

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF NEW YORK

SEARS ECOLOGICAL APPLICATIONS CO.,
LLC,

Plaintiff,

v.

6:07-CV-145 (DNH/GHL)

MLI ASSOCIATES, LLC,

Defendant.

APPEARANCES:

LATHROP & GAGE LLP
Attorneys for Plaintiff
230 Park Avenue, Suite 1847
New York, New York 10169

MARJAMA MULDOON BLASIAK &
SULLIVAN LLP
Attorneys for Plaintiff
250 South Clinton Street, Suite 300
Syracuse, New York 13202

DUANE MORRIS LLP
Attorneys for Plaintiff
1540 Broadway
New York, New York 10036

BINGHAM MCCUTCHEN LLP
Attorneys for Plaintiff
2020 K Street NW
Washington DC 20006-1806

LOCKE LORD BISSELL & LIDDELL LLP
Attorneys for Defendant
3 World Financial Center
New York, New York 10281-2101

OF COUNSEL:

BERNADETTE R. REILLY, ESQ.
WILLIAM R. HANSEN, ESQ.
WILLIAM A. RUDY, ESQ.

DENIS J. SULLIVAN, ESQ.
JAMES R. MULDOON, ESQ.

JOHN DELLAPORTAS, ESQ.

MALCOLM K. MCGOWAN, ESQ.
ROBERT DANNY HUNTINGTON, ESQ.

ALAN B. CLEMENT, ESQ.
ANDREA L. WAYDA, ESQ.

LOCKE LORD BISSELL & LIDDELL LLP
Attorneys for Defendant
111 South Wacker Drive
Chicago, Illinois 60606

PATRICK C. GALLAGHER, ESQ.

GILBERTI STINZIANO HEINTZ & SMITH, P.C.
Attorneys for Defendant
555 East Genesee Street
Syracuse, New York 13202-2159

TIMOTHY J. LAMBRECHT, ESQ.

DAVID N. HURD
United States District Judge

MEMORANDUM-DECISION and ORDER

TABLE OF CONTENTS

I. INTRODUCTION..... - 4 -

II. BACKGROUND..... - 4 -

A. Pre-Interference Patent Filings..... - 4 -

B. The Board’s Interference Decision..... - 5 -

1. Preliminary Motions Before the Board..... - 6 -

2. Claim Construction by the Board..... - 8 -

3. SEACO’s Motion to Bar MLI’s Claims as Untimely..... - 9 -

4. SEACO’s Motion to Bar MLI’s Claims as Unpatentable Pursuant to § 112..... - 12 -

5. SEACO’s Remaining Preliminary Motions..... - 13 -

6. MLI’s Motion to Invalidate SEACO’s ‘310 and ‘325 Patents... - 13 -

7. <u>MLI’s Motion to Bar SEACO’s Claims as Unpatentable</u>	
<u>Pursuant to § 112.</u>	- 16 -
8. <u>MLI’s Remaining Preliminary Motions.</u>	- 17 -
III. <u>DISCUSSION.</u>	- 17 -
A. <u>Summary Judgment Standard.</u>	- 17 -
B. <u>Standard of Review of the Board’s Decision.</u>	- 18 -
C. <u>Burden of Proof at an Interference Proceeding.</u>	- 19 -
D. <u>Obviousness under § 103(a).</u>	- 20 -
1. <u>Standard of Review for Obviousness Under § 103(a).</u>	- 21 -
2. <u>Claim Construction.</u>	- 22 -
a. <u>A Person of Ordinary Skill in the Art.</u>	- 24 -
b. <u>“Water-Balance”.</u>	- 26 -
c. <u>“Carbohydrate”.</u>	- 32 -
3. <u>Obviousness Analysis in Light of the Prior Art.</u>	- 35 -
a. <u>Pure and Waste-Stream Components (‘310 and</u> <u>‘325 Patents).</u>	- 36 -
b. <u>Molecular Weight Ranges (‘310 and ‘325 Patents).</u>	- 37 -
c. <u>Chloride Salts (‘325 Patent).</u>	- 38 -
E. <u>Untimely Applications Pursuant to 35 U.S.C. § 135(b).</u>	- 41 -
IV. <u>CONCLUSION and ORDER.</u>	- 50 -

I. INTRODUCTION

Plaintiff Sears Ecological Applications Company (“SEACO”) seeks judicial review pursuant to 35 U.S.C. § 146 of a decision by the United States Patent and Trademark Office Board of Appeals and Interferences (“the Board”). Defendant MLI Associates (“MLI”) moves for summary judgment pursuant to Federal Rule of Civil Procedure 56 to affirm the Board’s decision. SEACO opposes and cross-moves for summary judgment to reverse the Board’s decision, or alternatively, to bar MLI’s interfering patent applications pursuant to 35 U.S.C. § 135(b). MLI opposes both of SEACO’s motions. Oral argument was heard on May 14, 2009 in Utica, New York. Decision was reserved.

II. BACKGROUND

A. Pre-Interference Patent Filings

SEACO and MLI are competitors in the deicing and anti-icing agent manufacturing industry. Both parties own a number of patents related to deicing and anti-icing technology. SEACO owns United States Patent Numbers 6,436,310 (“the ‘310 patent”) and 6,440,325 (“the ‘325 patent”), and MLI owns United States Patent Numbers 5,876,621 (“the ‘621 patent”), 5,980,774 (“the ‘774 patent”), and 6,506,318 (“the ‘318 patent”). Acting under the belief that it was the proper owner of the subject matter claimed in SEACO’s ‘310 and ‘325 patents, MLI filed two patent applications: (1) Patent Application Number 10/266,975 (“the ‘975 application”) filed on October 8, 2002, and (2) Patent Application Number 10/690,894 (“the ‘894 application”) filed on October 22, 2003. As is customary practice among competing inventors, MLI’s patent applications made claims identical to the claims asserted in SEACO’s

'310 and '325 patents, thereby provoking an interference proceeding before the Board to determine the priority owner of the patented technology.

B. The Board's Interference Decision

On December 14, 2005, the Board declared Interference No. 105,405 ("the Interference") between SEACO's '310 and '325 patents and MLI's '975 and '894 applications.¹ An interference is a proceeding to determine the priority of an invention between a pending application and either an already-issued patent or another pending application. MANUAL OF PATENT EXAMINING PROCEDURE § 2300.01 (8th ed. 2001 & rev. ed. 2008). Parties to an interference proceeding must describe the allegedly interfering subject matter. These descriptions are referred to as "counts." See id. § 2301.03. A party's claims corresponding to a count in an interference proceeding, whether stated within an already-issued patent or a pending application, will be deemed invalid or unpatentable if that party loses the priority determination. Id.

Count One of the Interference stated the following subject matter:

A de-icing and anti-icing composition comprising an aqueous solution which contains a low molecular weight carbohydrate and a chloride or acetate salt in which the constituents are present in the following concentration:

	Weight %
Carbohydrate	3-60%
Salt	Effective freezing point lowering amount
Water	Balance

¹ The Interference was redeclared on March 3, 2006.

and where said carbohydrate has a molecular weight in the range of about 180 to 1500, and is at least one selected from the group consisting of glucose, fructose, and higher saccharides based on glucose or fructose, or mixtures thereof.

(Bd. Decision, Ex. 1 to Def's. Mot. for Summ. J., Dkt. No. 43-7, 2-3 (hereinafter "Bd. Decision").)

Count Two stated:

A de-icing and anti-icing composition comprising an aqueous solution which contains a low molecular weight amino acid or oligopeptide and a chloride or acetate salt in which the constituents are present in the following concentration:

	Weight %
Amino acid or oligopeptide	1-60%
Salt	Effective freezing point lowering amount
Water	Balance

(Id. at 3.)

All claims pending in SEACO's '310 and '325 patents and MLI's '975 and '894 applications were determined to correspond to the subject matter described in either Count One or Count Two of the Interference. (Id.) On February 6, 2007, the Board issued an 80-page decision granting in part and denying in part both parties' preliminary motions.

Ultimately, without deciding the issue of priority to the claimed subject matter, the Board invalidated SEACO's '310 and '325 patents.

1. Preliminary Motions Before the Board

SEACO moved to bar MLI's applications on a number of grounds, including (1) that claims 38-40, 42-44, 46, and 49 of MLI's '975 application and claims 36 and 37 of MLI's '894 application were untimely pursuant to 35 U.S.C. § 135(b) (SEACO Preliminary Motions 3 and

5); (2) that claims 38-40, 42-44, 46, and 49 of MLI's '975 application and claims 36 and 37 of MLI's '894 application were unpatentable for failure to comply with 35 U.S.C. § 112 (SEACO Preliminary Motions 4, 6, 8, and 12); and (3) that MLI was not entitled to the benefit of the November 9, 1999, September 28, 1999, or September 30, 1997 filing dates of previously filed applications for purposes of establishing priority of the invention described in Count One (SEACO Preliminary Motions 9 and 10). (Id. at 14-16) SEACO also moved to redefine the subject matter described in Count One and Count Two. (SEACO Preliminary Motions 7 and 11). (Id. at 17.)

