IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

PRAXAIR, INC. and PRAXAIR TECHNOLOGY, INC.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 03-1158-SLR
ATMI, INC. and ADVANCED TECHNOLOGY MATERIALS, INC.,	)	
Defendants.	)	

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MEMORANDUM OPINION

Dated: August 17, 2006
Wilmington, Delaware

ROBINSON, Chief Judge

I. INTRODUCTION

On December 22, 2003, Praxair, Inc. and Praxair Technologies, Inc. (collectively called "Praxair") filed this action against ATMI, Inc. and Advanced Technology Materials, Inc. (collectively called "ATMI") for infringement of certain claims of United States Patent Nos. 6,045,115 ("the '115 patent"), 6,007,609 ("the '609 patent") and 5,937,895 ("the '895 patent"). (D.I. 1) The case was tried to a jury[1] and on December 7, 2005, the jury returned a verdict in favor of Praxair finding all the asserted claims were infringed by ATMI and the patents were not invalid. (D.I. 282) Before the court is ATMI's motion for judgment as a matter of law or, in the alternative, for a new trial. (D.I. 272)

II. BACKGROUND

Many manufacturing processes involve the use of corrosive, pyrophoric, highly toxic or otherwise dangerous gases, such as trifluoride, silane, arsine or phosphine. (D.I. 131 at 7) Gases, including highly hazardous materials, have traditionally been supplied in standard high-pressure cylinders or pressurized tanks. (D.I. 139 at 5) High pressure gas distribution systems used for delivering hazardous specialty gases in industrial operations present a potential for toxic release of gas into

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[1]Only the '115 patent and the '609 patent were tried to the jury.

working areas and the environment. (D.I. 139 at 3)

The patents in suit disclose embodiments of an apparatus which safely controls the discharge of pressurized fluids from the outlet of pressurized tanks. (D.I. 131 at 7) The inventions disclosed by the patents help control the handling, storage and delivery of toxic fluids and constrain the flow of gas during normal operation, as well as during any kind of valve mishandling or downstream failure. (Id. at 8)

The '895 patent discloses a delivery valve that limits the release of toxic fluid delivered through the outlet of the tank. Id. The valve prevents accidental release of dangerous gases from a pressurized tank by maintaining a seal until a prescribed pressure engages the valve and opens the tank. (Id.) The '115 patent teaches the use of a flow restrictor inside the pressurized container that minimizes the discharge of gas flow from the container. (D.I. 131 at 10) The '609 patent teaches a flow restrictor in the form of multiple capillary passages which minimize the discharge of toxic gas from the pressurized tank. (D.I. 131 at 11)

In 1997, ATMI developed a gas cylinder product named VAC® (Vacuum-Actuated Cylinder). (D.I. 139 at 6) VAC® is designed to reduce the risks associated with using high-pressure toxic gases by pre-regulating the pressure at which gas leaves the cylinder with either one or two pressure regulators inside the cylinder.

(D.I. 139 at 6) The VAC® technology incorporates a pressure regulator in the cylinder before the valve assembly. Id. The VAC® pressure regulator controls pressure using an internal pressure-sensing assembly ("PSA"). (D.I. 139 at 12) The PSA is calibrated by filling an internal bellows with a helium/argon mixture to a preset pressure and sealing it. When a pressure below the PSA set point is applied downstream of the pressure regulator, the bellows in the PSA expands, opening the valve and allowing gas to flow through the regulator. (D.I. 139 at 12) The VAC® products also incorporate two or three sintered[2] metal filters manufactured by Mott Corporation. (D.I. 139 at 10)

III. STANDARD OF REVIEW

A. Renewed Motion for Judgment as a Matter of Law

ATMI has renewed its motion for judgment as a matter of law pursuant to Fed. R. Civ. P. 50(b) on the infringement claims of Praxair. To prevail on a renewed motion for judgment as a matter of law following a jury trial, the moving party "'must show that the jury's findings, presumed or express, are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied [by] the jury's verdict cannot in law be

