

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SNF HOLDING COMPANY,
FLOPAM INC.,
CHEMTALL INCORPORATED,
SNF SAS, and
SNF (CHINA) FLOCCULANT CO. LTD.,
Petitioner,

v.

BASF CORPORATION,
Patent Owner.

Case IPR2015-00600
Patent 5,633,329

Before GRACE KARAFFA OBERMANN, JON B. TORNQUIST, and
JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

TORNQUIST, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

SNF Holding Company, Flopam Inc., Chemtall Incorporated, SNF SAS, and SNF (China) Flocculant Co. Ltd. (collectively “Petitioner”) filed a Petition (Paper 1) requesting institution of *inter partes* review of claims 1–7 of U.S. Patent No. 5,633,329 (Ex. 1001, “the ’329 patent”). BASF Corporation (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”) to the Petition. Upon consideration of the Petition, we determined that the information presented in the Petition demonstrated a reasonable likelihood that Petitioner would prevail with respect to claims 1–7 of the ’329 patent. Paper 9 (“Inst. Dec.” or “Institution Decision”). Thus, pursuant to 35 U.S.C. § 314(a), we instituted trial with respect to those claims. *Id.*

Following institution of trial, Patent Owner filed a Patent Owner Response (Paper 20, “PO Resp.”), to which Petitioner filed a Reply (Paper 28, “Pet. Reply”). Patent Owner also filed a Motion to Exclude (Paper 37), to which Petitioner filed an Opposition (Paper 42), and Patent Owner filed a Reply (Paper 46).

Patent Owner also filed a paper identifying allegedly improper arguments and evidence submitted in Petitioner’s Reply (Paper 31), to which Petitioner filed a response (Paper 32). Finally, Petitioner filed a motion to exclude certain errata sheets filed by Patent Owner (Paper 43), to which Patent Owner filed an opposition (Paper 45).

An oral hearing was held on May 5, 2016, and a transcript of the oral hearing is included in the record. Paper 48 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c) and this Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons set forth below, we conclude that Petitioner has not demonstrated, by a preponderance of the evidence, that claims 1–7 of the '329 patent are unpatentable.

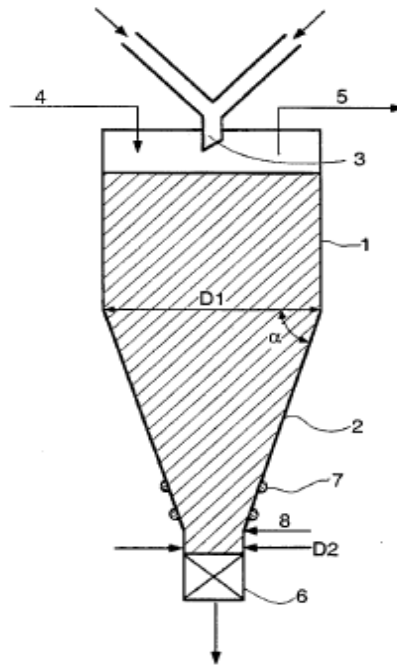
A. Related Matter

The parties indicate that the '329 patent is being asserted in *BASF Corp. v. SNF Holding Co.*, No. 4:14-cv-02733 (S.D. Tex.), filed September 23, 2014. Pet. 1; Paper 6, 2.

B. The '329 Patent

The '329 patent discloses a process for polymerizing water-soluble, monoethylenically unsaturated monomers in an aqueous solution. Ex. 1001, 1:4–10. In this process, monoethylenically unsaturated monomers, such as acrylic acid, methacrylic acid, and acrylamide, are mixed with an initiator of polymerization, preferably in the form of a water soluble azo initiator, and polymerized to form a viscoelastic, gelatinous polymer. *Id.* at 3:24–46, 5:29–34, 9:37–39 (disclosing the production of a “solid, viscoelastic and only slightly sticky” polymer).

The '329 patent contains one Figure, reproduced below, that depicts the disclosed reactor schematically:



As shown in the Figure, the reactor of the '329 patent is generally composed of “tubular reactor (1) which has a conical taper (2) at the end” and “shut-off element (6).” *Id.* at 2:26–28, 2:63–64. D1 represents the diameter of tubular reactor 1, D2 represents the diameter of conical taper 2 at the end of the taper, and angle α represents the angle between D1 at the start of the conical taper and the inner cone wall. *Id.* at 2:52–60. The ratio between D1 and D2 is between 2:1 and 25:1 and the angle α “is $>45^\circ$ and $<90^\circ$, and preferably from 65° to 85° .” *Id.* at 2:17–23, 2:52–60.

