powders."); ASTM Standard B527-93, Standard Test Method for Determination of Tap Density of *Metallic* Powders and Compounds (emphasis added). It is

well-known, however, that carbon (and therefore graphite) is nonmetallic. *See Webster's Ninth New Collegiate Dictionary* 206 (1985) (defining carbon as "a nonmetallic chiefly tetravalent element ..."); Phillips, 415 F.3d at 1314 ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. In such circumstances, general purpose dictionaries may be helpful.") (citation omitted). While the court recognizes the possibility that graphite (despite its technical classification as a nonmetal) might be used in some powder metallurgy applications, Timcal has provided no evidence that the product of the claimed process in the '694 patent could be so used.

Other ASTM standards cited by Timcal require a particle size that is inconsistent with the disclosure of the '694 patent. ASTM Standard D2854-96, Standard Test Method for Apparent Density of Activated Carbon states: "This test method covers the determination of the apparent density of granular activated carbon. For the purposes of this test method, granulated activated carbon is defined as a minimum of 90% being larger than 80 mesh." Eighty mesh corresponds to a 177 micron opening. *Perry's Chemical Engineers' Handbook* 21-15 Tbl. 21-6 (6th ed.1984). Yet the '694 patent teaches that after air milling, the product has a preferred mean particle size of 30 microns. *See* '694 patent, col. 3, ll 30-31. A person of ordinary skill in the art would not believe that bulk density should be measured by a procedure used for particles more than six times the preferred size disclosed in the patent, particularly when the patent teaches that the method results in product with a high surface area to mass ratio. *See* '694 patent, col. 1, ll 14-15. The same holds true for ASTM Standard C357-94, Standard Test Method for Bulk Density of Granular Refractory Materials, which states: "This test method covers a procedure for determining the bulk density of granular refractory materials, commercial products which usually have particles that are retained on a 0.265-in. (6.7 mm) or coarser sieve." That size sieve corresponds to 6730 microns, over 200 times larger than the preferred particle size disclosed in the patent. *Perry's Chemical Engineers' Handbook* 21-15 Tbl. 21-6.

The remaining standards cited by Timcal appear to apply to products different from the claimed invention. ASTM Standard C1039-85, Standard Test Methods for Apparent Porosity, Apparent Specific Gravity, and Bulk Density of Graphite Electrodes, at 1 ("These test methods cover the determination of ... bulk density of *cores taken from graphite electrodes* manufactured for use in electric arc furnaces."); ASTM Standard C914-95, Standard Test Method for Bulk Density and Volume of Solid Refractories by Wax Immersion; ASTM Standard C838-96, Standard Test Method for Bulk Density of *As-Manufactured* Carbon and Graphite Shapes (emphasis added). In short, while the ASTM standards cited by Timcal show that there are multiple methods of determining bulk density, they do not show that there are multiple methods of determining bulk density in the field of the invention of the '694 patent.

The only remaining evidence provided by Timcal relates to the Scott method for determining bulk volume. This evidence includes: Superior's internal procedure which uses a Scott volumeter, Ex. I to Timcal's Preliminary Claim Construction Contentions; Superior's customer Eveready used the Scott method in testing Superior's product, Id. at Ex. E; ASTM has a standard test method (albeit for metal powders) for testing apparent density using a Scott volumeter, Id. at Ex. M, N. Therefore, the only credible evidence that Timcal has provided to support its indefiniteness argument is Dr. Fischer's declaration in which he states that a person of ordinary skill in the art cannot tell whether the patent refers to loose bulk density or tap bulk density.

C. *Extrinsic Evidence Upon Which Superior Relies*

Superior argues that a person of ordinary skill in the art would read bulk density as loose bulk density measured using a Scott volumeter. In support of this position, Superior relies on an industry standard publication and two declarations. First, Superior relies on the National Electrical Manufacturers Association ("NEMA") Standards Publication CG 2-1196, Powdered Graphite. NEMA Pub. CG 2-1196, Ex. 13 to Superior's Responsive Claim Construction Brief. The publication states: "This Standard covers terminology

and test methods for those physical properties and chemical properties relevant to the material characterization of powdered graphite, generally less than 75 microns, used in the electrical industry." Id. at 1. It defines bulk density as "Apparent density. The mass, under specified conditions, of a unit volume of a powder including its pore volume and inter-particle voids." Id. at 2. The publication includes a method for determining "bulk density" using the "Scott volume method," and separate methods for determining "compressed density" and "tap density." Id. at 6, 9. Unlike the ASTM standards cited by Timcal, the NEMA standard applies to powder graphite of the particle size taught in the ' 694 patent.