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[2]The term "sintering" refers to a high temperature solid-state diffusion bonding process in which metal powder is heated to a temperature just below the melting point of metal. The metal bonds to create a porous media having a random internal structure that can be seen in a Scanning Electron Microscope ("SEM") image. (D.I. 139 at 11)

supported by those findings.'" Pannu v. Iolab Corp., 155 F.3d 1344, 1348 (Fed. Cir. 1998) (quoting Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893 (Fed. Cir. 1984)). "'Substantial'" evidence is such relevant evidence from the record taken as a whole as might be acceptable by a reasonable mind as adequate to support the finding under review." Perkin-Elmer Corp., 732 F.2d at 893. In assessing the sufficiency of the evidence, the court must give the non-moving party, "as [the] verdict winner, the benefit of all logical inferences that could be drawn from the evidence presented, resolve all conflicts in the evidence in his favor, and in general, view the record in the light most favorable to him." Williamson v. Consol. Rail Corp., 926 F.2d 1344, 1348 (3d Cir. 1991); Perkin-Elmer Corp., 732 F.2d at 893. The court may not determine the credibility of the witnesses nor "substitute its choice for that of the jury between conflicting elements of the evidence." Perkin-Elmer Corp., 732 F.2d at 893. In sum, the court must determine whether the evidence reasonably supports the jury's verdict. See Dawn Equip. Co. v. Kentucky Farms Inc., 140 F.3d 1009, 1014 (Fed. Cir. 1998).

B. Motion for a New Trial

Defendants have moved, pursuant to Fed. R. Civ. P. 59(a), for a new trial on the issues of infringement and validity. Federal Rule of Civil Procedure 59(a) provides, in pertinent part:

> A new trial may be granted to all or any of the parties and on all or part of the issues in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the United States.

Fed. R. Civ. P. 59(a). The decision to grant or deny a new trial is within the sound discretion of the trial court and, unlike the standard for determining judgment as a matter of law, the court need not view the evidence in the light most favorable to the verdict winner. See Allied Chem. Corp. v. Darflon, Inc., 449 U.S. 33, 36 (1980); Olefins Trading, Inc. v. Han Yang Chem. Corp., 9 F.3d 282 (1993); LifeScan Inc. v. Home Diagnostics, Inc., 103 F. Supp.2d 345, 350 (D. Del. 2000) (citations omitted). See also 9A Wright & Miller, Federal Practice and Procedure § 2531 (2d ed. 1994) ("On a motion for new trial the court may consider the credibility of witnesses and the weight of the evidence."). Among the most common reasons for granting a new trial are: (1) The jury's verdict is against the clear weight of the evidence, and a new trial must be granted to prevent a miscarriage of justice; (2) Newly-discovered evidence exists that would likely alter the outcome of the trial; (3) Improper conduct by an attorney or the court unfairly influenced the verdict; or (4) The jury's verdict was facially inconsistent. See Zarow-Smith v. N.J. Transit Rail Operations, 953 F. Supp. 581, 584-85 (D.N.J. 1997) (citations omitted). The court must proceed

cautiously, mindful that it should not simply substitute its own judgment of the facts and the credibility of the witnesses for those of the jury. Rather, in order to promote finality after trial, as well as to preserve the historical function of the jury as the trier of facts, the court should grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would result if the verdict were to stand. See Williamson, 926 F.2d at 1352; EEOC v. State of Del. Dep't of Health and Soc. Servs., 865 F.2d 1408, 1413 (3d Cir. 1989).

