United States District Court,
D. Delaware.

Rhodia CHIMIE and Rhodia Inc,
Plaintiffs.
v.
PPG INDUSTRIES, INC,
Defendant.

No. Civ.A. 01-389-KAJ

Oct. 9, 2003.

Rudolf E. Hutz, N. Richard Powers, and James D. Heisman, Connoly Bove Lodge & Hutz LLP; Wilmington, Delaware; for plaintiffs, Eric H. Weisblatt, Norman H. Stepno, B. Jefferson Boggs, Jr., Todd R. Walters, Scott W. Cummings, and Erin M. Dunston, Burns, Doane, Swecker & Mathis, L.L.P.; Alexandria, Virginia, of counsel.

William J. Marsden, Jr., and Timothy Devlin, Fish & Richardson, P . C.; Wilmington, Delaware; for defendant, John M. Skenyon, and Jolynn M. Lussier, Fish & Richardson, P.C.; Boston Massachusetts, of counsel.

OPINION

JORDAN**, J.**

I. INTRODUCTION

This is a patent infringement case. Before me are the parties' requests for construction of the claims of U.S. Patent No. 6,013,234 (issued Jan. 11, 2000) ("the '234 patent"), pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). Plaintiffs in the case are Rhodia Chimie and Rhodia Inc. (collectively "Rhodia"). The defendant is PPG Industries, Inc. ("PPG"). The parties have argued and briefed their positions to the Court. Jurisdiction is proper under 28 U.S.C. s. 1338.

II. BACKGROUND

A. *Procedural*

Rhodia initiated this lawsuit on June 8, 2001, asserting that PPG was willfully and intentionally infringing the '234 patent in violation of 35 U.S.C. s. 271(a). (D.I.1.) On June 26, 2001, PPG answered Rhodia's complaint, contending non-infringement, invalidity, and unenforceablity of the '234 patent. (D.I. 5 (amended Mar. 15, 2002 (D.I.55) by Order dated Jan. 28, 2003 (D.I.164).) The parties submitted claim construction briefing in early March of 2002 and presented oral argument on their positions on March 8, 2002. (*See* D.I.

115.) FN1

FN1. This case was originally assigned to the Honorable Roderick R. McKelvie. (*See* D.I. 4.) Judge McKelvie retired from the bench and the case was then referred to Magistrate Judge Mary Pat Thynge. (D.I.150.) Magistrate Judge Thynge presided over the matter until the case was reassigned to me on January 6, 2003. (D.I.159.)

B. ***The Disclosed Technology***

The '234 patent issued on January 11, 2000. The patent is entitled "SILICA PIGMENT PARTICULATES", and stems from a line of continuation patent applications tracing to an application filed on April 14, 1980. The patent has a foreign priority date of April 13, 1979 and is assigned to plaintiff, Rhodia Chimie. The named inventors are Jean-Louis Ray and Maurice Coudurier.

The '234 patent discloses an invention relating to siliceous particulates used as "pigments and reinforcing fillers for elastomeric matrices" (D.I. 1, '234 Patent at col. 1 ll. 28-29). Particularly, the '234 patent discloses solid and homogeneous dispersible silica particulates in bead or spheriodal form (Id. at col. 3 ll. 29-32) and claims both the process for making the silica particulates and the silica particulates themselves. (Id. at col. 13 l. 60 to col. 15 l. 28.)

In the preferred embodiment, the silica particulates have:

(i) A mean particle size of more than 150mu, and preferably from 200 to 300mu;

(ii) A fill density in compacted state, in accordance with AFNOR standard No. 030100, of more than 0.200, and preferably from 0.28 to 0.32.

(iii) A BET surface area of from 100 to 350 m^2/g;

(iv) A CTAB surface area of from 100 to 350 m^2/g; and

(v) A specific volume V_{600} of from 0.7 to 1.1.

(Id. at col. 3 l. 62 to col. 4 l. 2.) In this embodiment, BET surface area is determined "by the method of Braunauer, Emmett and Teller described in *Journal of the American Chemical Society,* vol. 60, p. 309 (February, 1938)." (D.I. 1, '234 Patent at col. 4 ll. 3-6.) Similarly, CTAB FN2 surface area is determined "by the method described at Jay, Janzen and G. Kraus, *Rubber Chemistry and Technology,* 44, pp. 1278-1296 (1971)." (D.I. 1, '234 Patent at col. 4 ll. 9-11.)