In the disclosed process, a monomer solution is mixed with an initiator of polymerization at point 3 and fed into tubular reactor 1. *Id.* at 2:28–32. After the monomers are polymerized, an inert gas is provided via feeds 4 and 8 to “completely” push the polymerized material out of the reactor. *Id.* at 2:46–48, 3:3–6 (“Instead of a single feed line (8), it can be advantageous if a multiplicity of openings are arranged in the form of a

circle at the end of the cone”), 7:1–3 (“the gel can then be completely pushed out of the reactor after opening the shut-off element.”).

C. Illustrative Claims

Claims 1 and 4 of the ’329 patent are illustrative of the challenged claims and are reproduced below:

1. A process for preparing high molecular weight polymers, which comprises polymerizing water-soluble, monoethylenically unsaturated monomers and, if desired, crosslinkers which contain at least two nonconjugated, ethylenically unsaturated double bonds in the molecule, and, if desired, water-insoluble monoethylenically unsaturated monomers in aqueous solution in the presence of polymerization initiators in a tubular reactor which has a conical taper at the end, the ratio of the diameter of the reactor (D1) to the diameter at the end of the conical taper of the reactor (D2) being from 2:1 to 25:1 and the angle between D1 at the start of the conical taper and the inner cone wall being $>45^\circ$ and $<90^\circ$, and *removing the gelatinous reaction mixture by injection of an inert gas*.

Ex. 1001, 14:27–41 (emphasis added).

4. A process as claimed in claim 1, wherein the water soluble monoethylenically unsaturated monomers are polymerized with from 0.001 to 5% by weight, based on the total monomers employed in the polymerization, of at least one crosslinker.

Id. at 14:49–53.

D. Instituted Grounds of Unpatentability

We instituted the instant trial based on the following grounds of unpatentability (Inst. Dec. 17):

1. Whether claims 1–3 and 5–7 would have been obvious under 35 U.S.C. § 103 over the '944 patent¹ and the '597 patent;² and
2. Whether claim 4 would have been obvious under 35 U.S.C. § 103 over the '944 patent, the '597 patent, and EP '709.³

In support of its grounds of unpatentability, Petitioner also relies upon the testimony of Dr. Benny Freeman. Ex. 1007.

II. ANALYSIS

A. Claim Construction

Because the '329 patent has expired, the parties agree that the claims are to be given their ordinary and customary meaning in accordance with the claim construction principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2015) (en banc). PO Resp. 8 (citing *In re Rambus, Inc.*, 753 F.3d 1253, 1256 (Fed. Cir. 2014)); Tr. 9:18–21.

In the Institution Decision we construed the term “by injection of an inert gas” to require that the inert gas act directly upon the gelatinous reaction mixture. Inst. Dec. 7. The parties do not dispute this construction in their subsequent briefing and, upon review of the record as a whole, we discern no reason to modify this construction. See PO Resp. 8–9; Pet. Reply 3–6.

In the Patent Owner Response, Patent Owner requests that we also construe the terms “removing” and “the gelatinous reaction mixture.” PO Resp. 9–14. Upon review of the parties’ arguments and supporting

¹ U.S. Patent No. 3,634,944, iss. Jan. 18, 1972 (Ex. 1004).

² U.S. Patent No. 3,784,597, iss. Jan. 8, 1974 (Ex. 1002).

³ EP Patent Publication No. 0374709 A2, published June 27, 1990 (Ex. 1006).

evidence, we determine that only the term “removing” requires construction for the purposes of this Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only terms in controversy need to be construed, and only to the extent necessary to resolve the controversy).

removing

Claim 1 requires “removing the gelatinous reaction mixture by injection of an inert gas.” Ex. 1001, 14:40–41. Petitioner asserts the ordinary meaning of the term “removing” in this claim phrase is “discharging.” Pet. 19. Petitioner’s sole support for this construction, however, is the testimony of Dr. Freeman, who provides no supporting evidence or analysis to explain why one of ordinary skill in the art would understand “removing” to mean “discharging.” *See* Ex. 1007 ¶¶ 103–104.