Superior next cites to the declaration of Sim Henry ("Henry"), who worked in the graphite processing industry for twelve years. Henry declared that, as General Manager at Dixon Southwestern Graphite, he was responsible for International Standards Organization ("ISO") 9000 certification for the graphite processing plant. That process required the plant to maintain quality assurance procedures, including testing for bulk density. Based on his experiences in the graphite processing industry, Henry declared that he and others of ordinary skill would equate bulk density as used in the '694 patent to Scott density, that is, loose bulk density measured using a Scott volume machine. He declared that this density would be measured after the graphite had been air milled, and that, if the power had settled prior to testing, it would be reconditioned to its just-processed state by fluffing. He declared that if a tapped density measurement was intended, the word "tap" or "tapped" would expressly be used. Henry did not refer to any evidence other than his own experience and the '694 patent in making his declaration.

Finally, Superior provided the declaration of David Derwin ("Derwin"), one of the named inventors of the '694 patent. Derwin has been at Superior for over 30 years. He is currently a group leader in Superior's graphite technology area. Derwin declared that persons of skill in this art area would interpret "bulk density" as used in the '694 patent to be the loose density of the product immediately after processing and would have equated "bulk density" to the Scott density. Derwin declared that Superior's internal method for determining bulk volume is equivalent to the method described in the NEMA publication. Finally, Derwin declared that although differences in the procedure used to measure the bulk density could cause the results to vary (as they did when Eveready tested a Superior product using a different size screen and a plastic scoop instead of a paint brush), the variance did not affect whether the product fell within the scope of the claims of the '694 patent. Derwin relied on his own experience, the NEMA standard, and Superior's in-house procedure for measuring bulk density in making his declaration.

D. ***Analysis of the Extrinsic Evidence***

Because Superior's patent is presumed valid, Timcal has the burden of proof to show that bulk density (and thereby bulk volume) is not amenable to construction. Timcal has not met that burden.

Honeywell International, Inc. v. International Trade Commission, 341 F.3d 1332 (Fed.Cir.2003), relied upon by Timcal, is instructive in reviewing Timcal's arguments that the term "bulk volume" is indefinite. In Honeywell, the patent-in-suit was for a polyethylene terephthalate ("PET") yarn used as reinforcement in automobile tires. Id. at 1334. The claims required a specific melting point elevation ("MPE") of the yarn produced by the claimed process. Id. at 1335. The written description did not disclose the method of preparing the PET yarn specimen for testing, although four methods of preparing a sample were known to those of skill in the art at the time of the invention. Id. at 1336. The sample preparation method selected mattered a great deal; only one of the four methods resulted in the accused product falling into the MPE range claimed. *Id*.

The Federal Circuit reviewed whether "MPE" could be construed as "any one method," "all methods," or "the ball method," the method used by the patentee. *Id*. at 1339. First, the court rejected the patentee's proposed construction of the ball method, the only method that resulted in infringement, because the other three methods were well-documented in publications and prior art and because the ball method, although perhaps known, was unpublished. *Id*. at 1340-41. Next, the court reviewed the "any one method"

construction under which the claims would be satisfied if the MPE fell within the claimed range using any one of the four methods. *Id*. at 1339. The court rejected this approach because the sample would fall into or out of the claimed range depending on the method chosen, and the court held that such a construction would not give competitors sufficient notice of the scope of the claims. *Id*. at 1341. Finally, the court rejected the "all methods" construction, under which the accused product would infringe only if it fell within the claimed range when tested using all four methods, because such a construction would render the invention inoperable. *Id*. at 1339, 1341.

As will be discussed below, the instant case is distinguishable from *Honeywell*. Timcal has made two arguments that the term "bulk volume" is indefinite: (1) the term "bulk volume" could refer to either tap bulk volume or loose bulk volume, and (2) Timcal did not specify the precise equipment for measuring bulk volume.

1. Loose or Tap Density

Timcal argues that there are two recognized methods of determining bulk density: tap bulk density and loose bulk density.FN4 Tap density is measured after tapping a container of powder; tapping causes the powder to settle and results in a higher density. *See* Ex. 13 to Superior's Response. In the NEMA procedure for tap density, the density is measured after tapping "for a one-minute period or until no further decrease of the volume of the powder takes place," whereas the NEMA procedure for bulk density requires a person to "[a]void any jarring or vibration that can compact the powder." *Id*. at 7, 11. Timcal relies on sample results provided in the '544 application, which show that testing of samples of graphite powder would have a bulk volume of at least 20 ml/g when measured using a loose bulk volume test but would have a significantly lower bulk volume when measured using the tap test. Ex. D to Timcal's Preliminary Claim Construction Contentions, at Fig. 4. These results show that the tap density can be more than three times greater than the bulk density. *Id*. Because of the wide variation in result between tap and loose bulk density, if a competitor used one test, it might believe its product was infringing, but if the competitor used the other test, it might believe the product was not infringing. Based on this, the court agrees that if Timcal is correct that a person of ordinary skill in the art could not discern whether the claims refer to loose bulk density or tap bulk density, the claims would be indefinite.

FN4. Timcal also mentions other types of bulk density measurements in its briefs such as packed bulk density. Since Timcal's expert, Dr. Fischer, opined only about tap and loose bulk density in any detail, the court considers these two types of bulk density measurements.