FN2. "CTAB" is an acronym standing for *c* etyl *t* rimethyl *a* monium *b* romide, a chemical compound which, like the gas employed in the BET method of measurement, is used to measure the surface area of particulates. (*See* D.I. 108 at 19.)

The '234 patent provides further that:

The specific volume of the silica V_{600} is determined from an established amount of silica, compacted into a steel die having an internal diameter of 25 mm and a height of 80 mm; 3 g of silica is added, then a piston or ram is positioned over the silica and sufficient weight is added to the piston that it exerts a compacting pressure of 600 kg/cm^2 upon the silica. The difference between the initial and compacted volumes reflects the volume of the inter-aggregate inter-stices and is characteristic of the primary structure of the silica.

(Id. at col. 4 ll. 12-22.) Flow properties of the patented silica particulates are also defined in the written description "as ... the time required for the product to flow into appropriate receptable [sic] having a calibrated aperture while under slight vibration." (Id. at col. 4 ll. 29-31.)

In addition to the physical properties of the preferred silica particulates, the '234 patent also discloses the process of making them, as follows: A pulverulent slurry is formed by comminuting or milling a suspension obtained by known precipitation reaction to eliminate large particles and prepare the slurry for atomization. (Id. at col. 4 l. 37 to col. 5 l. 2.) The resulting slurry has no particles "over 150mu ... a dry solids content in excess of 18%, and advantageously from 20 to 25%, and a viscosity ... preferably ranging from 100 to 1000 poises." (Id. at col. 5 ll. 2-6.) The suspension is then "subjected to a spraying operation of any known type." (Id. at col. 5 ll. 10-11.) "For example, one such technique is a spraying technique utilizing liquid pressure nozzles...." (Id. at col. 5 ll. 12-13.) Another available technique involves "atomization utilizing two different fluids ... with the atomizing fluid being a high speed gas...." (Id. at col. 5 ll. 26-28.)

III. APPLICABLE LAW

Patent claims are construed as a matter of law. Markman, 52 F.3d at 979. A court's objective is to determine the plain meaning, if any, that those of ordinary skill in the art would apply to the language used in the patent claims. Warner v. Ford Motor Co., 331 F.3d 851, 854 (Fed.Cir.2003) (citing Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed.Cir.2001)). In this regard, pertinent art dictionaries, treatises, and encyclopedias may assist a court. Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202-03 (Fed.Cir.2002). The intrinsic record, however, is the best source of the meaning of claim language. Vitronics Corp. v. Conceptronics, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). Therefore, patent claims are properly construed only after an examination of the claims, the specification, and, if in evidence, the prosecution history of the patent. Amgen Inc. v. Hoechst Marion Rousell, Inc., 314 F.3d 1313, 1324 (Fed.Cir.2003) (citing Vitronics, 90 F.3d at 1582).

The intrinsic record is also of prime importance when claim language has no ordinary meaning in the pertinent art, *see* Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1269-70 (determining that claim language could only be construed with reference to the written description) (citing Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed.Cir.1998)), and where claim language has multiple potentially applicable meanings. Tex. Digital, 308 F.3d at 1203.

If patent claim language has an ordinary and accustomed meaning in the art, there is a heavy presumption that the inventor intended that meaning to apply. Bell Atl., 262 F.3d at 1268 (citing Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed.Cir.1989)). Thus, unless the inventor has manifested an express intent to depart from that meaning, the ordinary meaning applies. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed.Cir.2002) (en banc) (citing York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1572 (Fed.Cir.1996).

To overcome that presumption, an accused infringer may demonstrate that "a different meaning is clearly set

forth in the specification or ... the accustomed meaning would deprive the claim of clarity." *N*. Telecom Ltd. v. Samsung Elec. Co., Ltd., 215 F.3d 1281, 1287 (Fed.Cir.2000). However, the presumption may not be rebutted "simply by pointing to the preferred embodiment...." Teleflex, 299 F.3d at 1327. It may be rebutted, though, where "the patentee ... deviate[d] from the ordinary and accustomed meaning ... by redefining the term or by characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id*.