In its response, Patent Owner contends that “removing” should be construed to require that “substantially all the gelatinous reaction mixture is discharged from the reactor.” PO Resp. 9, 12 (citing Ex. 2016 ¶¶ 79–83). Patent Owner asserts this construction is supported by the ordinary meaning of the term “removing,” which is “to get rid of: eliminate,” and the Specification of the ’329 patent, which indicates that one of the problems the inventor was attempting to solve was the “incomplete discharge of polymer gel when using gas pressure.” *Id.* at 9–11 (citing Ex 2001; Ex. 2002; Ex. 1001, 1:36–41); *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1160 (Fed. Cir. 1997) (“In construing claims, the problem the inventor was attempting to solve, as discerned from the specification and the prosecution history, is a relevant consideration.”)). Patent Owner also asserts that this construction is consistent with the examples set forth in the ’329 patent, which indicate that the polymer gel was discharged from the tubular reactor

either “without residue” or with “only insignificant” residue remaining in the reactor. PO Resp. 12 (citing Ex. 1001, 8:63–14:25).

In Reply, Petitioner maintains its position that “removing” means “discharging,” but contends that Patent Owner’s declarant, Dr. John Carson, admitted during cross-examination that the term “removing” is broad enough to encompass 90% discharge of a polymer gel. Pet. Reply 3 (citing Ex. 1017, 120:10–14). Petitioner notes that it “does not object to” to this construction, because there is allegedly “no dispute that the prior art ’944 and ’597 patents removed at least 90% [of the polymerized material].” *Id.*

Upon review of the record as a whole, we are persuaded by Patent Owner’s argument that the term “removing”—in the context of the claim phrase “removing the gelatinous reaction mixture by injection of an inert gas”—means “substantially all the gelatinous reaction mixture is discharged from the reactor.” First, as noted by Patent Owner, the terms “remove” and “discharge” have different meanings—with “discharge” defined as “to pour forth fluid or other contents” and “remove” defined as “to get rid of: eliminate.” See Ex. 2001 (definition of “discharge”); Ex. 2002 (definition of “remove”).

Second, the terms “discharge” and “remove” are used differently in the ’329 patent. For example, the ’329 patent distinguishes one prior art reference on the basis that, although the reference discloses the “discharge” of polymer from a reactor using inert gas pressure, “it was not possible in this way completely to remove the polymer from the reactor.” Ex. 1001, 1:33–41; Ex. 1014 ¶¶ 2–3.

Finally, the ’329 patent uses the term “remove” in other contexts to indicate the elimination of substances from the reactor. Specifically, the

'329 patent notes that because the polymerization reaction is to be carried out “in the absence of oxygen,” an inert gas is passed through the monomer and initiator solutions “*to remove* residual oxygen.” Ex. 1001, 6:32–38 (emphasis added).

Although “removing” indicates elimination of the polymer from the reactor, the parties agree that the term does not preclude an “insignificant amount” of residual polymer from remaining in the reactor. Ex. 2003, 162:19–163:7 (Dr. Freeman testifying that “ideally you would remove all the material that you made. But, I don’t think the ’329 patent requires absolutely [sic] removal of all of the material. And the examples, certainly there is one of them at least that shows that there is some residue.”); Ex. 1001, 14:23–24 (noting that in Example 14 “[o]nly insignificant residues remained in the tubular reactor”). The ’329 patent does not indicate, however, what level of residual polymer constitutes an “insignificant” amount.

The only extrinsic evidence identified by the parties specifically identifying a range of residual polymer allowed by the “removing” claim term is the testimony of Dr. Carson, who testifies as follows:

Q. What percentage of removal is required, in your opinion?

A. I believe that Dr. Schork, in his declaration, stated virtually all the material, which doesn’t mean 100 percent, but essentially all of the material, with a small amount of residue that could be left on the interior surface.

Q. Does that require, say, 90 percent?

A. I –

MR. RIDDLE: Objection to form.

A. I would say that it’s considerably more than 90 percent, probably higher than 95, 98, 99 percent.

BY MR. BRADY:

Q. So removal, according to the '329 patent, then, in your opinion, would require removal of 90 percent, at least, of the gelatinous reaction mixture. Is that your testimony?

A. Yes.

Ex. 1017, 119:18–120:14.