IV. DISCUSSION

A. Judgment As A Matter Of Law

ATMI asserts that, based upon the evidence introduced at trial, no reasonable jury could have found ATMI's "VAC products infringe any of the asserted claims of (a) the '609 patent because the VAC products do not have (i) the claimed 'capillary passages' or (ii) the claimed 'flow restrictor' or (b) the '115 patent because the VAC products do not have the claimed 'restrictor.'" (D.I. 294 at 1) Furthermore, ATMI "presented clear and convincing evidence that if the sintered metal filters of the VAC products infringe the flow restriction limitation of claim 1 of the '609 patent, then claims 1, 2 and 6 of the '609 patent are invalid as anticipated by U.S. Patent No. 5,409,526 (the 'Zheng patent')." (D.I. 294 at 1)

1. Capillary passages

The capillary passage language found in all of the asserted claims of the '609 patent is: "A flow restrictor in the form of a tube defining multiple capillary passages along at least a portion of the fluid flow path." ('609 patent, col. 11, ll. 15-17) The court construed the language to mean "[t]he path followed by the gas phase pressurized fluid includes a structure in the form of a tube with multiple narrow passages that serve to restrict the rate of flow" and that "capillary" means "pertaining to or resembling a hair; fine and slender." (D.I. 234 at 8-9)

The structure of the sintered metal filters used in the VAC® product is created by compressing and heating uniformly sized particles of powdered metal so that they bond together to form a solid, yet porous structure. (D.I. 279, 841:1-12) The cavities created form a "pathway that is a labyrinth to capture particles." (D.I. 279, 880:8-881:7) The empty spaces formed are called "pores." (D.I. 278, 705:9-23) At trial, plaintiffs produced substantial evidence to show the sintered metal filters contained capillary passages as defined by the court.

Dr. Karvelis, Praxair's expert, presented evidence concerning his analysis of the physical characteristics of the filters used in the VAC® products. He bisected the filters, photographed the surface topography and inspected them under a high-power stereo-optic microscope to confirm the presence of

capillaries. (D.I. 277 at 399:14-403:24) He analyzed the filters with a scanning electron microscope (SEM) to provide a high resolution image and explained that the SEM images demonstrated the presence of capillaries. (D.I. 277 at 403:18-24, PTX 439) Dr. Karvelis also developed a test protocol to confirm that the VAC® filters include multiple capillary passages. (D.I. 277 at 406:6-8) The results of this test showed that the VAC® filters, being placed in a Petri dish filled with liquid, drew up the liquid in the Petri dish. Dr. Karvelis explained that this evidenced passages in the filter that satisfy the court's definition of capillary passages. (D.I. 277 at 401:24-402:12, 405:15-406:8, 456:15-457:2, PTX 442)[3] Without addressing the attempts by ATMI to reargue claim construction, the court finds Praxair produced sufficient evidence for a reasonable jury to find capillary passages.

2. Flow restrictors

The court construed claims 1, 2, 6, 7 and 8 of the '609 patent and claims 18 and 20 of the '115 patent to include a structure that "serve[s] to restrict the rate of flow." ATMI

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[3]Defendants argue that plaintiffs presented no evidence regarding the shape of the passages. However, Dr. Karvelis specifically stated that the passages were "tubular" and that they are "capillary passages." (D.I. 277 at 403:3, 403:8) Furthermore, Dr. Karvelis testified that he understood capillary passage to mean "pertaining to or resembling a hair: Fine and slender" and, by examining the SEM, he concluded the passageways in the VAC® filter satisfied this description. (D.I. 277 at 455:5-22)

asserts that Praxair argued, and the jury found, that a de minimus restriction of flow is sufficient to satisfy the claim limitation, rendering the "restrictor" and "flow restrictor" limitations meaningless. ATMI asserts this is incorrect, as a matter of law, because "[a]ll limitations of a claim must be considered meaningful." Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562 (Fed. Cir. 1991). ATMI argues that the phrase "serve to restrict the rate of flow" requires a non-negligible diminution in flow.

The court, in its claim construction, rejected ATMI's proposed construction requiring a "severe" restriction in flow. The court did not thereafter specify a minimum amount of flow restriction.[4] Rather, the court defined a restrictor as a structure that serves to restrict flow. "Serves" does not incorporate an intent element, as "there is no intent element to direct infringement." Intel Corp. v. U.S. Intern. Trade Com'n, 946 F.2d 821, 832 (Fed. Cir. 1991). The flow restrictor need not be used with an intent to restrict flow.