MLI likewise moved to bar the claims asserted in SEACO's patents on various grounds, including (1) that claims 1-12 of SEACO's '310 patent and claims 1-20 of SEACO's '325 patent were unpatentable under 35 U.S.C. § 102, or alternatively, under 35 U.S.C. § 103 (MLI Preliminary Motion 5); (2) that claims 1-12 of SEACO's '310 patent and claims 9-14 and 18-20 of SEACO's '325 patent were unpatentable for failure to comply with 35 U.S.C. § 112 (MLI Preliminary Motion 2); (3) that SEACO was entitled to neither (a) the benefit of the January 4, 1999 and January 7, 1998 filing dates of two of its previous applications for purposes of establishing priority of the inventions described in Count One and Count Two, nor (b) the January 5, 2001 filing date of one of its previous applications for purposes of establishing priority of the invention described in Count Two (MLI Preliminary Motion 3); and (4) that it was entitled to the September 30, 1997 filing date of one of its own previous applications for purposes of establishing priority of the invention described in Count Two (MLI Preliminary Motion 4). (Id. at 14-16.)

2. Claim Construction by the Board

Because the claim language dictates the determination of whether a claim is invalid under the prior art, the Board first considered the proper construction of the claims made in SEACO's patents and MLI's applications. See Beachcombers v. Wildewood Creative Prods., Inc., 31 F.3d 1154, 1160 (Fed. Cir. 1994) ("The first step involves the proper interpretation of the claims."). The Board interpreted the phrase "low molecular carbohydrate" as it appears in various claims of MLI's '975 application to mean "low molecular weight carbohydrate." (Bd. Decision, 17.) The Board reasoned:

While the phrase has no express antecedent basis in the originally filed claims, [the] interpretation of the phrase "low molecular carbohydrate" is consistent with MLI's use of the phrase "low molecular weight carbohydrate" in Claim 40, the use of the phrase "low molecular weight carbohydrate" in Claims 36-41 filed by Preliminary Amendment entered October 8, 2002, the reference to "low molecular weight sugar" at page 12, line 18, of the original specification, and the many references to hydrocarbonyl aldoses, preferably mono- and disaccharides, throughout the specification as examples of carbohydrates (Specification (MLI Exh. 1025), pp. 6-7, bridging para.) suitable for use in the invention described.

(Id.)

The Board also interpreted MLI's use of the phrase "comprising an aqueous solution" to indicate that water is a mandatory constituent for each of MLI's applications, and therefore, "no required low molecular weight carbohydrate and/or amino acid constituent in any one of the aqueous solutions which comprises any one of the claimed deicing and anti-icing compositions may constitute 100 weight % of any subcombination aqueous solution."

(Id. at 18-19.)

With respect to SEACO's claims, it is undisputed that the Board did not construct the claims in SEACO's '310 and '325 patents within the section of the Board's decision entitled, "Claim Interpretation." (See Bd. Decision, 17-31; see also MLI's. Resp. to SEACO's.

Statement of Material Facts, Dkt. No. 51-2, ¶ 23.) Instead, the Board addressed SEACO's claim language later in its decision and concluded that SEACO's "claims are not limited to deicing compositions of pure components [and] do not exclude deicing compositions prepared from industrial waste streams." (Bd. Decision, 66.) The Board explained that all of the deicing compositions identified in SEACO's patents could include compounds found in industrial waste streams that do not inhibit the solution's deicing function. (Id.) As an example, the Board cited SEACO's comparison of the effect upon freezing temperatures of deicing compositions consisting of Brewers Condensed Solubles—a known waste stream product—to commercially available Corn Syrups, Dextrins, and Maltodextrins. (Id. at 66-67.)

Although the Board recognized Magistrate Judge David E. Peebles's prior interpretation of some of the same claim terms at issue in Cargill, Inc. v. Sears Petroleum & Transp. Corp., 334 F. Supp. 2d 197 (N.D.N.Y. 2004), the Board declined to adopt Judge Peebles's interpretation. (Bd. Decision, 30.) The Board distinguished Judge Peebles's interpretation on the grounds that Cargill was an infringement action involving the scope and content of an invention claimed in an already-issued patent as opposed to a pending application. (Id.) Additionally, the Board determined that issues in Cargill focused upon different claim language, patent specifications, and parties.

3. SEACO's Motion to Bar MLI's Claims as Untimely

The Board first considered SEACO's preliminary motions 3 and 5 to bar MLI's claims as untimely pursuant to 35 U.S.C. § 135(b) ("§ 135(b)"). Section 135(b) effectively creates a one-year statute of limitations for parties to file a patent application in order to provoke an interference proceeding with an existing patent. See 35 U.S.C. § 135(b)(1); see also In re Berger, 279 F.3d 975, 982 (Fed. Cir. 2002). SEACO's '310 and '325 patents issued

on August 20 and 27, 2002, respectively. (Exs. 3, 4 to Def's. Mot. for Summ. J., Dkt. Nos. 43-9, 43-10.) As a result, the Board determined that the deadline for filing a patent application so as to provoke an interference pursuant to § 135 was August 20, 2003. (Bd. Decision, 31-32).

MLI filed its '975 and '894 patent applications on October 8, 2002 and October 22, 2003, respectively. The original '975 application included claims 1-35, but MLI immediately cancelled claims 2-35 and added claims 36-41 via preliminary amendment on the same day the application was filed. (MLI's. Resp. Statement of Material Facts, Dkt. No. 50-2, ¶ 8.) Amended claims 43 and 44 were added to the '975 application on February 10, 2003. (Id. at ¶ 9.) On April 30, 2004, an examiner with the Patent and Trademark Office rejected MLI's amended claims 43 and 44 because the claims stated a carbohydrate molecular weight range of 180 to 1500. (Id. at ¶ 10.) In response, MLI amended claims 43 and 44 of the '975 application on October 29, 2004 to state a carbohydrate molecular weight range of 180 to 1200. (Id. at ¶ 11.) Upon additional consideration by the Patent and Trademark Office, MLI authorized the examiner to further amend claims 43 and 44 on December 30, 2004 to state a molecular range of approximately 180 to 342. (Id. at ¶ 12.)

In light of MLI's post-critical date amendments to the '975 application and the belated filing of the '894 application, the Board considered whether any of the claims in either application related back to any of MLI's claims that were pending prior to the one-year anniversary of the issuance of SEACO's '310 and '325 patents. (Bd. Decision, 32.) The Board determined that SEACO had the initial burden of proof to show (1) that the claims in their present form were made more than one year after the issuance of the subject patents and (2) that there were material differences between the amended claims made more than

one year after SEACO's patents issued and the claims made prior to the one-year anniversary of the issuance of the same patents. (Id. at 36-37 (citing 37 C.F.R. § 41.208(b)).)

Under this framework, the Board concluded that original claims 3 and 5 of the '975 application were not materially different from amended claims 42-44. (Bd. Decision, 43-44.) The Board explained that "one or more of compositions of pre-critical date claims 3 and 5 of MLI '975 necessarily possess all of the material limitations of compositions encompassed by post-critical date claims 42-44 of MLI '975. (Id. at 44-45.) With respect to the specific molecular proportions and compounds, the Board instructed that

the compositions of post-critical date claims 42-44 of MLI '975 comprise a carbohydrate having a molecular weight in the range of about 180 to 342, an acetate salt and water. The carbohydrate is selected from glucose, fructose and higher saccharides based on glucose and/or fructose and mixtures thereof. The acetate salt is selected from the group consisting of calcium magnesium acetate, potassium acetate and sodium acetate. The compositions of pre-critical date claims 3 and 5 of MLI '975 comprise a hydroxyl-containing compound, an organic acid salt and water. The hydroxyl-containing compound is a monosaccharide, and the organic acid salt is a carboxylic acid salt.

(Id. at 44.) Based upon this assessment, the Board determined that claims 42-44 of the '975 application related back to the pre-critical date of original claims 3-5 "because the same or substantially the same subject matter as interfering post-critical date claims 42-44 of MLI '975 was claimed by MLI less than one year after the issue date of [SEACO's] patents."² (Id. at 45.)

Notwithstanding the Board's decision with regards to amended claims 42-44 of the '975 application, the Board granted SEACO's motion to bar claims 38-40, 46, and 49 of MLI '975 and claims 36-37 of MLI '894 because the pre-critical date claims did not claim a

² The Board commonly referred to SEACO as "Sears." For purposes of clarity and consistency, "SEACO" or "SEACO's" has been inserted in various quotations of the Board's decision.

composition comprising of either a chloride salt, a low molecular weight carbohydrate, and water, or alternatively, an acetate salt, an amino acid, and water. (Id. at 46.) In sum, SEACO's motions to bar MLI's claims under § 135(b) were granted with exception to MLI's post-critical date claims 42-44 of the '975 application. Accordingly, the Board did not find that § 135(b) entirely barred the Interference in light of the permissibility of claims 42-44.

4. SEACO's Motion to Bar MLI's Claims as Unpatentable Pursuant to

§ 112

Because of the decision to bar several of MLI's claims pursuant to § 135(b), the Board dismissed SEACO's motion to bar the same claims pursuant to 35 U.S.C. § 112 ("§ 112") as moot. (Bd. Decision, 72.) Therefore, the Board only considered whether MLI claims 42-44 of the '975 application were unpatentable for failure to comply with § 112. (Id.) Upon consideration, the Board concluded that persons having ordinary skill in the relevant art would have understood from the supporting specification of the '975 application that MLI claimed the following invention:

[D]eicing and anti-icing compositions which contain aqueous solutions including (1) the hydroxyl containing organic compounds such as the monosaccharide glucose ([molecular weight] ~180) and the disaccharide sucrose ([molecular weight] ~342) and either potassium or sodium acetate; (2) a carbohydrate having a molecular weight of 180 (glucose); (3) a molecular weight range of about 180 to 342 for the low molecular weight carbohydrate component selected from glucose and sucrose; (4) 5 to 100% weight % of the low molecular weight range carbohydrate component; and (5) an effective freezing point lowering amount of potassium or sodium acetate.