Petitioner contends this testimony demonstrates that discharging 90% of a polymer from a reactor would satisfy the “removing” limitation of claim 1. Pet. Reply 3. Contrary to Petitioner’s argument, however, Dr. Carson’s testimony indicates that discharge levels “considerably more than 90%, probably higher than 95, 98, and 99 percent” (which would necessarily require that at least 90% of the material be discharged) are required to satisfy the “removing” limitation. Thus, given that Dr. Carson’s testimony is the only evidence bearing on the point, we are not persuaded that Petitioner directs us to sufficient evidence to demonstrate that a 90% discharge level would satisfy the “removing” limitation in claim 1 of the '329 patent.

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

(3) the level of ordinary skill in the art;⁴ and (4) if in the record, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Obviousness over the '944 Patent and the '597 Patent

Petitioner contends that claims 1–3 and 5–7 would have been obvious over the '944 patent and the '597 patent. Pet. 44–51.

1. The '944 Patent

The '944 patent is directed to the production and drying of polyacrylamide polymer gels, which the '944 patent reports are “intensely adhesive” and “so viscous as to be self-supporting.” Ex. 1004, 1:4–9, 1:15–17, 1:22–27. Figure 1A of the '944 patent is reproduced below:

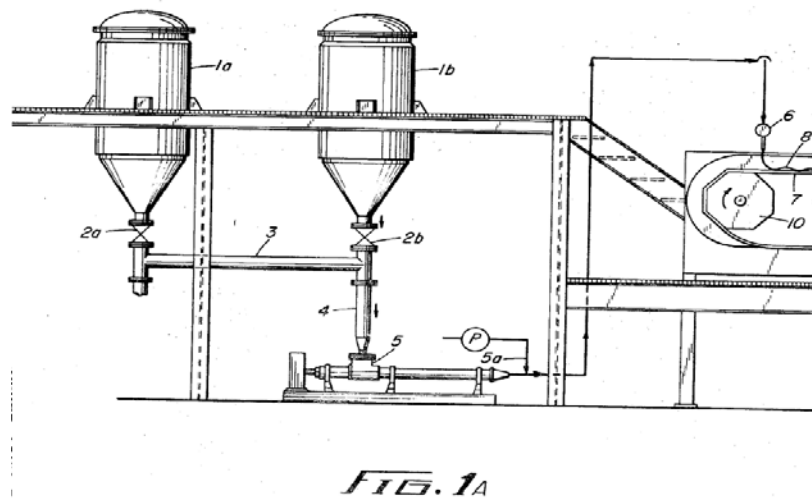


Figure 1A “is an elevation showing schematically the reactors” of the ‘944 patent.

In this figure, tubular polymerization chambers 1a and 1b have a conical taper and supply an acrylamide polymer gel to screw pump 5 through valves 2a and 2b and pipes 3 and 4. *Id.* at 3:23–28. The gel is then

⁴ The level of ordinary skill in the art in this case is reflected by the prior art of record. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

supplied under the pressure provided by screw pump 5 to header 6 and extruded on steel belt 7 in the form of cords 8. *Id.* at 3:28–31, 4:68–74.

2. *The '597 Patent*

Similar to the '944 patent, the '597 patent also discloses a process for producing a “viscous” and “sticky” acrylamide polymer gel. Ex. 1002, 1:21–24, 1:50–51. Although the '597 patent does not contain depictions of the reactor used to polymerize the acrylamide monomers, in Example 1 of the '597 patent the reaction vessel is described as eight centimeters in diameter, fifty centimeters in height, and having an outlet two centimeters in diameter at the bottom of the vessel. *Id.* at 3:60–62. In Example 2, the reaction vessel is described as being sixty centimeters in diameter, two-hundred centimeters in height, and having an outlet ten centimeters in diameter at the bottom of the vessel. *Id.* at 4:34–36.

The '597 patent discloses that the acrylamide polymer may be “discharged” “by use of nitrogen gas pressure.” *Id.* at 3:70–72. The '597 patent also discloses that “[a]ny conventional reaction vessel may be used” in the process, but notes that reaction vessels having a “bottom product outlet for discharging the gel-like polymer containing medium” are preferred. *Id.* at 2:70–3:2.