Praxair presented substantial evidence that the filters of the VAC® product are flow restrictors. Praxair produced evidence that the gas flows through the filters,[5] the filters produce a

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[4]Nor did ATMI argue at trial that only a de minimus flow restriction was demonstrated by Praxair.

[5]See above discussion regarding capillaries.

pressure drop,[6] and a pressure drop correlates to a restriction in flow.[7] Both experts testified that the flow of gas is restricted through the filter.[8] ATMI argues that Praxair did not demonstrate that the filter serves to restrict flow in relation to the function of all the other parts, specifically the restricted flow orifice ("RFO"). However, Praxair produced evidence that in some of the VAC® products, no RFO was needed because the pressure drop over the filter was sufficient. As a result, the filter serves to restrict the flow in these configurations. With the evidence of pressure drops presented, a reasonable jury could conclude that the filter, with or without an RFO, serves to restrict flow in relation to the function of all the other parts. The court finds Praxair produced sufficient evidence for a reasonable jury to find the filter serves to restrict flow.

3. Reverse Doctrine of Equivalents

The reverse doctrine of equivalents ("reverse DOE") applies "where a device is so far changed in principle from a patented article that it performs the same or a similar function in a

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[6]D.I. 279 at 958:14-926:16; D.I. 277 at 406:21-410:9; PTX 49; PTX 78; PTX 173; PTX 174. The court notes that two of these exhibits (PTX 78 and PTX 174) are subject to an evidentiary dispute discussed below in the context of ATMI's motion for a new trial.

[7]D.I. 277 at 365:2-15; D.I. 279 at 837:2-7, 957:24-958:5.

[8]D.I. 277 at 421:3-4, 427:14-16; D.I. 279 at 999:12-1003:3.

substantially different way, but nevertheless falls within the literal words of the claim." Graver Tank & Mfg. Co. v. Linde Air Prods., 339 U.S. 605, 608-09 (1950). The reverse DOE applies only where the accused component is "sufficiently different from that which is patented." Tex. Instruments, Inc. v. United States Int'l Trade Comm'n, 846 F.2d 1369, 1371 (Fed. Cir. 1988). The patentee bears the burden of proving infringement by a preponderance of the evidence. Envirotech Corp. v. Al George, Inc., 732 F.2d 1572 (Fed. Cir. 1984). Initially that burden is carried when literal infringement has been proved. See Graver Tank, 339 U.S. at 607. Once a patentee establishes literal infringement, the accused infringer may choose to pursue a defense of noninfringement under the reverse DOE. If the accused infringer makes a prima facie case of reverse DOE, the patentee, who retains the burden of persuasion on infringement, must rebut that prima facie case. See SRI Intern. v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1123-24 (Fed. Cir. 1985).

ATMI has not made a prima facie case of reverse DOE. ATMI argues that the reverse DOE applies to the facts of record because the VAC® filters "do not restrict flow to provide any measure of safety, but instead serve to minimize particulates [i.e., filter]." (D.I. 294 at 16) Thus, ATMI argues that the sintered metal filters in the VAC® products do not "gain the benefit of plaintiff's patents," because the filters do not

actually restrict flow to provide any measure of safety.

The Federal Circuit, in Studiengesellschaft Kohle, mbh v. Dart Indus., Inc., 726 F.2d 724, 728 (Fed. Cir. 1984), held that reverse DOE does not apply where the accused component is not dissimilar to those contemplated by the patentee. Instantly, ATMI provides no evidence that the VAC® filters are "sufficiently different from that which is patented," flow restrictors. The '609 patent itself states that "filter material" may serve as the flow restrictor and the claim language is not limited to any specific type of material. See Ciena Corp v. Corvis Corp., 334 F. Supp.2d 598, 609 (D. Del. 2004)(rejecting reverse DOE as an attempt to "reargue claim construction issues which were already rejected by the Court" and as "an impermissible attempt to limit the claimed invention to the preferred embodiments disclosed in the patents"). The court finds insufficient evidence for a finding of noninfringement under reverse DOE.