If claim language remains unclear after review of the intrinsic record, a court "may look to extrinsic evidence to help resolve the lack of clarity." Interactive Gift Express, Inc. v. Compuserve Incorp., 256 F.3d 1323, 1332 (Fed.Cir.2001). The use of extrinsic evidence in the claim construction process, however, is "proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence." *Id*. A court may not use extrinsic evidence to contradict the import of the intrinsic record, and if the intrinsic record is unambiguous, extrinsic evidence is entitled to no weight. Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys., 132 F.3d 701, 706 (Fed.Cir.1997).

IV. CLAIM CONSTRUCTION

Rhodia alleges that PPG infringes claims 1-4 and 9-11 of the '234 patent. (D.I. 108 at 1.) In those claims, the parties dispute the meaning of the following language: "dry", "dust-free and non-dusting", "solid", "homogeneous", "atomized precipitated silica particulates", "essentially spheroidal in geometrical configuration", "a fill density in compacted state in excess of 0.200", "a BET surface area ranging from 100 to 350 m^2/g", "a CTAB surface area ranging from 100 to 350 m^2/g", "said particulates having a specific volume in the range of from about 0.7 to 1.1", "said particulates having a fill density in compacted state from about 0.28 to 0.32", and "being free flowing to an extent of at least 10 times greater than in powder form". (D.I. 167 .)

A representative use of the disputed language is provided by the following claims from the '234 patent:

1. Dry, dust-free and non-dusting, solid and homogeneous atomized precipitated silica particulates essentially spheroidal in geometrical configuration, said particulates having a mean particle size in excess of 150 microns, a fill density in compacted state in excess of 0.200, a BET surface area ranging from 100 to 350 m^2/g, and a CTAB surface area ranging from 100 to 350 m^2/g.

(D.I. 1, '234 Patent at col. 13 ll. 61-67.)

2. The precipitated silica particulates as defined by claim 1, said particulates having a specific volume in the range of from about 0.7 to 1.1.

(Id. at col. 14 ll. 36-38.)

9. Dry, dust-free and non-dusting, solid and homogeneous atomized precipitated silica particulates essentially spheroidal in geometrical configuration, said particulates having a mean particle size in excess of 150 microns, being free flowing to an extent of at least 10 times greater than in powder form, and said particulates having a fill density in compacted state in excess of 0.200, a BET surface area ranging from 100 to 350 m^2/g, and a CTAB surface area ranging from 100 to 350 m^2/g.

(Id. at col. 14 l. 61 to col. 15 l. 2.)

A. "*dry*"

1. *The Parties' Proposed Constructions*

Rhodia contends that the word "dry" needs no construction, as it is a common English word. (D.I. 167 at 1.) If I do construe the word, Rhodia proposes that I construe it to mean "dry to touch; not wet. This term does not require that the particulates be completely dry." (Id.)

PPG proposes that I construe the word to "mean[ ] that the silica particulates, as a result of spray drying, hav[ ][e] little or no residual moisture content." (Id.) In support of its proposed construction, PPG offers an excerpt from the '234 patent specification stating that the patented silica " 'particulates ... [are] prepared by atomizing to dryness a pulverulent aqueous suspension of silica" ' (id. (quoting '234 Patent at col. 5 ll. 10-30), and PPG directs me to some statements made during patent prosecution describing how the silica particulates are formed. (Id .)

2. *The Court's Construction*

I construe the word "dry" to mean that the silica particulates of the patented invention are dry to the touch, not wet. That is, they have little or no residual moisture content.

The parties could have and should have agreed with respect to the word "dry," as the word carries a common English meaning that is not contradicted by the intrinsic record. I adopt both parties' proposed constructions because they are not inconsistent and are both applicable and supported by standard dictionary definitions. *See, e.g.,* MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 355 (10 ed.2002).

B. "*dust-free and non-dusting*"

1. *The Parties' Proposed Constructions*

Rhodia argues that I should construe "dust-free and non-dusting" to mean that "the level of dust present in the particulates, as well as the level of dust formed by the particulates during handling, is very low when compared to other silica forms." (D.I. 108 at 14.) Rhodia asserts that " 'dust-free' should be viewed as related to the size component of the silica particulates' morphology ...", and asserts that "[t]he 'non-dusting' property is connected to the shape component of that morphology." (Id.) Therefore, maintains Rhodia, the "dust-free and non-dusting" morphology distinguish the patented silica particulates over prior art and give them the characteristic of producing less dust than other known forms of silica. (Id. at 14-15.)