(Id. at 74.) The Board therefore denied SEACO's motion with respect to claims 43 and 44 on the ground that there was an implied description of the subject matter claimed in the '975 application sufficient to satisfy the written description requirement of § 112. (Id. at 75.) Additionally, the Board relied upon its interpretation of the full scope and content of claims 42-

44 in the context of the entire supporting specification for the '975 application to determine that none of the claims violated the enablement requirement of § 112.

However, the Board found that claim 42 of the '975 application violated the written description requirement of § 112 because it claimed new subject matter not described in the specification section of the application. (Id. at 75-76.) In particular, the Board concluded that claim 42 expressly named calcium magnesium acetate as a constituent of the deicing and anti-icing compositions, whereas the original specification contained neither an express nor an implied statement of the same molecular component. (Id.) Consequently, the Board granted SEACO's motion to bar claim 42 of the '975 application as unpatentable for failure to comply with the written description requirement of § 112. (Id. at 76.)

5. SEACO's Remaining Preliminary Motions

SEACO's remaining preliminary motions were limited to its proposed substitution for the Interference counts and the dates of priority for MLI's application claims. Having already determined that claims 43 and 44 of MLI's '975 application were the only claims to survive SEACO's motions pursuant to §§ 112 and 135(b), the Board dismissed SEACO's other preliminary motions as moot. (Id. at 77.)

6. MLI's Motion to Invalidate SEACO's '310 and '325 Patents

At the Interference, MLI contended SEACO's '310 and '325 patents were invalid because the same subject matter had already been claimed in MLI's '621 patent which issued on March 2, 1999. As a preliminary matter, the Board evaluated whether SEACO's '310 and '325 patents were entitled to the benefit of the January 4, 1999 filing date of one of SEACO's previously filed patent applications, Patent Application Number 09/224/906 ("the '906 application"). If so, the Board reasoned that the '621 patent would not provide a basis for

invalidating SEACO's patents under either 35 U.S.C. §§ 102(b) ("§ 102(b)")³ or 103(a) ("§ 103(a)")⁴ because it would not constitute "prior art."

After comparing the subject matter defined in SEACO's '310 and '325 patents with the subject matter claimed in SEACO's '906 application, the Board found there was an insufficient nexus, whether express or implied, between the subject matter claimed in the '310 and '325 patents and SEACO's previously filed application. The Board explained:

[W]e find no description of the kind and content of the carbohydrate component in the de-icing and anti-icing compositions now claimed in the earlier application for which benefit is requested, especially with respect to the specific molecular weight ranges and the specific kinds, broader ranges of molecular weights and weight % of low molecular weight carbohydrates in the compositions and the kinds and amounts of acetate salts suitable for replacing the chloride salts in the composition disclosed.

(Id. at 52-53.) Because of the deficient description in the earlier application, the Board determined that SEACO's '906 application "would not have provided an adequate written description of the full scope of the invention presently claimed as required by the first paragraph of 35 U.S.C. § 112." (Id. at 53.) According to the Board, MLI's '621 patent therefore constituted "prior art" within the context of §§ 102(b) and 103(a), and SEACO's patents were entitled to no earlier than the January 5, 2001 filing date of the parent application, Patent Application Number 09/755,587 (later issued under patent number 6,299,793) (hereinafter referred to as "the '793 parent patent").

³ Title 35, United States Code, Section 102(b) states: "A person shall be entitled to a patent unless . . . the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for the patent in United States.

⁴ Title 35, United States Code, Section 103(a) states, in pertinent part: "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented 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 have ordinary skill in the art to which said subject matter pertains." (emphasis added)

The Board then explained that two issues remained with respect to whether SEACO's patents were invalid under either §§ 102(b) or 103(a): (1) whether the '621 patent described the subject matter claimed in the '310 and '325 patents; and (2) whether the subject matter claimed in the '310 and '325 patents would have been obvious to a person of ordinary skill in the art in light of the differences, or lack thereof, between the claimed subject matter and that of the prior art, including the '621 patent and a 1998 article referred to as the "Vigoro publication." (Bd. Decision, 53-54.)

The Board found that the prior art rendered the following innovations obvious to a person of ordinary skill in the art: (1) that deicing and anti-icing compositions comprising of water soluble, low molecular weight sugars, environmentally benign acetate salts, amino acids, and peptides will effectively lower the freezing point of water without damaging the environment; (2) that environmentally benign salts can be added to deicing and anti-icing compositions for the purpose of lowering the freezing point of water; (3) that deicing and anti-icing compositions comprising of aqueous salt solutions and glucose are less detrimental to the environment and no less effective at lowering the freezing point of water as compared to deicing and anti-icing compositions comprising of aqueous salt solutions without glucose; and (4) that acetate salts such as calcium magnesium acetate and potassium acetate pose less of a detriment to the environment, are less corrosive, and are just as effective at lowering the freezing point of water as compared to more harmful chloride salts traditionally used in deicing and anti-icing compositions. (Id. at 59-60.)

After comparing the deicing and anti-icing compositions described in the '621 patent and the '310 and '325 patents, the Board concluded that § 102(b) did not invalidate SEACO's patents because the '621 patent "does not describe a combination of every component of a

composition defined by any of [SEACO's] claims in a manner specific enough to sustain MLI's motion. . . ." (*Id.* at 60). Nevertheless, the Board found that SEACO's patents were invalid under § 103(a) because the claimed subject matter would have been obvious to a person of ordinary skill in the art in light of the similarities between the '310 and '325 patents and the prior art. (*Id.*) The Board expressly rejected SEACO's argument that the subject matter of its patents excluded compositions derived from industrial waste streams, noting that table 3 of the '310 patent stated the freezing point lowering effect of deicing compositions comprising of Brewers Condensed Solubles. (*Id.* at 66.)

7. MLI's Motion to Bar SEACO's Claims as Unpatentable Pursuant to
§ 112

Much like SEACO's own motion pursuant to § 112, MLI moved to bar SEACO's '310 and '325 patents as unpatentable for failure to comply with the statute's written description and enablement requirements. More specifically, MLI argued that the claims within SEACO's patents did not provide an adequate description of, and would not enable a person of ordinary skill in the art to make full use of, the deicing and anti-icing compositions identified in Count One and Count Two of the Interference. The Board rejected MLI's position on the grounds that MLI erroneously interpreted the SEACO patents as claiming a "synergistically improved deicing formulation." (Bd. Decision, 69.) The Board held that MLI did not meet its burden to show that SEACO's patents claimed compositions limited to combinations of low molecular weight carbohydrates, salt, and water which provide a superior freezing point lowering effect in comparison to compositions comprising high molecular carbohydrates, salt, and water. (*Id.* at 70.) In effect, the Board explained that MLI's arguments failed in light of the improper

construction of SEACO's claims as a synergistically superior deicing composition, and accordingly, the motion was denied in its entirety. (Id. at 71-72.)

8. MLI's Remaining Preliminary Motions

As with SEACO's outstanding motions, the Board dismissed MLI's remaining preliminary motions as moot in light of the decision regarding the dates of priority for the patentable claims.

III. DISCUSSION

Both parties move for summary judgment pursuant to Federal Rule of Civil Procedure 56. SEACO seeks reversal of the Board's decision to invalidate the '310 and '325 patents as obvious under § 103(a). Alternatively, SEACO moves for summary judgment on its claim that the Board erroneously denied its motion to bar claims 43 and 44 of MLI's '975 application as untimely under § 135(b). MLI moves for summary judgment of its counter-claim seeking a declaratory judgement that the Board properly granted its motion to invalidate SEACO's patents as obvious in light of the prior art pursuant to § 103(a).

A. Summary Judgment Standard

A motion for summary judgment in an action seeking judicial review of an interference proceeding pursuant to 35 U.S.C. § 146 is subject to the same legal standard as other proceedings unrelated to patent law issues. See Dow Chem. Co. v. Exxon Chem. Patents, Inc., 1998 WL 175883, at *6 (D. Del. Mar. 24, 1998). Summary judgment is therefore warranted when the pleadings, depositions, answers to interrogatories, admissions, and affidavits reveal no genuine issue as to any material fact. FED. R. CIV. P. 56; Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247, 106 S. Ct. 2505, 2509-10 (1986). All facts, inferences, and ambiguities must be viewed in a light most favorable to the non-moving party.

Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 587, 106 S. Ct. 1348, 1356 (1986). Initially, the burden is on the moving party to demonstrate the absence of a genuine issue of material fact. Celotex Corp. v. Catrett, 477 U.S. 317, 323, 106 S. Ct. 2458 (1986). After the moving party has satisfied its burden, the non-moving party must assert specific facts demonstrating a genuine issue to be decided at trial. FED. R. CIV. P. 56; Liberty Lobby, Inc., 450 U.S. at 250, 106 S. Ct. at 2511. There must be sufficient evidence upon which a reasonable fact finder could return a verdict for the non-moving party. Liberty Lobby, Inc., 477 U.S. at 248-49, 106 S. Ct. at 2510; Matsushita Elec. Indus. Co., 475 U.S. at 587, 106 S. Ct. at 1356.