4. Invalidity

ATMI advances a conditional argument for invalidity. Only if the accused filter infringes as a flow restrictor with capillary passages, does the Zheng reference anticipate. (D.I. 279 at 919:2-920:7) Dr. Glew opined that there is no material difference between the filter in Zheng and the filter in the accused device, so that if the accused device infringes, Zheng anticipates. (D.I. 279 at 917:15-20) ATMI asserts that because

Praxair did not rebut the testimony of Dr. Glew setting out this theory, ATMI has satisfied its burden of clear and convincing evidence of invalidity.[9] However, Dr. Glew did not examine, test or operate the VAC® product. (D.I. 279 at 943:1-4, 944:4-12) He made no connection between the VAC® filters and the filters in Zheng other than stating he believed they were similar. Thus, his conclusory statements carry little weight and the jury, presumably, found them unpersuasive.

ATMI's reliance on Arthrocare Corp. v. Smith & Nephew, Inc., 310 F. Supp.2d 638 (D. Del. 2004), rev'd in part, vacated in part, 406 F.3d 1365 (Fed. Cir. 2005), is misplaced. The Federal Circuit, in Arthrocare, found that the prior art reference "speaks for itself, and it clearly discloses" the claim limitation at issue there. As a result, plaintiff's sole reliance on the cross-examination of defendant's expert was insufficient to sustain a jury verdict of validity. Id. at 1374. In contrast, ATMI's own witness was not able to testify that the Zheng reference clearly, on its face, disclosed capillaries and a flow restrictor. Rather, ATMI's expert said the opposite; he did not believe the reference disclosed capillaries. (D.I. 279 at

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[9]It is noteworthy that ATMI asserts that Dr. Glew's conclusory opinion is sufficient to satisfy the clear and convincing evidentiary standard for invalidity and, yet, Dr. Karvelis' opinion that the filter contains capillary passages is insufficient to show infringement by a preponderance of the evidence. (D.I. 322 at 11)

1006:19-25; 1006:12-17; 919:22-23) ATMI presented no evidence correlating the 1993 Cajon filters mentioned in the Zheng reference with "multiple capillary passages," as required by the claims at issue. The court declines to hold that ATMI met its burden, as a matter of law, of proving invalidity by clear and convincing evidence.

B. New Trial

In its motion for a new trial, ATMI asserts that the court's exclusion of arguably relevant evidence has unduly prejudiced ATMI. Consistent with its conduct throughout this case, ATMI does not acknowledge that each of the adverse rulings at issue resulted from ATMI's own failure to abide by the court's rulings and orders. The cumulative effect of ATMI's trial tactics, best described as "trial by ambush," has put into tension the primary responsibilities of the court, that is, making the trial process fair (i.e., having the rules apply equally to both parties) and providing as much relevant information as possible to the finder of fact, thus optimizing the search for truth. With this context in mind, the court will address ATMI's complaints seriatum.

1. Exclusion of Skousgaard and Miller patents

"[F]idelity to the contraints of Scheduling Orders and deadlines is critical to the Court's case management responsibilities." Finch v. Hercules Inc., 1995 WL 785100 at *9 (D. Del. 1995). The court's scheduling order set nearly one year

for fact discovery, ending on March 21, 2005. ATMI requested an extension to the discovery deadline by four weeks to provide additional time for new lead counsel to become familiar with the case.[10] The court granted the motion by order dated March 22, 2005, extending discovery until April 15, 2005, but only "to the extent that open discovery issues may be pursued and resolved." (D.I. 80) At this time, ATMI represented to the court that "[w]e have given [Praxair] all the prior art that we know of as of today, and I think we've given them sufficient information for them to complete discovery." (D.I. 82 at 6) On April 15, 2005, the final day of the limited extended discovery period, ATMI served a supplemental interrogatory response identifying more than 50 new prior art references, two of which were United States Patent Nos. 2,666,297 ("Skousgaard") and 3,245,583 ("Miller"). The court excluded the prior art references disclosed after March 21, 2005.