Furthermore, contends Rhodia, it is illogical to treat the terms as requiring the patented silicas to be "completely free of dust and exhibit[ ] no dusting." (Id. at 16.) This is so, argues Rhodia, because "[s]uch a condition would likely never exist, and excluding all dust and dusting would be a completely unacceptable 'definition' of the terms since it would mean that the claims have no scope." (Id.) Rhodia asserts, moreover, that those skilled in the art, including those skilled in the art at PPG, used the words consistently with Rhodia's proposed construction. (Id. at 16-17.)

PPG proposes that I construe "dust-free and non-dusting" to mean that the "product produces no dust cloud whatsoever when poured under the test conditions in the specification relating to Figures 3-6, as in the example on the right hand side of those Figures." (D.I. 106 at 11.) In support of its proposed construction,

PPG directs my attention to the '234 patent prosecution history, noting that the inventors added the phrase "dust-free and non-dusting" to the asserted claims to overcome prior art cited by the examiner. (Id. at 6-11.) Additionally, PPG references the inventors' arguments during patent prosecution made in relation to the phrase "dust-free and non-dusting", emphasizing that the inventors made no qualifying remarks, did not provide a definition for the language in the specification, and, in fact, used specific language indicating that the patented invention would not form dust. (Id.)

2. *The Court's Construction*

I construe "dust-free and non-dusting" to mean a level of dust formation associated with the silica particulates of the '234 patent, as measured in percentage weight according to DIN 53 583,FN3 that has a fines content value less than or equal to 13 and weight loss by abrasion value less than or equal to 0.5.

FN3. "DIN 53 583" is an industrial standard provided by the Deutsches Institut fur Normung e.V., a self-governing institution of trade and industry responsible for the preparation of National Standards in Germany, for measuring the fines content and weight loss by abrasion of pelletized carbon black used as fillers in the rubber processing industry. The inventors of the '234 patented silica made specific reference to that standard as a means of measuring the dust qualities of their silica. I am referring specifically to DIN 53 583 dated November 1969. (D.I. 179 Ex. B.)

Admittedly, this construction of "dust-free and non-dusting" is narrow and incorporates specifics from the written description of the '234 patent. However, the phrase "dust-free and non-dusting" cannot be viewed as meaning literally that the invention creates no silica dust at all. As Rhodia notes, that is neither possible nor what one skilled in the art would have expected the phrase to mean. It is, instead, a relative phrase, including within its ambit a desirable characteristic of the invention. Relative language in patent claims, though, can run afoul of the requirement that the claims must "particularly point[ ] out and distinctly claim[ ] the subject matter which the applicant regards as his invention." 35 U.S.C. s. 112, para. 2. Unless taken literally, the terms "dust-free" and "non-dusting" are no more particular or distinct than the words "hot" and "cold". Rhodia's proposed construction is similarly non-particular and non-distinct, as it employs the relative modifying phrase "very low".

Therefore, faced with ambiguity in the language, I adopt a construction based upon the only meaningful guidance provided in the patent. The inventors state in the written description of the '234 patent that "[d]ust formation and abrasion were ... measured" (D.I. 1, '234 Patent at col. 6 l. 66) according to the procedure detailed in DIN 53 583. A comparison of dust formation is then provided in Tables I and II in the '234 patent written description. Since Examples Five and Ten appear within the scope of the '234 patent claims and since the greatest DIN 53 583 values specified in those Tables is a fines content value of 13 and an abrasion loss value of 0.5, I adopt those DIN 53 583 values to give meaning to the phrase "dust-free and non-dusting". I note, in this regard, that Rhodia made specific reference to Table I and similar disclosures in the patent when arguing its proposed construction in this case. (D.I. 115 at 52-55.)

C. "*solid*"

1. *The Parties' Proposed Constructions*

Rhodia maintains that the word "solid" needs no construction. (D.I. 167 at 5.) If I do construe the word, however, Rhodia asserts it should be construed to mean "not a hollow body. Solid does not exclude porous

solid forms." (Id.) In support of its proposed construction, Rhodia refers to statements made during prosecution of the '234 patent in which the inventors distinguish their invention over prior art on the basis that the prior art consisted of hollow silica spheres as opposed to the solid silica spheres of the '234 patented invention. (Id.)