3. *The Parties' Arguments*

Petitioner contends that each limitation of the challenged claims is taught or suggested by the combined teachings of the '944 and '597 patents. Pet. 44–51. For example, Petitioner contends that the '944 patent discloses discharging “sticky” gels from a tubular reaction vessel having a conical taper that is less than 90 degrees and greater than 45 degrees. *Id.* at 44–45 (citing Ex. 1007 ¶¶ 227, 238). Petitioner further contends that, because the

'597 patent explicitly teaches successfully discharging a sticky polymer gel from a reaction vessel using inert gas pressure, it would have been obvious to likewise use inert gas pressure in the '944 patent to discharge the polymer gel from the disclosed reactor. *Id.* at 20–22, 45–46 (citing Ex. 1002, 2:70–3:2, 3:70–72). According to Petitioner, “[c]ombining the disclosed features of the '944 and '597 patents would have been merely the combination of known elements according to known methods to yield predic[t]able results.” *Id.* at 47 (citing Ex. 1007 ¶ 236).

Patent Owner responds that Petitioner has not shown that the recited prior art references teach every element of the challenged claims. PO Resp. 2–3. In particular, Patent Owner contends that the '944 and '597 patents do not disclose that inert gas pressure can be used to *remove* a sticky, self-supporting polymer gel from a reactor. *Id.* at 3, 23–24.

In Reply, Petitioner asserts that “[t]here is no dispute that the prior art '944 and '597 patents removed at least 90%” of the polymer gel from the reactor. Pet. Reply 3. Petitioner further argues that U.S. Patent No. 5,081,215 (“the '215 patent”), which is admitted prior art disclosed in the '329 patent, teaches that a conical taper and inert gas pressure can be used to discharge a polymer gel from a reaction vessel “virtually without residue.” *Id.* at 2–3, 11.

4. Analysis

To demonstrate unpatentability, Petitioner must either present evidence that each limitation of the claimed invention is disclosed in the recited prior art, or identify “some reason why one of skill in the art would modify the prior art to obtain the claimed invention.” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016); *PAR Pharm., Inc. v. TWi Pharm.*,

Inc., 773 F.3d 1186, 1194 (Fed. Cir. 2014) (“We must first determine whether TWi carried its burden to prove that all claimed limitations are disclosed in the prior art.”) (quoting *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1164 (Fed. Cir. 2006)).

As noted above, Patent Owner contends that Petitioner has not carried its burden to show that the ’597 and ’944 patents, either individually or in combination, disclose “*removing* a gelatinous reaction mixture by injection of an inert gas.” We agree.

The ’944 patent discloses discharging a “sticky” polymer gel from a tubular reactor having a conical taper at one end. Pet. 44 (citing Ex. 1004, Fig. 1A). The ’597 patent discloses “discharging” this same type of polymer gel from a tubular reactor using inert gas pressure. *Id.* at 45; Ex. 1002, 2:71–3:2, 3:70–73. Neither patent discloses, however, the extent of polymer discharge. And, although Dr. Freeman testifies that one of ordinary skill in the art would understand that the proposed combination of the ’944 and ’597 patents would result in removal of the polymer gel from the reactor (Ex. 1007 ¶¶ 231–235), this testimony presumes that “discharging” is equivalent to “removing.” *Id.* ¶¶ 103–104 (asserting that “a process of discharging resulting gelatinous material from the reactor will satisfy [the removing] element of the claim”), 120, 232. Thus, we are not persuaded that the Petition demonstrates, by a preponderance of the evidence, that all elements of the challenged claims are disclosed in the asserted prior art.

In Reply, Petitioner asserts that even under Patent Owner’s proposed construction the ’944 and ’597 patents disclose “removing” a gelatinous reaction mixture using inert gas pressure because “[t]here is no dispute that the prior art ’944 and ’597 patents removed at least 90% [of the polymer].”

Pet. Reply. 3. We are not persuaded by this argument for at least two reasons. First, the 90% discharge threshold relied upon by Petitioner is premised on a construction of the term “removing” that we do not adopt. Second, Petitioner cites to no evidentiary support for its assertion that the prior art ’944 and ’597 patents achieve 90% discharge, nor does Petitioner cite to persuasive evidence to establish that the combined teachings of the ’944 and ’597 patents would necessarily⁵ result in discharge of “substantially all” of the polymer gel from the reactor. *See id*; *see also PAR Pharm.*, 773 F.3d 1194–95 (noting that “inherency may supply a missing claim limitation in an obviousness analysis” if the limitation is “necessarily present” or is the “natural result” of the combination of prior art elements).