Under Rule 37 of the Federal Rules of Civil Procedure, a sanction for a discovery abuse, including the preclusion of evidence, is warranted except when a party's conduct is either substantially justified or harmless. Fed. R. Civ. P. 37(c)(1). The court finds no substantial justification for this late

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[10]ATMI stated that it needed the additional time to "allow its new counsel time to finish 'coming up to speed' in the case and attend to any limited follow up discovery that may be necessary. Indeed, ATMI is not contemplating starting discovery over from scratch." (D.I. 76)

extensive disclosure. The order of March 22, 2005 was clear. At the hearing, ATMI did not suggest to the court that it had more prior art references to disclose; in fact, it suggested the opposite. The only justification ATMI attempts to assert is that it obtained new counsel on January 20, 2005. ATMI has not shown sufficient reason why this fact resulted in a late disclosure of so many prior art references.

In deciding an issue of preclusion, the court considers: (1) The prejudice or surprise arising from untimely evidence; (2) The ability to cure the prejudice; (3) The extent to which allowing the violation of the scheduling order would disrupt the trial process; and (4) The proponent's bad faith or wilfulness in failing to comply with the court's order. See Meyers v. Pennypack Woods Home Ownership Ass'n, 559 F.2d 894, 904-05 (3d Cir. 1977). ATMI asserts that Skousgaard was in the prosecution file history and was known to be a material reference, therefore, Praxair was not prejudiced by the late disclosure because it should have known such prior art would be relevant to validity. However, this sword cuts both ways. ATMI, in preparing its invalidity defense, had just as much reason to know of the references as Praxair. The references were material[11] and known,

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[11]ATMI makes much of how material these references are to the patent and cites Konstantopoulos v. Westvaco Corp., 112 F.3d 710, 719 (3d Cir. 1997), as setting out materiality as a fifth factor to be considered by the court. The court agrees that the materiality of the evidence may be considered in the analysis,

yet ATMI gives no reason why these references were not disclosed earlier.

ATMI also asserts that its disclosure of these patents two weeks before ATMI's expert report on validity and six weeks before Praxair's responsive report were due was adequate time for Praxair to defend against them. ATMI neglects to mention the other 48-plus references cited by ATMI on April 15, 2005 in addition to Skousgaard and Miller. Parties must not only disclose prior art references, but also their intent to rely on them. ATMI completely failed to disclose its intent to rely on Skousgaard and Miller, even after the expert report was completed. ATMI discussed, in its expert report, nineteen prior art references, thereby not helpfully narrowing the scope of its invalidity defense. In addition, thirteen of the nineteen references addressed by ATMI's validity expert were untimely disclosed on April 15, 2005. While Praxair prepared an expert

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but materiality alone cannot justify ATMI's conduct in this regard. It was not Praxair's burden to identify prior art references and demonstrate their materiality. ATMI had almost a year of discovery to conduct its prior art search and respond to Praxair's discovery requests. To have allowed ATMI to add 50 new references to its invalidity case at the close of discovery, especially when ATMI failed to call out these most material references for focused discovery, would have turned the trial process on its head by rewarding the party who ignores the court's rulings and orders, and disadvantaging the party who has complied with such.

report by Dr. Sherman,[12] Praxair was deprived of fact discovery and adequate time for its expert report analysis. The only way to have cured this untimely disclosure was to extend discovery and reschedule trial,[13] a resolution patently unfair to plaintiff.

2. Exclusion of evidence and testimony regarding Zheng's Cajon filters

ATMI spends considerable time in the papers discussing how valuable and influential the excluded evidence would have been to the jury. Indeed, the test data in Dr. Glew's supplemental report would have helped ATMI's invalidity defense. The testimony of Mr. Sackett and Dr. Arno would have bolstered Dr. Glew's determination that the Cajon/Swagelok filter in the VAC® product was similar to the filters disclosed in the Zheng patent. However, once again, the court must look to the reason why the evidence was excluded.