PPG suggests that I construe "solid" "to mean that the spray-dried silica particulates have the form of a densely filled particle having no intervening air spaces or pockets. This definition would specifically exclude particles that are porous or spongy, as these ... have interior spaces or voids making them akin to a hollow-type particle...." (D.I. 106 at 14; *but see* D.I. 167 at 15 (modifying proposed construction to read "the silica particulates have the physical form of a densely filled particle having *few or* no intervening air spaces or pockets.") (emphasis added).) PPG relies on similar statements the inventors made during patent prosecution to distinguish their invention over prior art with hollow silica spheres, but PPG draws a contrary inference. (Id. at 12-14.) PPG asserts that in distinguishing the patented invention over the hollow silica spheres of the prior art during patent prosecution, the inventors "drew a distinct line between ... [their] dense silica spheres and any particles having hollow spaces or cavities in their interior." (Id. at 14.) Moreover, argues PPG, its proposed construction is consistent with the plain meaning of the word "solid", as evidenced by the definition of the word provided in a standard dictionary. (Id. at 14; D.I. 169, Ex. 22.)

2. *The Court's Construction*

The word "solid" carries an ordinary and not particularly technical meaning in the asserted claims, permitting construction by reference to a dictionary definition. I construe "solid" to mean an object having a definite shape that offers resistance to a deforming force. DICTIONARY OF SCIENCE AND TECHNOLOGY 1089 (T.C. Collocott M.A., ed., Barnes & Noble 1971). The word "solid" excludes a hollow body, but is broad enough to encompass porous material. Excluded from the definition is a hollow body, since the inventors distinguished their invention over prior art hollow bodies during patent prosecution, but a porous solid material is included within my construction.

D. "*homogeneous*"

1. *The Parties' Proposed Constructions*

Rhodia proposes that "homogeneous" be construed to mean "the similarity in the nature, or consistency, of the population of particulates." (D.I. 108 at 13.) Rhodia supports its proposed construction with reference to the specification of the '234 patent and the assertion that "homogeneous" refers to the "more uniform morphology" of the patented silica particulates over "previously known silica particulates," and with the argument that the word "homogeneous" does not imply that each individual silica particulate is uniform, but, instead, that the population demonstrates more uniformity than prior art silica forms. (Id. at 13-14.)

PPG proposes that I construe "homogeneous" "to mean that the precipitated silica particulates all have the same or similar size and shape." (D.I. 106 at 16 (emphasis removed).) PPG argues that Rhodia's proposed construction "leaves open to question" the meaning of " 'similar in nature throughout'." PPG claims that its own, proposed construction should be adopted because it makes clear that the inventors intended the size and shape of the particles to be "homogeneous". (Id. at 17.) In support, PPG directs attention to portions of the '234 patent specification which PPG says show that the size and shape of the particulates are "homogeneous" within a specified range. PPG also notes statements the inventors made during patent prosecution describing the particulates as "completely homogeneous". (Id. at 15-17.)

2. *The Court's Construction*

I construed "homogeneous" to mean "of the same or a similar kind or nature ... of uniform structure or composition throughout...." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 554 (10 ed.2002). From the context in which the word appears, the word "homogeneous" has an ordinary, non-technical meaning. The intrinsic record does not contradict that ordinary meaning. Accordingly, I adopt a standard dictionary definition of the word "homogeneous".

E. "*atomized precipitated silica particulates*"

1. *The Parties' Proposed Constructions*

Rhodia's proposed construction of "atomized precipitated silica particulates" is "silica particulates obtained by precipitation which are shaped and dried in a fluid stream such as by spray drying ." (D.I. 167 at 8.) Rhodia argues that this construction is proper because a person skilled in the art would understand that the term "atomized" "refers to a spraying operation for forming and shaping the particulates." (D.I. 108 at 12-13.)