B. Standard of Review of the Board's Decision

Judicial review of an interference decision pursuant to § 146 is considered “a hybrid of an appeal and a trial de novo.” Estee Lauder, Inc. v. L’Oreal, S.A., 129 F.3d 588, 592 (Fed. Cir. 1997) (citing Case v. CPC Int’l, Inc., 730 F.2d 745, 752 (Fed. Cir. 1984)). Aggrieved parties to an interference proceeding may rely solely on the record preserved before the Board by directly appealing to the Federal Circuit pursuant to 35 U.S.C. § 141. Alternatively, “[i]f a dissatisfied party wishes to supplement the record, [] 35 U.S.C. § 146 allows that party to initiate a civil action in a United States District Court to bring forth ‘further testimony.’” Agilent Techs., Inc. v. Affymetrix, Inc., 567 F.3d 1366, 1379 (Fed. Cir. 2009). If new evidence not considered by the Board is properly submitted during a § 146 action, the district court must make *de novo* factual findings. Id. (citing Mazzari v. Rogan, 323 F.3d 1000, 1005 (Fed. Cir. 2003)). Otherwise, only questions of law are reviewed *de novo*, Winner Int’l Royalty Corp. v. Wang, 202 F.3d 1340, 1348 (Fed. Cir. 2000), and the Board’s underlying factual determinations are reviewed for substantial evidence. Invitrogen Corp. v. President and

Fellows of Harvard College, 578 F. Supp. 2d 248, 252 (D. Mass. 2008) (citing Mazzari v. Rogaon, 323 F.3d 1000, 1005 (Fed. Cir. 2003)).

C. Burden of Proof at an Interference Proceeding

Parties to an interference proceeding are designated as junior and senior to one another depending upon which party possesses the earlier filing date for the respective patents or applications. The party with the later filing date is deemed the junior party and has the burden of proving it invented the claimed subject matter before the senior party. If the interfering application was ever co-pending with the challenged patent, i.e., if the party provoking the interference filed its application prior to the issuance of the other party's patent, the junior party must prove it is the proper owner of the patented subject matter by a preponderance of the evidence. See Environ Prods., Inc. v. Furon Co., 215 F.3d 1261, 1265 (Fed. Cir. 2000) (citing 37 C.F.R. § 1.657(b) (1998)). In contrast, if the interfering application was filed after the issuance of the challenged patent, the junior party must prove its prior date of invention by clear and convincing evidence. See Bruning v. Hirose, 161 F.3d 681, 684-85 (Fed. Cir. 1998) (“[T]he linchpin for deciding which standard to apply, either the preponderance or clear and convincing standard, is whether or not the patent's application was copending with the interfering application.”) (citations omitted).

In this case, the parties dispute whether the '975 and '894 applications were copending with the applications from which the '310 and '325 patents issued. Although MLI's applications undisputably were not filed until after SEACO's patents issued, the '975 and '894 applications were continuations of a prior application (Patent Application Number 09/675,495) that was copending with the applications for the '310 and '325 patents. The decision in Bruning is instructive on the issue of what standard of proof to apply. See Bruning, 161 F.3d

at 685-86. Like this case, one of the parties in Bruning provoked an interference by filing a patent application that was a continuation of previously filed applications. Id. at 683.

Notwithstanding the fact that the interfering application was filed after the issue date of the challenged patent, the Bruning court held that the preponderance of the evidence standard applied to the parties' motions before the Board. Id. at 685-86.

Although Bruning never explicitly articulated a rule that continuation applications are entitled to the filing date of parent applications for purposes of determining issues of copendency, the court's holding precludes an alternative conclusion. As in Bruning, MLI's applications were filed as continuations of parent applications that were pending at the same time as the applications from which SEACO's patents were issued. Therefore, MLI bore the burden of proving by a preponderance of the evidence, as opposed to by clear and convincing evidence, that SEACO's patents were invalid.

D. Obviousness under § 103(a)

As previously discussed, the Board granted MLI's motion to invalidate SEACO's '310 and '325 patents as obvious in light of the prior art pursuant to § 103(a). Under the statute,

a patent may not be obtained . . . if the differences between the subject matter sought to be patented 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

35 U.S.C. § 103(a). Both parties seek summary judgment with regards to whether the Board correctly granted MLI's motion.

1. Standard of Review for Obviousness Under § 103(a)

Naturally, the applicable standard of review must be determined before considering whether summary judgment is appropriate. “Obviousness is a question of law based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the prior art and the claimed invention; and (4) extent of any objective indicia of non-obviousness.” Winner, 202 F.3d at 1348 (citing Monarch Knitting Mach Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 881 (Fed. Cir. 1998)). The obviousness issue is therefore decided *de novo* during the § 146 action, and the four guideposts articulated above are reviewed for substantial evidence unless new evidence relevant to the obviousness determination is properly submitted. Agilent Techs., Inc., 567 F.3d at 1379 (citing Mazzari, 323 F.3d at 1005).

The parties dispute whether new evidence related to obviousness has been properly submitted. According to SEACO, there is new evidence in the form of the deposition and report of its expert, Professor E. Bruce Nauman; the deposition and report of MLI’s expert, Dr. Martin Chaplin; and Magistrate Judge Peebles’s claim construction decision in Sears Petroleum & Transp. Corp. v. Archer Daniels Midland Co., No. 5:03-CV-1120, 2007 WL 2156251 (July 24, 2007 N.D.N.Y.), whereby Judge Peebles constructed the terms of SEACO’s ‘793 parent patent.

Actions brought pursuant to § 146 allow the parties to supplement the record preserved before the Board with additional evidence so long as the evidence is related to issues that were raised during the interference proceeding. See Boston Scientific Scimed, Inc. v. Medtronic Vascular, Inc., 497 F.3d 1293, 1298 (Fed. Cir. 2007); Winner, 202 F.3d at 145; see also 35 U.S.C. § 146 (“In such suits the record in the Patent and Trademark Office

shall be admitted on motion of either party upon the terms and conditions as to costs, expenses, and the further cross-examination of the witnesses as the court imposes, *without prejudice to the right of the parties to take further testimony.*” (emphasis added)). However, even if an issue has been raised before the Board, parties may not advance novel legal theories at the district court level. Boston Scientific, 497 F.3d at 1298. To allow otherwise would defeat the purpose of the Board and would be a waste of administrative and judicial resources. Id.

The introduction of Judge Peebles’s decision in the Sears Petroleum litigation does not affect the applicable standard of review because that evidence is relevant only to the issue of claim construction. Claim construction is a question of law and must therefore be considered *de novo* irrespective of whether SEACO properly submits new evidence. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995). There is an issue, however, for whether the introduction of the parties’ experts’ reports and deposition testimony would require a *de novo* review of the underlying factual determinations used to decide the obviousness question. Notably, SEACO fails to discuss how the expert reports and depositions obtained during discovery raise new evidence related to the factual determinations for obviousness that was not previously presented before the Board at the Interference. Therefore, the Board’s findings for the underlying questions of fact used to determine that the ‘310 and ‘325 patents were invalid as obvious in light of the prior art will be reviewed for substantial evidence.

2. Claim Construction

The first stage of the § 103 obviousness inquiry required the Board to construct the scope and meaning of the patents’ terms. See In re ICON Health and Fitness, Inc., 496 F.3d

1374, 1378 (Fed. Cir. 2007) (citing Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1351 (Fed. Cir. 2001)); Beachcombers, 31 F.3d at 1160. SEACO argues that the Board incorrectly interpreted the terms “water-balance” and “carbohydrate” as they appear in the ‘310 and ‘325 patents, and as a result, erroneously concluded that the patents were obvious in light of the prior art. In response, MLI contends the Board properly constructed the claim terms pursuant to 37 C.F.R. § 41.200(b) whereby patent claims “shall be given [their] broadest reasonable construction in light of the specification of the application or patent in which it appears.” 37 C.F.R. § 41.200(b).

SEACO’s confusion as to whether the Board even constructed the claim language in the ‘310 and ‘325 patents is understandable because section C of the Board’s decision, entitled “Claim Interpretation,” (Bd. Decision, 17) never mentions any of the claims in either of the SEACO patents. (See id. at 17-31.) Instead, the Board discussed at great length its interpretation of the claim language within MLI’s applications. The Board made clear that it repeatedly looked to the specification within the applications, as opposed to the SEACO patents, for further guidance as to the proper construction of the MLI claims. (Id. at 19-22.) Indeed, if the Board had completely failed to consider the claim language or specification as stated in the ‘310 and ‘325 patents, the Board’s findings related to claim construction, or lack thereof, would necessarily be improper for failure to interpret the challenged claim in light of the specification in which it appears. See Agilent Techs., 567 F.3d at 1375.

However, notwithstanding the omission of SEACO’s claims from the “Claim Interpretation” section of the Board’s decision, the Board discussed its interpretation of the claims made in the ‘310 and ‘325 patents later in its decision. (Bd. Decision, 60-66.) In any

event, construction of SEACO's claim terms is a question of law and therefore must be considered *de novo*. See Markman, 52 F.3d at 979.