Expert discovery closed on June 29, 2005. Several depositions were taken, by agreement of both parties, in July 2005. Dr. Glew's supplemental report was filed on the morning of his deposition on July 19, 2005, close to a month after discovery

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[12]Praxair asserts that it was originally going to use Professor Frank Fronczak, but due to the extensive amount of work required to cover all the newly disclosed references, Professor Fronczak's schedule did not allow him the time needed for the report.

[13]Generally, the court's trial calender is double booked with trials 18 months into the future.

was closed. The scheduling order at bar did not allow for supplemental reports. Dr. Glew's supplemental report contained new testing, conclusions and theories of invalidity not contained in his original report. The report was filed ten days before the summary judgment motions were due, so Praxair had no opportunity to conduct rebuttal discovery for the summary judgment motions. The court granted Praxair's motion to strike the July 19, 2005 supplemental expert report of Dr. Glew.

ATMI argues that the supplemental report was necessitated by the allegedly contradicting opinions of Praxair's experts; however, any contradictions should have been evident months before when the expert reports were filed. ATMI also argues that Praxair should have been able to question Dr. Glew on the supplemental report during the deposition. The burden should not be shifted to Praxair to study and analyze the supplemental expert report overnight to redeem ATMI's flawed discovery strategies. In short, no substantial justification for ATMI's delay exists. The expert evidence contained in Dr. Glew's supplemental expert report was properly excluded.

The court also precluded ATMI from relying on the testimony of Steven Sackett, a representative of the Swagelok Company, regarding the identity of the filter disclosed in the Zheng patent, as well as the testimony of ATMI's director of research and development, Jose Arno, regarding the similarity between the

Cajon/Swagelok filter and the filter in the Zheng patent. Mr. Sackett, a third party witness, was identified as a trial witness on October 28, 2005 - seven months after the close of fact discovery. ATMI witness Dr. Arno was never identified as having knowledge about either the validity issues or the sintered metal filters on which he was scheduled to testify. Praxair did not have the opportunity to take proper depositions or follow up with discovery regarding these witnesses and topics. ATMI did not properly disclose any of this evidence during discovery and no justification exists for the delay. That Praxair took advantage of ATMI's lack of evidence in its attorney argument was not improper. The evidence was properly excluded in order to try an orderly and fair case under the Federal Rules.

3. Claim construction

ATMI argues that the court erred, as a matter of law, in construing the flow restrictor limitations in a manner that could encompass structures other than bona fide flow restrictors. Simply put, ATMI asserts that the flow restrictor limitations mandated a "severe" restriction in flow, as argued in the claim construction briefs. ATMI, in its claim construction, argued that the restrictor must be defined in terms either of "severely limits the discharge of gas," as used once in the '115 patent to

describe an embodiment of the invention,[14] or using the values of gas flow disclosed for arsine in the preferred embodiments.[15] The court, however, will not read limitations of the preferred embodiments into the claims. See, e.g., Playtex Products, Inc. v. Procter & Gamble Co., 400 F.3d 901, 908 (Fed. Cir. 2005) (concluding that "[c]laim 1, properly construed, is not limited to the flat surfaces depicted in the drawings"). The court's claim construction is consistent with the intrinsic evidence and controlling claim construction principles.

4. Exclusion of evidence of patented design

ATMI asserts that the court improperly excluded evidence of pre-patent filing designs made by the named inventors, designs intended to compete with VAC®, and all other evidence related to Praxair's commercial embodiment of the patent, the UpTime™ product. In an infringement analysis, comparisons between the accused product and the patentee's commercial product is improper. See Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1347 (Fed. Cir. 2003). ATMI argues that the excluded evidence, including pre-patent product designs, internal

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[14] '115 patent, col. 3, ll. 18-21 ("The mass flow rate is typically at or above the maximum desired flow rate at which the container must supply gas to the end use device, but yet restrictive enough to severely limit any accidental discharge rate.").