Petitioner also argues that “[a] high expectation of success” in achieving the claimed invention “is provided by the explicit ’597 disclosure of inert gas and D1:D2 ratios, the broad D1:D2 range of the ’329 claims, which permits the discharge opening to be up to one-half the diameter of the reactor itself, and the prior art directly rebutting Dr. Schork.” Pet. Reply 14. Again, this argument is premised on a construction of “removing” that requires only 90% discharge. *See id.* (“As Dr. Carson confirmed, the ’329 claims only require removing at least 90% of the gel mixture.”). Moreover, Petitioner does not explain adequately why the D1:D2 ratios of the ’597 patent would necessarily result in removal of the polymer gel from the

⁵ Petitioner does not assert in the Petition or Reply that the combined teachings of the ’944 and ’597 patents would inherently result in “removing” the polymer gel from the respective reaction vessels. *See* Tr. 14:3–13. Thus, Petitioner has not met the “high standard” for demonstrating inherency in the context of an obviousness analysis. *See Par Pharm.*, 773 F.3d at 1195–96.

reactor, or why a relatively large diameter discharge opening would ensure that only an insignificant amount of polymer remains in the reaction vessel. As such, on this record we do not find Petitioner's unsupported arguments persuasive.

During oral argument, Petitioner also identified paragraph 125 of Dr. Freeman's reply declaration as demonstrating that "one of ordinary skill in the art would expect that the process [of the '597 patent] discharged most, if not all, of the polymer formed in the reactor." Tr. 17:23–8:5 (answering a question raised at Tr. 15:7–16). In this paragraph, Dr. Freeman testifies:

. . . I see no evidence in the '597 patent that less than all of the material in the reactor was discharged in either Example 1 or Example 2. Furthermore, as the '597 patent describes the downstream process, one skilled in the art would expect that the '597 patent describes a process that discharges most, if not all, of the polymer formed in the reactor.

Ex. 1019 ¶ 125.

We decline to consider this testimony because Petitioner did not cite to it or explain its significance in the Reply. *See* 37 C.F.R. §§ 42.6(a)(3) (noting that "[a]rguments must not be incorporated by reference from one document into another"), 42.23(b) ("All arguments for the relief requested in a motion must be made in the motion."). Nevertheless, even if we were to consider this testimony, it would be entitled to little, if any, weight because Dr. Freeman does not explain *why* one of ordinary skill in the art, observing that the '597 patent focuses primarily on the downstream processing of the polymer gel and does not recite a level of discharge, would expect that "most, if not all, of the polymer" is discharged from the reactor. *See Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (noting that a fact finder is not required to "credit the unsupported assertions

of an expert witness”); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985) (noting that the “[l]ack of factual support” for an expert opinion “may render the testimony of little probative value”).

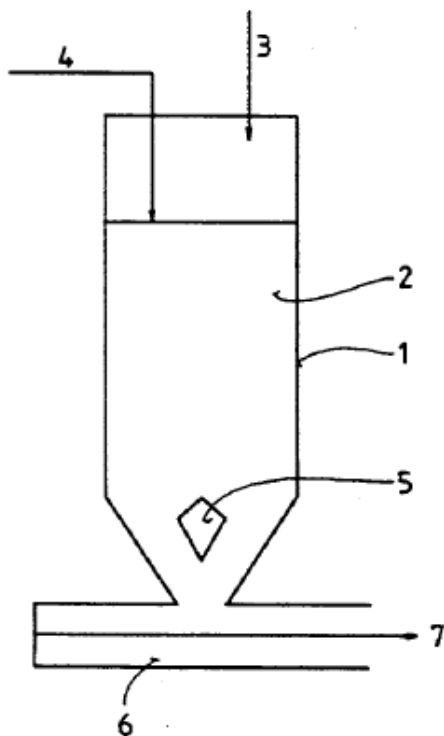
Petitioner also argues in the Reply that the ’329 patent admits that U.S. Patent No. 5,081,215 discloses using inert gas pressure to discharge a polymer gel “virtually without residue.” Pet. Reply 11 (citing Ex. 1001, 2:1–4; 1020, 4:2–3, 5:31–35); Tr. 19:11–14. This disclosure is as follows:

U.S. Pat. No. 5,081,215 discloses a process for preparing polyether ketones in which the polycondensation is carried out by a two-stage process, the polycondensation being completed in the second stage and the plastic polymer matrix containing included aluminum chloride particles obtainable being discharged from the tubular reactor virtually without residue by injecting an inert gas.