The claim terms of a patent should be considered through the perspective of “a person of ordinary skill in the art who reads them in context of the intrinsic record.” Agilent Techs., 567 F.3d at 1376. Additionally, “[w]hen a party challenges a claim’s validity under § 102 or § 103, . . . the Board must interpret the claim in light of the specification in which it appears.” Id. at 1375. Rather than construe the claim narrowly, the claim language must be afforded its broadest reasonable construction in light of the specification of the application. 37 C.F.R. § 41.200(b).

a. A Person of Ordinary Skill in the Art

The interpretation of disputed claim terms must be viewed through the eyes of a person of ordinary skill in the art. See Markman, 52 F.3d at 986. In determining the perspective of the hypothetical person of ordinary skill, courts may consider “the educational level of the inventor; the type of problems encountered in the art; the prior art solutions to those problems; the rapidity with which innovations are made; the sophistication of the technology, and the educational level of workers in the field.” Helifix Ltd. v. Blok-Lok, Ltd., 208 F.3d 1339, 1347 (Fed. Cir. 2000) (citing Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.3d 955, 962 (Fed. Cir. 1986)).

The parties agree that a person of ordinary skill in the art would have the equivalent of a B.S. in chemistry or chemical engineering with some additional experience in the field of organic chemistry. However, the parties disagree as to whether a person of ordinary skill in the art would (1) know that a solution of sugar and salt in water *effectively* lowers the freezing point of water, and (2) have some post-degree experience—either research or work-

practice—in the field of roadway anti-icing or deicing. While SEACO concedes that even the most novice member of the chemistry community would know that salt and sugar solutions have *some* lowering effect upon the freezing point of water, it contests that a person of ordinary skill in the art would know that salt and sugar solutions *effectively*, i.e., significantly, lower the freezing point of water. Additionally, SEACO urges the adoption of Magistrate Judge Peebles’s holding that a person of ordinary skill in the art would have some professional experience or education in the field of roadway ice management. See Sears Petroleum & Transp. Corp., 2007 WL 2156251, at *9. MLI asserts that a person of ordinary skill in the art would know that salt and sugar solutions effectively lower the freezing point of water but that such a hypothetical person would not necessarily have experience in roadway ice management.

With respect to whether post-degree experience in the field of roadway ice management is required, it is important to note that SEACO’s expert never stated in his declaration submitted to the Board that post-degree experience in roadway ice management was a requirement for a person of ordinary skill in the art. (See Nauman Decl., Ex. 16 to MLI’s Mot. for Summ. J., Dkt. No. 43-22, ¶ 5.) Although the preambles to the ‘310 and ‘325 patents mention the use of the inventions as roadway deicing and anti-icing agents, to allow SEACO to raise this new limitation of a person of ordinary skill in the art after the Board’s decision would essentially circumvent the Federal Circuit’s rule that the preamble does not contain limiting language “where it merely recites a purpose or intended use of the invention.” Innova Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1118 (Fed. Cir. 2004) (citing In re Paulsen, 30 F.3d 1475, 1479 (Fed. Cir. 1994)). Finally, as MLI points out, none of the tests described in SEACO’s patents include testing performed on roadways.

Therefore, a person of ordinary skill in the art is not required to have some experience in roadway ice management.

In consideration of whether a person of ordinary skill in the art would know that salt and sugar effectively lowers the freezing point of water, MLI fails to point to any evidence of why this limitation should be read into the interpretation of the hypothetical person. Although SEACO's expert admitted that a person of ordinary skill in the art would know that salt and sugar lowers the freezing point of water to the extent that "all dissolved substances lower the freezing point of water," (Nauman Decl., Ex. S to Sullivan Decl., Dkt. No. 45-20, ¶ 9.18 at 28) he offered no opinion as to the effectiveness of the solution in the mind of the hypothetical person of ordinary skill in the art. Further, MLI concedes that the standard for determining the knowledge of a person of ordinary skill in the art is the same standard as Magistrate Judge Peebles used in his Sears Petroleum & Trans. Corp. decision. See 2007 WL 2156251, at *9. Therefore, with exception to the requirement that a person of ordinary skill in the art must have some experience in roadway ice management, the same definition adopted by Judge Peebles applies: a person having obtained a bachelor's degree in chemistry or chemical engineering with some additional experience in the field of organic chemistry.

b. "Water-Balance"

The issue surrounding SEACO's use of the term "water-balance" is whether, when read in light of the specification and claims stated in the '310 and '325 patents, the term closes the aqueous solution to unrecited components other than incidental impurities and/or harmless ingredients associated with the commercial sources of the recited components. The construction of the term "water-balance" is significant because the prior art under which SEACO's patents were invalidated for obviousness are open to unrecited components.

SEACO offers three arguments in support of its position that “water-balance” closes the aqueous solution to unrecited components except for incidental impurities and/or harmless ingredients associated with the recited components. First, it argues that Magistrate Judge Peebles’s prior claim construction of the same term as it related to the ‘793 parent patent should be afforded substantial deference. Second, SEACO contends that any alternative interpretation of the term “water-balance” contravenes its ordinary meaning and essentially writes out the term from the patents. Third, SEACO submits that its interpretation of the term is proper because all of the examples of aqueous solutions within the ‘310 and ‘325 patent specifications consist of water concentrations equivalent to the exact amount necessary to bring the claimed deicing or anti-icing solution to 100%. (See ‘310 Patent, Ex. 3 to MLI’s Mot. for Summ. J., Dkt. No. 43-9, col. 12, ln. 53-col. 14, ln. 10 (hereinafter cited as “‘310 Patent”); ‘325 Patent, Ex. 4 to MLI’s Mot. for Summ. J., Dkt. No. 43-10, col. 13, ln. 10-col. 15, ln. 20 (hereinafter cited as “‘325 Patent”).)

Magistrate Judge Peebles’s prior claim construction decisions are not altogether preclusive of the claim construction issue; rather, at most, the claim construction analyses in the Cargill and ADM cases are due substantial weight when determining the proper interpretation of SEACO’s claim terms. See Collegenet, Inc. v. XAP Corp., No. 03-CV-1229, 2004 WL 2429843, at *6 (D. Or. Oct. 29, 2004). MLI argues that *stare decisis* does not require deference to Judge Peebles’s decisions because those prior cases arose from infringement proceedings instead of interference actions. (Def’s. Mem. of Law in Opp’n to Pl’s. Mot. for Summ. J., Dkt. No. 51, 11.) According to MLI, interferences require the Board to afford the claim terms their broadest reasonable construction pursuant to 37 C.F.R. § 41.200(b), whereas infringement decisions before district courts employ a different standard

because already-issued patents are presumed valid in infringement lawsuits. See In re Am. Acad. of Sci. Tech Ctr., 367 F.3d 1359, 1369 (Fed. Cir. 2004); In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

Notwithstanding any difference between the applicable legal standards for claim construction in interference proceedings as compared to infringement actions, Judge Peebles's analysis remains relevant to the claim construction issue, and in any event, it is undisputed that a claim must be given "its broadest reasonable construction in light of the specification of the application or patent in which it appears." 37 C.F.R. § 41.200(b). Without necessarily adopting Judge Peebles's rationale, the question presented therefore becomes how reasonably broad may SEACO's patent claims be construed in light of their specification?

In consideration of the patent claim language, SEACO repeatedly uses the transitional words "comprising" and "contains" when describing the recited constituents of the aqueous solution, including the "water-balance" limitation identified in the independent claims of both patents. (See '310 Patent, col. 12, ln. 46-col. 14; '325 Patent, col. 13-16.) These words are terms of art within patent law and normally reflect the inventor's intent to identify an inclusive or open-ended invention that does not exclude unrecited elements. MANUAL OF PATENT EXAMINING PROCEDURE § 2111.03 (8th ed. 2001 & rev. ed. 2008) (collecting cases). In contrast, "[t]he transitional phrase 'consisting of' excludes any element, step, or ingredient not specified in the claim." Id. (collecting cases). Despite its use of the terms "comprising" and "contains," as well as its omission of the term, "consisting of," SEACO contends that the terms of art only create a rebuttable presumption that the aqueous solution is open to unrecited components. Nevertheless, in light of the definition within the Manual of Patent

Examining Procedure and the cited cases therein, the inclusion of the terms “comprising” and “contains” cuts against SEACO’s position that its patent claims are closed to unrecited components.

On the other hand, the ordinary meaning of “balance” as used in the patent claims is “a leftover” or “remainder.” WEBSTER’S II NEW COLLEGE DICTIONARY 84 (1995). As an alternative interpretation, MLI contends that “balance” as used to signify the concentration of water means only “that the composition must contain some amount of water (at least enough to make a solution) *after all recited components and any unrecited components have been added.*” (Def’s. Mem. of Law in Opp’n to Pl’s. Mot. for Summ. J., Dkt. No. 51, 16 (emphasis added).) Put another way, MLI contends the “water-balance” term does not close the composition to unrecited components because the proportion of water comprising the solution is not determined until *after* any unrecited components have already been included.