PPG suggests that the phrase be construed to "mean[ ] that a pulverized slurry of precipitated silica is spray dried using a liquid pressure nozzle as an atomizer to form the claimed silica particulates." (D.I. 167 at 8.) PPG asserts, based upon statements by the inventors during patent prosecution, that the construction of the phrase must be limited to atomization of a pulverized slurry of precipitated silica with a liquid pressure nozzle sprayer. (D.I. 106 at 18-22.)

2. *The Court's Construction*

I construe the phrase "atomized precipitated silica particulates" to mean that a pulverized slurry of precipitated silica is spray dried using a liquid pressure nozzle as an atomizer to form the claimed silica particulates.

The word "atomized" encompasses a number of techniques for atomizing fluids. However, the inventors expressely narrowed the meaning of "atomized precipitated silica particulates" during patent prosecution via claim amendments and arguments to distinguish their invention over the prior art and to obtain allowance of their claims. Southwall Technologies Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.") (citations omitted).

To traverse a rejection during patent prosecution, the inventors amended their claims to require that the "particulates have[ ] a mean particle size in excess of 150 microns" (D.I. 169, Ex. 17 at 8087) and stated that "[t]o obtain the claimed silica particulates, liquid pressure nozzle sprayers must be used...." (*Id.,* Ex. 18 at 8145.) The inventors also submitted a declaration in support of their argument that provided that "a liquid pressure nozzle-as opposed to a two fluid nozzle or air pressure nozzle-needs to be used to obtain precipitated silica particles ... of a mean particle size greater than 150 mum (microns)." (*Id.,* Ex. 27 at 1190.) Similarly, to distinguish their invention over another prior art reference, the inventors stated that "no slurry which has not been pulverized per applicants' invention would be capable of ultimately providing a homogenous and solid particulate product...." (*Id.,* Ex. 8 at 7450 (emphasis removed).)

Therefore, although the '234 patent written description teaches that the silica particulates of the patented

invention may be formed by known spray drying techniques in the art (D.I. 1, '234 Patent at col. 5 ll. 10-29), the inventors effectively narrowed the meaning of their claims by making arguments and amendments during patent prosecution to distinguish their invention over the prior art. I have accordingly narrowed the construction of "atomized precipitated silica particulates".

F. "*essentially spheroidal in geometrical configuration*"

1. *The Parties' Proposed Constructions*

Rhodia asserts that I should construe "essentially spheroidal in geometrical configuration" to mean that "[t]he particulates are generally sphere shaped. In this regard, the term 'essentially' indicates that less than perfect spheres are embraced." (D.I. 108 at 10.) Rhodia argues that the phrase "essentially spheroidal" relates to the shape of the particulates. (Id.) Additionally, Rhodia maintains that the phrase "essentially spheroidal in geometrical configuration" distinguishes the patented invention from other forms of prior art silica such as granules and powders because the silica particulates of the patented invention are regularly shaped, thus, increasing flow properties. (Id. at 11.) Moreover, Rhodia contends that those skilled in the art would recognize that since the silica particulates of the patented invention are formed by atomization, their spheric shape would, at times, be less than perfect. (Id. at 11-12.)

PPG proposes that I construe "essentially spheroidal in geometrical configuration" "to mean that the precipitated silica particulates have a smooth outer appearance and have a round geometrical shape resembling a sphere." (D.I. 106 at 18.) PPG contends that its proposed construction is consistent with the inventors' disclosure in the '234 patent. (Id. at 17-18.)

2. *The Court's Construction*

I construed the phrase "essentially spheroidal in geometrical configuration" to mean that the geometric shape of the silica particulates essentially resembles a sphere. Less than perfect spheres are embodied by this definition.

The inventors delimited their patented invention by claiming silica particulates that are "essentially spheroidal in geometrical configuration". "Essentially" is a common English adjective, meaning that something is an inherent or important characteristic. See MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 396 (10 ed.2002). Like the word "generally," the word "essentially" allows for less than perfect conformity with the described characteristic. "Spheroidal" Is also a common English adjective, meaning that something is shaped like a sphere. Id. at 1128. And the prepositional phrase "in geometrical configuration" directly signifies that the "essentially spheroidal" character refers to the shape of the silica particulates claimed. The phrase in dispute is broad enough to encompass less than perfect spheres.