In support of its position, Timcal relies on its expert, Dr. Fischer, who declared that Superior's proposed definition in its Preliminary Claim Construction Brief would encompass both loose and tapped bulk density, that the intrinsic evidence of the patent does not indicate which method to use, and that given the variation of values of loose and tapped bulk density and the lack of guidance in the intrinsic evidence of the patent, one of ordinary skill in the art could not determine whether a product met the bulk volume limitation of the claims of the '694 patent. Dr. Fischer relied only on the '544 application (Ex. D to Timcal's Preliminary Claim Construction Contentions), the intrinsic record of the patent, and his knowledge. The court notes that while Dr. Fischer has impressive academic credentials, his level of practical experience with the type of process and product disclosed in the '694 patent is unclear.

On the other hand, Superior relies on the declarations of Henry and Derwin, one of the named inventors. Both declared that a person of ordinary skill in the art would have equated bulk density as used in the '694 patent with a loose density measured using a Scott volumeter and that a person of ordinary skill in the art would not have understood bulk density to refer to tap density unless the word "tap" or "tapped" was explicitly used. Ex. 11 to Superior's Response at 3-5; Ex. 12 to Superior's Response at 3, 6.

The Federal Circuit has held that "[i]t is particularly inappropriate to consider inventor testimony obtained in the context of litigation in assessing validity under section 112, paragraph 2, in view of the absence of probative value of such testimony." Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1379 (Fed.Cir.2000) (holding that the inventor's deposition testimony could not be used to invalidate the patent claims). Thus, the court finds that Derwin's declaration is of little, if any, probative value in determining whether the claims are definite.

Henry, however, has significant experience in materials testing in a graphite processing plant. His declaration, although based primarily on his own experience working in the field, is consistent with the NEMA publication that referred to loose bulk density only as bulk density and provided a separate procedure for tap density. Because the court finds both the NEMA publication and Henry's declaration persuasive, it holds that a person of ordinary skill in the art would read the term "bulk density" as referring to loose bulk density only.

2. Equipment for Measuring Bulk Volume

Timcal also argues that the term "bulk volume" is indefinite because the patent does not disclose the precise equipment used for measuring it. Specifically, Timcal relies on data from tests performed by Superior and Eveready. These data showed that when measuring loose bulk density using a Scott volumeter, variables in measurement technique such as type of sieve and brush make a difference in the result. Timcal, however, has not provided any evidence that any such differences are determinative of infringement. The tests performed by both Superior and Eveready resulted in a bulk volume of at least 20 ml/g as required by the claims of the '694 patent. Ex. E to Timcal's Preliminary Claim Construction Contentions.

Additionally, the variations in the test results between Superior's tests and Eveready's tests occurred because Eveready used a scoop instead of a paint brush to push the material through the screen and because Eveready used a size 18 mesh screen instead of a size 35-40 mesh screen. The ASTM method cited by Timcal requires a 16 mesh screen and a one-inch wide nylon brush. Ex. M to Timcal's Response. The NEMA standard uses a one- or two-inch wide paint brush and does not specify the size of the screen. Ex. 13 to Superior's Response. Thus, there is no evidence that it is acceptable in the industry to use a scoop instead of a brush to move the powder across the screen and into the volumeter. While it may be acceptable to use various size screens to measure bulk density using a Scott volumeter, there is no evidence as to how much of the difference in results between Superior's method and Eveready's method was attributable to the scoop and how much was attributable to the screen. In any event, since all of the results fell within the scope of the bulk volume required by the patent claims, the court finds that Superior's failure to specify the precise equipment used to test bulk density does not render the term "bulk volume" indefinite.

Since the term "bulk volume" is not "insolubly ambiguous" and can properly be given a narrowing construction, the court holds that the term "bulk volume" as used in the '694 patent is not indefinite. As part of this determination, the court reiterates that the patent is entitled to a presumption of validity and Timcal had the burden to show by clear and convincing evidence that the term "bulk volume" as used in the '694 patent is indefinite. After reviewing all of the evidence in detail, Timcal has not met that burden.

Thus, the court construes "bulk volume" as the mathematical inverse of bulk density, and "bulk density" as the mass of a unit volume of graphite powder including its pore volume and inter-particle voids, measured in its loose state using a Scott volumeter. Unlike the proposed construction in *Honeywell* which would have limited the claim scope to one method even though there were four known methods, this construction does not improperly redraft the claims because a person of ordinary skill in the art would find that bulk density as used in the '694 patent refers only to one method of testing, loose bulk density using a Scott volumeter. *See* Honeywell, 341 F.3d at 1341.

III. Conclusion

For the foregoing reasons, the term "bulk volume" as used in the '694 patent is amenable to construction and is not indefinite. The court construes "bulk volume" as the mathematical inverse of bulk density, and "bulk density" as the mass of a unit volume of a powder including its pore volume and inter-particle voids, measured in its loose state using a Scott volumeter.

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