The reasonableness of MLI’s alternative construction of “water-balance” must be viewed in light of the specification in which the term appears. See 37 C.F.R. § 41.200(b). “While examples disclosed in the preferred embodiment may aid in the proper interpretation of a claim term, the scope of a claim is not necessarily limited by such examples.” Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997). Therefore, pursuant to the Federal Circuit’s holding in Ekchian, the examples within the ‘310 and ‘325 patents are instructive, but not determinative, of the reasonableness of MLI’s more broad alternative construction of the term “water-balance.”

All of the examples within the ‘310 and ‘325 patent specifications contain the proportion of water needed to equal 100% for the total weight of the components comprising the solution. Rather than use the term “balance” as stated within the claims, the examples in

the specifications state specific concentrations for each component and leave no room for unrecited components apart from minuscule amounts of incidental impurities derived from the recited components. However, the Federal Circuit “has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.” Tex. Instruments, Inc. v. U.S. Intern. Trade Comm’n, 805 F.2d 1558, 1563 (Fed. Cir. 1986) (citing Palumbo v. Don-Joy Co., 762 F.2d 969, 977 (Fed. Cir. 1985), *abrogated on other grounds by* Markman v. Westview Instruments, 52 F.3d 967 (Fed. Cir. 1995)). Instead, the preference is to construe claims based upon the limitations as stated in the claim. Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 866 (Fed. Cir. 1988) (“References to a preferred embodiment, such as those often present in a specification, are not claim limitations.”).

The significance of the examples listed in the specification thus turns upon whether there is an explanation for why the limitation found in those examples, i.e., a specific concentration of water equaling exactly the amount necessary to bring the aqueous solution to 100%, is not included in the claims themselves. As a practical matter, it was impossible for SEACO to employ the same degree of specificity with respect to the weight percentages of the recited components in its claims as compared to the examples in its specifications. The following hypothetical is illustrative of the problem SEACO faced when writing its patent claims: Assume for the purposes of the hypothetical that an inventor knows he intends to claim an aqueous solution made of two molecular components and the balance of water. If the inventor knows for certain his solution is made of 10% component A and 20% component B, the inventor will then also know that his solution must comprise 70% water. However, if the same inventor knows only that his solution is made of 3-60% of component A and 5-25% of component B, his claimed concentration of water will logically fluctuate depending upon the

concentration of components A and B. The practical solution is then to include the “balance” limitation in order to ensure that the water component is in a feasible proportion to the other constituents. Had SEACO stated a range of weight percentages for water in lieu of the term “balance,” the claim would be open to unrecited components in any case where the sum of the weight percentages did not total 100%. Instead, SEACO avoided this issue through its use of the term “water-balance.”

Additionally, to read the term “water-balance” so as to leave the aqueous solution claimed in the ‘310 and ‘325 patents open to unrecited components is not reasonable in light of the specifications in which the claims appear. Although this limitation is not expressly stated within the patent claims, the specification instructs that SEACO intended water to close out the aqueous solution after the first two recited components were added. Even despite SEACO’s use of the terms “comprising” and “contains,” the meaning of the term “water-balance” is, at the very least, unclear without looking to the patent specifications for guidance. See Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999) (collecting cases affording specification greater significance when claim term is ambiguous or otherwise unclear). Upon consideration of the specifications for the ‘310 and ‘325 patents, the broadest reasonable construction of the term “water-balance” viewed through the perspective of a person of ordinary skill in the art indicates that the aqueous solution is closed to unrecited components except for incidental impurities found in the recited components.

c. “Carbohydrate”

The issue relating to SEACO’s use of the term “carbohydrate” as it appears in each of the claims in the ‘310 patent and claims 9-14 and 18-20 in the ‘325 patent is whether the term encompasses solutions using waste stream components. Although the claim language is the first thing to be considered when constructing a term,

[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.

Honeywell Int’l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1319 (Fed. Cir. 2006) (quoting SciMed Life Sys. v. Advanced Cardiovascular Sys., 242 F.3d 1337, 1341 (Fed. Cir. 2001)). In Honeywell Int’l, the Federal Circuit concluded that the inventor renounced the use of carbon fibers based upon the criticism included in the patent’s specification. Id. The court found that the inventor “informed its readers specifically why carbon fibers would not be suitable as ‘electronically conductive fibers’ in the claimed invention. If the written description could talk, it would say, ‘Do not use carbon fibers.’” Id. at 1320.

Much like the inventor in Honeywell Int’l, SEACO criticized previously patented de-icing solutions for the use of agricultural residues, including corn based distillers solubles and solubles from the corn wet milling industries. (See ‘310 Patent, col. 1, Ins. 56-67; ‘325 Patent, col. 1, Ins. 56-67.) SEACO’s disparagement of agricultural residues was stated as follows:

These naturally occurring substances, which also include brewers condensed solubles, are extremely variable in composition, viscosity, film forming tendency, freezing temperature, pH etc., and consequently give varying performance when used in de-icing solutions. Depending upon the source and batch, these materials at low temperatures sometimes exhibit such resistance to flow that they cannot be applied evenly to a road surface or mixed with a chloride, rendering them virtually unsuitable for use.

Furthermore, these patents utilize materials which have highly undesirable or unnecessary ingredients leading to practical difficulties by manufacturers and users, such as stratification in storage, biological degradation, odor, plugging of filters and spray nozzles and environmental difficulties, e.g., high biological oxygen demand due to the very high organic contents (about 40% by weight), presence of phosphorus compounds and heavy metals.

To improve quality and performance, and to meet current mandated standards, there is an immediate need for synthetic, chemically modified thickeners, and carefully purified materials which can be substituted for the currently used agricultural residues. Such a formulation would improve performance and reduce metal corrosion, spalling of concrete, toxicity and addresses environmental concerns.

(‘310 Patent, col. 1, Ins. 56-67, col. 2, Ins. 1-15; ‘325 Patent, col. 1, In. 56-col. 2, In. 15.)

Based upon these statements, SEACO made clear to a person of ordinary skill in the art why waste stream products consisting of agricultural residues are problematic for deicing solutions and should not be used if possible. To further elucidate upon the intention of the ‘310 and ‘325 patents, SEACO stated:

It is therefore an object of the present invention to provide a deicing formulation which exhibits improved performance standards which overcomes the prior art problems described above

It is a further object of the present invention to provide a deicing formulation which provides consistent physical and chemical properties, thereby assuring consistent quality and performance.

(‘310 Patent, col. 2, Ins. 16-19, 29-32; ‘325 Patent, col. 2, Ins. 16-19, 29-32.)

Without more, SEACO would have expressly disavowed any use of carbohydrates derived from waste streams or agricultural residues due to the many problems associated with these components. However, oddly enough, SEACO later in its specification makes the following disclosure:

From the above discussion and laboratory evaluations the basic composition consists of at least the first two of the following components in aqueous solution

depending upon ambient weather conditions, terrain, nature and amount of freezing/snow precipitation, environmental concerns, etc.:

(1) An inorganic freezing point depressant in the form of inorganic electrolytes, mainly chlorides, but also others, such as sulfates and acetates . . . [, and]

(2) A carbohydrate, especially lower molecular weight carbohydrates in a range of about 180 to 1500. A preferred range is about 180 to 1,000. *The carbohydrates can be obtained primarily from a wide range of agricultural based products such as those derived from corn, wheat, barley, oats, sugar cane, sugar beet, etc.*

(‘310 Patent col. 6, Ins. 60-67, col. 7, Ins. 3-8; ‘325 Patent, col. 6, Ins. 60-66, col. 7, Ins. 3-8 (emphasis added).)

MLI contends this passage signifies SEACO’s original intention to include carbohydrates derived from unrefined and inconsistent sources. Although the specification for the ‘310 and ‘325 patents indisputably teaches that carbohydrates for use in the aqueous solution can be obtained from agricultural products, MLI has pointed to nothing in the specification that contradicts SEACO’s express disparagement of carbohydrates derived from inconsistent or unrefined sources. There has been no evidence presented to show that the agricultural based products used to obtain the carbohydrates are unrefined sources. To the contrary, the carbohydrates used in the examples stated in the specifications are derived from refined agricultural products. See Sears Petroleum Transp. Corp., 2007 WL 2156251, at *16 (finding that the embodiments within SEACO’s ‘793 parent patent “utilize[d] refined agricultural products,” including commonly available glucose, fructose, maltose, lactose, corn syrup DE44, corn syrup DE20, molasses, and maltodextrin).

MLI’s emphasis on the inclusion of Brewers Condensed Solubles in various tables of the ‘310 and ‘325 patent specifications is equally unpersuasive because, after reading the specification in its entirety, it is apparent that SEACO conducted laboratory tests of the

Brewers Condensed Solubles as a test sample for purposes of establishing that low molecular weight carbohydrates had the greatest effect upon the freezing point of the solution. Even under the most reasonably broad construction of the term “carbohydrate,” a person of ordinary skill in the art would recognize this distinction based upon the criticism of carbohydrates derived from unrefined, inconsistent waste-stream sources as well as the discussion of the effect of low molecular weight carbohydrates upon freezing point depression following the testing of Brewers Condensed Solubles. Therefore, SEACO’s use of the term “carbohydrate” in its ‘310 and ‘325 patents must be construed to exclude carbohydrates derived from unrefined, inconsistent waste-streams.