G. "*a fill density in compacted state in excess of 0.200*". "*a BET surface area ranging from 100 to 350 m^2/g*". "*a CTAB surface area ranging from 100 to 360 m^2/g*, "*said particulates having a specific volume in the range of from about 0.7 to 1.1*". "*said particulates having a fill density in compacted state from about 0.28 to 0.32*"

1. *The Parties' Proposed Constructions*

Rhodia proposes that I construe the phrases "a fill density in compacted state in excess of 0.200", "a BET surface area ranging from 100 to 350 m^2/g", "a CTAB surface area ranging from 100 to 350 m^2/g", "said

particulates having a specific volume in the range of from about 0.7 to 1.1", and "said particulates having a fill density in compacted state from about 0.28 to 0.32" as "routine measurements ... well understood by those skilled in the art in 1979-1980." (D.I. 108 at 18.)

PPG, in contrast, asserts that I should construe the phrases as measurements determined in accordance with the specific standard or test cited in the '234 patent written description. (D.I. 106 at 22-23; D.I. 167 at 11.) In particular, in regard to the phrase "a fill density in compacted state in excess of 0.200", PPG contends that I should construe "fill density" to be measured in accordance with "AFNOR standard No. 030100" (D.I. 1, '234 Patent at col. 3 l. 65), as opposed to some other standard for measuring fill density, because that is the standard specified in the '234 patent written description. (D.I. 106 at 22-23; D.I. 167 at 11.) Further, "specific volume", argues PPG, should be determined by the method described in the '234 patent written description (id.):

The specific volume of the silica V_{600} is determined from an established amount of silica, compacted into a steel die having an internal diameter of 25 mm and a height of 80 mm; 3 g of: silica is added, then a piston or ram is positioned over the silica and sufficient weight is added to the piston that it exerts a compacting pressure of 600 kg/cm^2 upon the silica. The difference between the initial and compacted volumes reflects the volume of the inter-aggregate interstices and is characteristic of the primary structure of the silica.

(D.I. 1, '234 Patent at col. 4 ll. 12-22.) Similarly, PPG maintains that BET specific surface area should be determined "by the method of Braunauer, Emmett and Teller as described in *Journal of the American Chemical Society,* vol. 60, p. 309 (February, 1938)[ ]", and CTAB surface area should be determined "by the method described at Jay, Janzen and G. Kraus, *Rubber Chemistry and Technology,* 44, pp. 1278-1296 (1971)[ ]" (D.I. 1, '234 Patent at col. 4 ll. 3-12), as those methods are specified in the '234 patent written description. (D.I. 106 at 22-23; D.I. 167 at 11.)

2. *The Court's Construction*

I construe the phrases "a fill density in compacted state in excess of 0.200", "a BET surface area ranging from 100 to 350 m^2/g", "a CTAB surface area ranging from 100 to 350 m^2/g", "said particulates having a specific volume in the range of from about 0.7 to 1.1", and "said particulates having a fill density in compacted state from about 0.28 to 0.32" to mean that the measurements are determined in accordance with the respective test or standard referred to by the inventors in the '234 patent written description.

The parties' disputes as to these phrases center not on the meaning of the language but, instead, on the appropriate manner of determining the numerical measurements embodied by the language. The inventors disclosed to the public in their written description the specific standards and tests to be used for measuring the silica particulates. The disputed phrases are thus construed in light of and so as to embody the specifics given in the description.

H. "*being free flowing to an extent of at least 10 times greater than in powder form*"

1. *The Parties' Proposed Constructions*

Rhodia asserts that PPG does "not directly dispute Rhodia's construction" of "being free flowing to an extent of at least 10 times greater than in powder form". (D.I. 108 at 17.) Instead, Rhodia maintains that PPG's contention with respect to the phrase centers on the language "free-flowing" and "powder form". (Id.)

Rhodia asserts further that "the '234 patent defines a test for flowability." (Id. at 18.) That test, argues Rhodia, establishes that the meaning of the contested language is "a relative time for the precipitated silica particulates to flow through an aperature [sic] under vibration." (Id. (citing '234 Patent at col. 4 ll. 29-34).) Therefore, Rhodia asserts that "[c]laim 9 calls for a flow of at least ten times less than the time it takes silica powder to pass through the same aperature [sic] under the same vibration." (Id.)