Ex. 1001, 1:65–2:4.

A patentee’s representations as to “what is to be considered prior art in determining obviousness of their improvement” may be taken as a binding admission. *In re Nomiya*, 509 F.2d 566, 570–71 (CCPA 1975); *Constant v. Advanced Micro-Devices Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) (“A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness.”). In this case, however, we are not persuaded that Petitioner establishes the purported admission.

The ’215 patent discloses a “process for the preparation of polyaryleneetherketones by electrophilic polycondensation in two reaction zones.” Ex. 1020, 1:5–7. The ’215 patent contains one Figure, which is reproduced below:



The Figure is a schematic view of the tube reactor of the '215 patent. As shown in the Figure, the downstream reactor of the '215 patent is composed of reaction tube 1, reaction material 2, displacement apparatus 5, and discharge aid 6. Ex. 1020, 3:55–63. In the process of the '215 patent, inert gas pressure, preferably in the form of nitrogen, is used to force the reaction material “towards the discharge aid in the conical part of the reactor. From there, the reaction material is discharged *by the discharge aid* into a downstream working-up unit.” *Id.* at 4:45–50 (emphasis added); *see also id.* at 4:37–38 (noting that inert gas pressure is used to move “the reaction material with plug flow to the discharge aid in the lower part of the reactor”), 5:46–50 (noting that the discharge screw is “mounted in the lower, conical part of the downstream reactor”).

Given that the '215 patent discloses the use of both inert gas pressure and a discharge aid located within the conical portion of the reactor to

discharge the sticky polymer from the reaction vessel, we do not understand the statement in the '329 patent that inert gas pressure was used to discharge the polymer material “virtually without residue” to be a binding admission that it was known in the prior art that gas pressure and a conical taper alone will discharge a polymer from a reaction vessel without residue.⁶ Indeed, the use of a discharge aid in the '215 patent reactor tends to support Patent Owner’s argument that one of ordinary skill in the art would not have had a reasonable expectation of success in using a conical taper and inert gas pressure alone (the combination proposed by Petitioner) to remove a sticky, gelatinous product from a reactor.

5. Conclusion

Based on the foregoing, and upon review of the record as a whole, we determine that there is insufficient evidence or argument to demonstrate that the '944 and '597 patents disclose, or would inherently result in, “removing the gelatinous reaction mixture by injection of an inert gas.” Thus, we are not persuaded that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–3 and 5–7 would have been obvious over the '944 and '597 patents.

⁶ Although the '329 patent claims do not appear to preclude the use of a screw pump within the reactor, Petitioner does not make this argument, and this is not the combination of prior art elements proposed in the Petition. See *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (noting that “the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute”).

*D. Obviousness of Claim 4 over the '944 Patent,
the '597 Patent, and EP '709*

Petitioner contends that claim 4 of the '329 patent would have been obvious over the combined teachings of the '944 patent, the '597 patent, and EP '709. Pet. 57–59; Inst. Dec. 16. Because claim 4 depends from claim 1, and because Petitioner does not contend that EP '709 bears on the issue of whether “substantially all” of the polymer gel would be removed from the reaction vessel, we are also not persuaded that Petitioner has demonstrated, by a preponderance of the evidence, that claim 4 would have been obvious over the '944 patent, the '597 patent, and EP '709.

E. Motion to Exclude

Patent Owner moves to exclude Exhibits 1003, 1005, and 1020–1031, as well as those portions of Dr. Freeman’s reply declaration (Ex. 1019) that rely upon the identified exhibits. Paper 37, 1–12. As we have either not relied upon these exhibits, or have considered the exhibits and found in favor of Patent Owner (e.g., Ex. 1020), we dismiss the Motion to Exclude as moot.