3. Obviousness Analysis in Light of the Prior Art

As stated *supra* in section III.D.1, the obviousness of the ‘310 and ‘325 patents in light of the prior art is a question of law reviewed *de novo* and is based upon factual determinations that are reviewed for substantial evidence. Agilent Techs., Inc., 567 F.3d at 1379 (citing Mazzari, 323 F.3d at 1005). The parties agree that the relevant factual elements include: (1) the level of ordinary skill in the art; (2) the scope and content of the prior art; and (3) the differences, if any, between the prior art and the claims at issue. Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17, 86 S. Ct. 684, 694 (1966). Even under the narrow construction of the terms “water-balance” and “carbohydrate” afforded to SEACO, MLI argues the Board’s decision to invalidate SEACO’s patents as obvious in light of the prior art should be affirmed because the ‘621 patent, in combination with the Vigoro publication, teaches deicing compositions made from pure components.

a. Pure and Waste-Stream Components ('310 and '325 Patents)

In consideration of the scope and content of the prior art, the Board concluded that the '621 patent taught deicing compositions made from both pure and waste-stream components. (Bd. Decision, 66.) Notably, at least seven of the seventeen claims stated in the '621 patent are necessarily limited to one or more components derived from waste streams. ('621 Patent, Ex. 6 to Def's. Mot. for Summ. J., Dkt. No. 43-12, col. 5, Ins. 29-44, col. 6, Ins. 31-55 (hereinafter cited to as "'621 Patent").) The remaining claims are silent as to whether the components must be derived from pure or waste stream sources. The specification for the '621 patent also repeatedly expresses a strong preference for waste stream products. For example, the summary of the invention explains that "[t]he deicing agents can be prepared from pure components, *or more preferably are prepared from waste process streams . . .*" (Id. at col. 2, Ins. 31-33 (emphasis added).) The specification also explains that the claimed components are often "present in or are derived from the process waste streams from which the compositions of the present invention may be obtained." (Id. at col. 2, Ins. 59-62.) The specification goes so far as to state that

it is especially preferred to obtain the deicing agents of the present invention from any of a number of industrial waste streams which comprise a water soluble solution of hydroxycarboxylic acid, since lactic acid as it occurs in dilute fermentation liquors is inexpensive. The purification of this material is difficult due to its similarity in solubility characteristics to water as the presence of impurities such as dextrans, proteins and unfermented sugars. For instance, the present invention contemplates the use of waste stream selected from the group consisting of a grain stillage, a wood stillage, agricultural or milk fermentation and mixtures of any of the foregoing.

(Id. at col. 3, Ins. 9-20.)

Notwithstanding the '621 patent's preference for waste stream products, the preferred embodiment of a claim should not be read into the claim language as a limitation of

the subject matter disclosed in a patent. Laitram Corp., 863 F.2d at 865. Rather than altogether disavow the use of pure stream components, the '621 patent merely expressed a preference, albeit a strong preference, for the use of industrial waste streams to derive one or more of the components for the claimed deicing agent. Therefore, the Board's factual determination that the '621 patent taught the use of pure streams to derive the components of the aqueous solution was supported by substantial evidence and will not be disturbed. Consequently, SEACO's argument that its claimed inventions would not have been obvious to a person of ordinary skill in the art because the '310 and '325 patents are limited to pure stream components is unpersuasive.

b. Molecular Weight Ranges ('310 and '325 Patents)

Alternatively, SEACO argues that the prior art does not teach the molecular weight ranges for components claimed in the '310 and '325 patents. The claimed weight ranges do not have to be identical, however. Instead, "[a] *prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art." In re Peterson, 315 F.3d 1325, 1329 (Fed. Cir. 2003) (citations omitted). Even the slightest of overlap between weight ranges will be sufficient. Id. (collecting cases).

Although the claims of the '621 patent do not disclose specific molecular weight ranges, MLI points to the examples in the specification as evidence of acceptable weight ranges embraced by the patent. Example 5 in the '621 patent discloses components in the following concentrations: sodium lactate (a salt)—20%; sorbitol (a low molecular weight sugar)—8%; proline (an amino acid)—2%; sodium PCA (an amino acid)—10; and water—60%. ('621 patent, col. 4, lns. 57-63.) The claimed sugar—sorbitol—therefore falls within the SEACO patent range for a carbohydrate of 3 to 60% molecular weight and the

claimed salt—sodium PCA—falls within the SEACO patent ranges for an acetate (a salt) of 5 to 25%, 5 to 40%, and 5 to 25% molecular weight depending upon which individual claim is compared to the '621 patent. (See '310 patent, col. 12, Ins. 55-57, col. 13, Ins. 11-13, col. 14, Ins. 7-9.) Likewise, the amino acid and carbohydrate ranges claimed in the '325 patent also overlap with the weight ranges claimed in the '621 patent. Accordingly, there is a *prima facie* showing that the '310 and '325 patents are obvious in light of the prior art.

SEACO may nonetheless overcome the *prima facie* showing of obviousness by presenting evidence that its claimed molecular weight ranges falling outside the overlapping weight ranges are critical for achieving the desired results of its inventions. In re Peterson, 315 F.3d at 1330. However, even viewed in the light most favorable to SEACO, there is no evidence presented to conclude that the '310 and '325 patents claim critical weight ranges which “achieve[] unexpected results relative to the prior art range.” Id. The '621 patent identifies low molecular weight sugars such as glucose and maltose as well as acetate salts such as potassium acetate and sodium acetate. (See '621 patent, col. 3, Ins. 22-25, 51-60.) Additionally, the Vigoro publication describes the effectiveness of calcium magnesium acetate as a deicing component. (Vigoro Publication, Ex. 11 to MLI Mot. for Summ. J., Dkt. No. 43-17, 4.) Under these teachings, the Board had substantial evidence to conclude that a person of ordinary skill in the art would find it obvious to combine the components stated in SEACO's '310 patent.

c. Chloride Salts ('325 Patent)

SEACO's primary argument as to the non-obviousness of the '325 patent is that the prior art purportedly teaches away from using chloride salts. Claims 1, 2, 5, 6, 10, 13, 16, and 19 of the '325 patent teach the use of a chloride salt of 5 to 30% total molecular weight of the

aqueous solution. ('325 Patent, col. 1, ln. 4-col. 16, ln. 10.) SEACO argues the '621 patent teaches away from the use of chloride salt, emphasizing the criticism of chloride salts stated in the introduction. In particular, the '621 patent reads:

The most pervasive of the commonly used products for deicing are common salt, calcium chloride and urea, with common salt (sodium chloride) being the least expensive and most commonly used Chloride salts however suffer from relatively severe drawbacks, such as the harmful affects [sic] on surrounding vegetation by preventing water absorption in the root systems, and its corrosive effects on animal skin such as the feet of animals, clothing and roadways and motor vehicles.

('621 Patent, col. 1, Ins. 22-25, 29-34.) The '621 patent then explains that additional deicing agents were previously patented because of the known problems associated with deicing agents made from, *inter alia*, sodium chloride. (Id. at col. 1, Ins. 61-63.) Although the '621 patent identified the Kaes (United States Patent Number 4,448,702) and the Peel (United States Patent Number 4,46,449) patents as prior attempts to overcome the problems caused by sodium chloride, the '621 patent made clear that “both of these disclosures still require the presence of salts. Accordingly there still exists in the art a need for an environmentally benign deicing agent which is relatively inexpensive to obtain.” (Id. at col. 2, Ins. 10-13.)

Just as SEACO's criticism of waste stream “carbohydrates” was instructive on the claim construction issue for that term, see Honeywell Int'l, Inc., 452 F.32 at 1319, the specification for the '621 patent supports the conclusion that the patent teaches away from using chloride salts. More importantly, only one of the seventeen claims for the '621 patent identifies a deicing composition comprising of a salt. (See '621 Patent, col. 6, Ins. 23-29.) Unlike the specification wherein MLI left open the deicing composition to unidentified high solubility salts (id. at col. 3, Ins. 54-60 (“For example, useful salts *could include, but are not limited to*: sodium lactate, cesium acetate, sodium acetate, potassium acetate, sodium

formate, sodium citrate, lysine glutamate, sodium glucoheptonate, sodium and potassium salts of adipic, glutaric, succinic and malonic acids, lignin sulfonate, and the like.” (emphasis added))), the one claim within the ‘621 patent omits the language, “include, but are not limited to,” and the claim instead recites what appears to be a finite list of acceptable salts, none of which are identified as chloride salt. (Id. at col.6, Ins. 23-29.) This omission is consistent with the criticism of chloride salts stated in the introduction to the ‘621 patent and cuts against the Board’s factual determination with regard to the lack of differences between the prior art and the ‘325 patent.

Finally, it is noteworthy that MLI offers little argument for how the ‘621 patent and Vigoro publication teach the use of chloride salt as a deicing agent. MLI emphasizes the ‘621 patent’s explanation that sodium chloride is the “least expensive and most commonly used” deicing agent (id. at col. 1, Ins. 24-25), but ignores its own criticism of sodium chloride, especially with respect to “the harmful affects [sic] on surrounding vegetation” and the “corrosive effects on animal skin such as the feet of animals, clothing and roadways and motor vehicles.” (Id. at col. 1, Ins. 29-34.) MLI’s disparagement of sodium chloride takes on special significance because the ‘621 patent explains that, in light of the shortcomings of sodium chloride and other previously used deicing agents, “there still exists in the art a need for an environmentally benign deicing agent which is relatively inexpensive to obtain.” (Id. at col. 2, Ins. 10-13.) With exception to the brief description of sodium chloride as the “least expensive and most commonly used” deicing agent, MLI does not specifically discuss the “substantial evidence” supporting the Board’s factual determination with respect to the differences between the prior art and the ‘325 patent. Therefore, to the extent that claims 1, 2, 5, 6, 10, 13, 16, and 19 of the ‘325 patent teach the use of sodium chloride as a deicing

agent, the Board's decision that those claims would have been obvious to a person of ordinary skill in the art in light of the prior art was not supported by substantial evidence.