[15] '115 patent, col. 5, ll. 14-16 ("For purposes of explanation and not limitation this invention is further described in the context of the delivery of arsine gas.").

documents regarding Praxair products, and Praxair's product UpTime™, would go to show that those skilled in the art at the time of the invention understood that filters were not flow restrictors. ATMI proposed to do this by showing that Praxair, in its products, used filters not to restrict the gas flow, but rather to protect downstream components from clogging. This evidence is wholly irrelevant. The infringement analysis compares the claim language to the accused device. Comparing Praxair's products to the accused device is prejudicial and this prejudice far outweighs any probative value. The evidence was properly excluded.

5. Reverse doctrine of equivalents

ATMI asserts that it was precluded from presenting evidence regarding reverse DOE to the jury; specifically, the evidence of the UpTime™ product. The court, in a pretrial ruling, stated that evidence of the UpTime™ product **may** be relevant to reverse DOE, but it would only serve to confuse the jury with respect to the infringement analysis. (D.I. 248 at 4-5) As a result, the court precluded ATMI from presenting this evidence to the jury for the infringement analysis. ATMI now requests a new trial based on its inability to present evidence of the UpTime™ product related to reverse DOE.

During trial, despite the pretrial order, ATMI attempted to submit evidence regarding the commercial embodiment of the

patented invention. Significantly, however, ATMI did not ask for submission of this evidence for the purpose of reverse DOE. In fact, reverse DOE was not an issue until the charge conference when ATMI requested a jury charge on reverse DOE. When the issue of reverse DOE was first raised by ATMI during the charge conference, the court held, on the record, that the issue of reverse DOE is an issue for the court and not for the jury. (D.I. 282 at 1197: 12-14) By not specifically identifying evidence as relevant to reverse DOE during trial, ATMI waived its right to have such evidence considered by the court.

6. Pressure drop data

Dr. Karvelis, Praxair's expert, relied on at least two ATMI documents produced during discovery, PTX 78 and PTX 174. He used certain pressure drop data presented in these documents as evidence of flow restriction in his expert infringement analysis. Dr. Glew, in his rebuttal report, recognized Dr. Karvelis' reliance on these documents. Furthermore, at his deposition, Dr. Glew stated that the documents reflected the pressure drop across the filter used in the VAC® products. For the first time at trial, ATMI unexpectedly challenged the relevance and/or accuracy of the data produced by ATMI during discovery. In order to mitigate the prejudice to Praxair, the court instructed the jury that "you are to presume that the pressure drop data supplied by ATMI to Praxair and to its expert, Dr. Karvelis, was accurate."

Once again, ATMI's conduct at trial put the court between a rock and a hard place. By waiting until the cross examination of Praxair's expert to assert that the ATMI documents at issue contained either irrelevant or inaccurate data, ATMI prevented both the court and Praxair from determining whether, in fact, ATMI's assertions were even correct. Certainly, there was no opportunity for rehabilitation of Praxair's witness.

It could be that there are courts who still allow parties to hide their cards during discovery and use trial as the vehicle to disclose their evidence for the first time. It is known that this court requires the discovery process to be a meaningful one, so that there should be no surprises at trial. ATMI withheld critical information during discovery; it should not be rewarded for such conduct at trial. The clarifying instruction stands and a new trial is denied.

V. CONCLUSION

For the reasons discussed above, ATMI's motion for judgment as a matter of law or, in the alternative, for a new trial (D.I. 272), is denied. An order consistent with this memorandum opinion shall issue.

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

PRAXAIR, INC. and PRAXAIR TECHNOLOGY, INC.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 03-1158-SLR
ATMI, INC. and ADVANCED TECHNOLOGY MATERIALS, INC.,	)	
Defendants.	)	

O R D E R

At Wilmington this 17th day of August, 2006, consistent with the memorandum opinion issued this same date;

IT IS ORDERED that ATMI's motion for judgment as a matter of law or, in the alternative, for a new trial (D.I. 272) is denied.

United States District Judge