Similarly, PPG contends that the term "flowability" in the phrase should be construed consistently with the disclosure provided in the '234 patent written description. (D.I. 106 at 23.) Specifically, PPG asserts that flowability should be " 'defined herein ... as the time required for the product to flow into appropriate receptacle having a calibrated aperture while under slight vibration." ' (Id. (quoting '234 Patent at col. 4 ll. 29-31).) Therefore, suggests PPG, the phrase should be construed in claim 9 "to mean that the silica particulates have a flowability as measured by the cited test that is 10 times better than the measured flowability of the particulates when milled into a powder form." (Id. at 24.)

2. *The Court's Construction*

I construe the phrase "being free flowing to an extent of at least 10 times greater than in powder form" to mean that the silica particulates of the '234 patent flow into an appropriate receptacle having a calibrated aperture while under slight vibration to an extent of at least 10 times greater than does silica in powder form. In other words, "flowability" is defined in accordance with the test provided by the inventors in the '234 patent written description.

The parties cite the same portion of the '234 patent written description as the appropriate source for determining the meaning of the phrase "being free flowing to an extent of at least 10 times greater than in powder form". That portion of the '234 patent written description provides as follows: "Flowability as defined herein is determined as the time required for the product to flow into appropriate receptable having a calibrated aperture while under slight vibration." (D.I. 1, '234 Patent at col. 4 ll. 29-31.) This disclosure informs those of ordinary skill in the art as to the meaning of "being free flowing to an extent of at least 10 times greater than in powder form", as that phrase is used in the patent.

V. CONCLUSION

CLAIM TERM/PHRASE	*THE COURT'S CONSTRUCTION*
"dry"	The Court construes the word "dry" to mean that the silica particulates of the patented invention are dry to the touch, not wet. That is, they have little or no residual moisture content.
"dust-free and non-dusting"	The Court construes "dust-free and non-dusting" to mean a level of dust formation associated with the silica particulates of

	the '234 patent, as measured in percentage weight according to DIN 53 583,[4] that has a fines content value less than or equal to 13 and weight loss by abrasion value less than or equal to 0.5.
"solid"	The Court construes "solid" to mean an object having a definite shape that offers resistance to a deforming force. DICTIONARY OF SCIENCE AND TECHNOLOGY 1089 (T.C. Collocott M.A., ed., Barnes & Noble 1971). The word "solid" excludes a hollow body, but is broad enough to encompass porous solid material.
"homogeneous"	The Court construes "homogeneous" to mean "of the same or a similar kind or nature ... of uniform structure or composition throughout...." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 554 (10 ed.2002).
"atomized precipitated silica particulates"	The Court construes the phrase "atomized precipitated silica particulates" to mean that a pulverized slurry of precipitated silica is spray dried using a liquid pressure nozzle as an atomizer to form the claimed silica particulates.

"essentially spheroidal in geometrical configuration"	The Court construes the phrase "essentially spheroidal in geometrical configuration" to mean that the geometric shape of the silica particulates essentially resemble a sphere. Less than perfect spheres are embodied by this definition.
"a fill density in compacted state in excess of 0.200", "a BET surface area ranging from 100 to 350 m^2/g", "a CTAB surface area ranging from 100 to 350 m^2/g", "said particulates having a specific volume in the range of from about 0.7 to 1.1", "said particulates having a fill density in compacted state from about 0.28 to 0.32"	The Court construes the phrases "a fill density in compacted state in excess of 0.200", "a BET surface area ranging from 100 to 350 m^2/g", "a CTAB surface area ranging from 100 to 350 m^2/g", "said particulates having a specific volume in the range of from about 0.7 to 1.1", and "said particulates having a fill density in compacted state from about 0.28 to 0.32" to mean that the measurements are determined in accordance with the respective test or standard referred to by the inventors in the '234 patent written description.
"being free flowing to an extent of at least 10 times greater than in powder form"	The Court construes the phrase "being free flowing to an extent of at least 10 times greater than in powder form" to mean that the silica particulates of the

	'234 patent flow into an appropriate receptacle having a calibrated aperture while under slight vibration to an extent of at least 10 times greater than does silica in powder form. In other words, "flowability" is defined in accordance with the test provided by the inventors in the '234 patent written description.

FN4. *See* n.2, *supra*.

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Chimie v. PPG Industries, Inc.

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