F. Motion to Exclude Errata

On March 30, 2016, Patent Owner requested authorization to replace unsigned deposition transcripts (Exhibits 1018 and 2003) with signed versions of these transcripts, including errata sheets. Petitioner opposed this request because the errata sheets would change the deponent’s substantive testimony rather than address only transcription errors. Upon review of the proposed errata sheets, we agreed with Petitioner that the errata sheet for Exhibit 1018 (the transcript of Joseph Schork) would modify substantive testimony of the declarant; however, in order to maintain a complete record in this proceeding we permitted Patent Owner to file the signed declaration

testimony with accompanying errata sheets and authorized Petitioner to file a motion to exclude the new exhibits. Paper 41, 3. Petitioner now seeks to exclude this testimony. Paper 43.

As noted by Petitioner, errata sheets that seek to change the substantive testimony of a witness are disfavored. *See Rules of Practice for Trials Before the Patent Trial and Appeal Board*, 77 Fed. Reg. 48612, 48642 (Aug. 14, 2012) (noting in Comment 144 that the Board’s final rules do not provide for errata sheets, although a party may seek to submit an errata if necessary to the proceeding); *Garmin Int’l, Inc. v. Cuozzo Speed Techs LLC*, IPR2012-0001, Paper 50 at 3 (PTAB July 18, 2013) (“a request to make a material change to the substance of cross examination testimony is unlikely to be successful no matter when the request is made.”).

In this case, we need not determine whether this is one of the rare instances where errata testimony that changes the substance of a declarant’s testimony may be relied upon by a party, as we have not relied upon any of the disputed testimony for purposes of this decision. Accordingly, we dismiss Petitioner’s motion to exclude the errata sheets as moot.

*G. Patent Owner’s Identification of
Allegedly Improper Reply Evidence*

Pursuant to authorization from the Board, Patent Owner filed a notice identifying arguments and evidence that it believes “exceed the proper scope of reply under 37 C.F.R. § 42.23(b).” Paper 31, 1. We have considered Patent Owner’s identifications, as well as Petitioner’s opposition (Paper 32), and find that we have either not relied upon any of the allegedly improper reply evidence, or have considered the evidence and found in favor of Patent

Owner. Accordingly, we do not strike or ignore any of the identified arguments and evidence.

H. Patent Owner's Demonstrative Exhibits

Prior to oral argument in this proceeding, Petitioner filed an objection to Patent Owner's demonstrative exhibits. Paper 47 (identifying slides 5, 13, 19, 26, 27, 29, 30–32, 40–42, 51, 69, and 70). In its filing, Petitioner contends Patent Owner's demonstrative exhibits contain numerous slides with citations to testimony and evidence that were not otherwise cited in any paper. *Id.* at 2–4. During oral argument, and in support of these slides, Patent Owner asserted:

Deposition testimony is testimony like it would be in District Court under the Federal Rules. It's considered testimony at the proceeding . . . My understanding is there wouldn't be a problem in doing that. Needless to say, it's not a new argument or new evidence . . . [as] all of these issues we brought up in our response and in declaration and during depositions.

Tr. 59:5–19.

In our Order setting oral argument, we directed the parties to *St. Jude Medical, Cardiology Division, Inc. v. The Board of Regents of the University of Michigan*, IPR2013-00041 (PTAB January 27, 2014) (Paper 65) for guidance regarding the appropriate content of demonstrative exhibits. Paper 40, 3. As noted in *St. Jude*, demonstrative exhibits “are intended to be visual aids to assist the party in making its oral presentation.” Paper 65, 3. Demonstrative exhibits are not evidence, however, and “cannot add new evidence to the record of the proceeding,” nor can demonstrative exhibits “rely on evidence that, although it is in the record, was never specifically discussed in any paper before the Board.” *Id.*

Here, Patent Owner concedes that several of the slides identified by Petitioner contain citations to declaration and deposition testimony that were not previously discussed or cited to in any paper submitted by the parties. *See* Tr. 59:8–23. As such, these slides are contrary to the guidance provided in our Order. Paper 40, 3. Accordingly, we have excluded from our consideration Patent Owner’s demonstrative slides 5, 13, 19, 26, 27, 29, 30–32, 40–42, 51, 69, and 70.

III. ORDER

For the foregoing reasons, it is:

ORDERED that no claim of the ’329 patent is held unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is *dismissed as moot*;

FURTHER ORDERED that Petitioner’s Motion to Exclude Errata is *dismissed as moot*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-00600
Patent 5,633,329

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