E. Untimely Applications Pursuant to 35 U.S.C. § 135(b)

The statutory interpretation of § 135(b) is a question of law and is therefore reviewed *de novo*. Regents of the Univ. of Cal. v. Univ. of Iowa Research Found., 455 F.3d 1371, 1373 (Fed. Cir. 2006) (citing In re Burger, 279 F.3d at 980). Pursuant to § 135(b), an application claiming the same subject matter as an issued patent will be barred unless the application is made prior to one year from the date the patent was issued. 35 U.S.C. § 135(b). In order to provoke an interference proceeding, the subject matter claimed in the application must also be the same or substantially the same as that of the issued patent. Id.; see also In re Burger, 279 F.3d at 981. Amended or supplemental claims added to a pending application after the one year anniversary of the issuance of a patent may benefit from the timely filing of original patent claims so long as “the later filed claim does not differ from an earlier claim in any ‘material limitation.’” Id. (citing Corbett, 568 F.2d at 765-66). Although a material limitation need not be expressly stated, implicit material limitations must “necessarily occur” in both the pre- and post-critical date claims in order for the untimely claim to relate back to the timely filing date. In re Burger, 279 F.3d at 982 (citing Corbett, 568 F.2d at 759).

The relevant issue is thus whether pre-critical date claims 3 and 5 of MLI's '975 are materially different than post-critical date claims 43 and 44. Although the construction of § 135(b) is reviewed *de novo*, whether a post-critical date amended claim relates back to a pre-

critical date claim is a factual determination that must be reviewed for substantial evidence.

See In re Burger, 279 F.3d at 982.⁵

Claim 3 discloses the following subject matter:

A deicing and/or anti-icing composition comprising (a) a hydroxyl-containing compound selected from the group consisting of glycols, monosaccharides, glycerols, and mixture of any of the foregoing (b) an organic acid salt selected from the group consisting of a carboxylic acid salt, a hydroxycarboxylic acid salt, a dicarboxylic acid salt, a carbonic acid salt and mixture of any of the foregoing and optionally (c) water.

(‘975 Application, Ex. F to Sullivan Decl., Dkt. No. 45-7, 29.) Claim 5 is dependent upon claim 3 and discloses “[a] composition as defined in claim 3 wherein said hydroxyl-containing compound comprises a monosaccharide.” (Id.) As a result, the only difference between claims 3 and 5 is whether the hydroxyl-containing compound must comprise a monosaccharide.

Post-critical date amended claim 43 discloses:

A deicing and anti-icing composition comprising an aqueous solution which contains a low molecular carbohydrate and potassium acetate in which the constituents are present in the following concentrations:

	Weight %
Carbohydrate	5-100%
Potassium Acetate	effective freezing point lowering amount
Water	Balance

⁵ Although the In re Burger court did not expressly state that the Board’s determination of whether pre-critical date claims include the same material limitations as post-critical date claims is a question of fact, the court nonetheless held that “substantial evidence supports the Board’s finding that copied claim 7 is not entitled to the earlier date of claims 1-6. The Board correctly found that original Berger claims 1-6 do not include language directed to the material ‘circumferential groove’ limitation of copied claim 7” 279 F.3d at 982. Accordingly, In re Berger instructs that the deferential substantial evidence standard applies to the Board’s determination of whether the pre-critical date claims include the same material limitations stated in the post-critical date claims.

and wherein said carbohydrate has a molecular weight in the range of about 180 to 342, and is at least one selected from the group consisting of glucose, fructose, and higher saccharides based on glucose and/or fructose and mixtures thereof.

(‘975 Am. Application, Ex. H to Sullivan Decl., Dkt. No. 47-9, 4-5.) Post-critical date amended claim 44 discloses:

A deicing and anti-icing composition comprising an aqueous solution which contains a low molecular carbohydrate and sodium acetate in which the constituents are present in the following concentrations:

	Weight %
Carbohydrate	5-100%
Sodium Acetate	effective freezing point lowering amount
Water	Balance

and wherein said carbohydrate has a molecular weight in the range of about 180 to 342, and is at least one selected from the group consisting of glucose, fructose, and higher saccharides based on glucose and/or fructose and mixtures thereof.

(Id. at 5.) Accordingly, the only difference between amended claims 43 and 44 is whether the claimed aqueous solution uses either potassium acetate or sodium acetate.

As the Board properly explained, the issue for consideration was

whether or not claims 38-40, 42-44, 46 and 49 pending in [the] MLI ‘975 [application] and claims 36 and 37 pending in [the] MLI ‘894 [application], which in this interference have been designated as corresponding to the same or substantially the same subject matter as subject matter claimed in the [SEACO] patents, are drawn to the same or substantially the same subject matter as any MLI claim that pending prior to the one-year anniversary of the issuance of the [SEACO] patents.

(Bd. Decision, 32.) The parties agree that the only post-critical date claims at issue now for purposes of SEACO's § 135(b) motion are MLI claims 43 and 44.

Although SEACO raised a number of arguments for why the amendments to MLI's post-critical date claims constituted *material changes to those claims*, there was no explanation for how said amendments constituted *material limitations not found in the pre-critical date claims*. (See SEACO Preliminary Mot. 3, Ex. 33 to Clement Affirmation, Dkt. No. 50-12, 4-8 (hereinafter cited to as "SEACO Prelim. Mot. 3").) For each argument raised before the Board in SEACO's § 135(b) motion, SEACO discussed the significance of MLI's amendments that were made to overcome the patent examiner's rejection of the pre-amendment claims. (*Id.*) SEACO correctly argued that MLI's amended limitations pertaining to the proportion of the recited components and molecular weight of the carbohydrate component inserted to overcome the examiner's prior rejection of the interfering patent were "strong, if not conclusive, evidence of [the] materiality" of said limitations. *Parks v. Fine*, 773, F.2d 1577, 1579 (Fed. Cir. 1985). Nevertheless, SEACO's burden of proof was not satisfied by merely showing the materiality of the limitations. SEACO even acknowledges it also had the burden to show that the pre-critical date claims did not include the same material limitations stated within the post-critical date claims. Despite recognizing this burden, SEACO repeatedly offered nothing more than a conclusory statement at the end of each of its sub-sections stating that the material limitation found in the amended post-critical date claims constitutes a material difference between those claims and the pre-critical date claims. (See SEACO Prelim. Mot. 3, 4-8.)

Even when afforded the opportunity in its reply memorandum to respond to the argument that its § 135(b) motion was deficient for lack of any comparison between MLI's

pre- and post-critical date claims, SEACO again offered the blanket statement that it “indeed analyzed the differences in scope between the MLI claims in interference and MLI’s earlier claims, pointing out where the claims were different, and showing that those differences arose because of amendments made by MLI to overcome rejections of those claims.”

(SEACO Reply to MLI Opp’n to SEACO Preliminary Mot. 3, Ex. Y to Sullivan Decl., Dkt. No. 45-26, 3.) No explanation of a purported analysis followed, however. With no argument for why the material limitations stated in the post-critical date claims substantially differed from the subject matter claimed in the pre-critical date claims, SEACO had not met its burden of proof for the relief sought in its § 135(b) motion. Accordingly, the Board properly denied SEACO’s motion in light of its failure to compare the scope of MLI’s pre- and post-critical date claims. (Bd. Decision, 37.)

SEACO presently offers a more refined and in-depth comparison of MLI’s pre- and post-critical date claims in support of its § 135(b) motion. (See SEACO Mem. of Law in Supp. of Summ. J., Dkt. No. 46-2, 14-17.) Whether SEACO’s more detailed argument warrants consideration depends upon if such a comparison constitutes a “new legal theory” as contemplated in Boston Scientific. In that case, the Federal Circuit held that [a] party may not . . . advance new legal theories at the trial court level, even if the overarching legal issue was presented below.” 497 F.3d at 1298 (citing Conservolite, Inc. v. Widmayer, 21 F.3d 1098, 1102 (Fed. Cir. 1994)). SEACO presently argues that MLI’s post-critical date claims contain material limitations not present in the pre-critical date claims with respect to (1) the water component and (2) the molecular weight range for the carbohydrate component in both solutions. An examination of SEACO’s preliminary motion indicates that SEACO never argued to the Board that MLI’s post-critical date claims were materially different than the pre-

critical date claims because of the water limitation. (See SEACO Prelim. Mot. 3, 4-8.) As a result, the Board never considered the water limitation recited in amended MLI claims 43 and 44. Although the overarching issue of whether MLI's post-critical date claims relate back to its pre-critical date claims was presented before the Board, SEACO's failure to raise an argument at the Interference with respect to the water limitation issue bars present consideration of that argument in this § 146 action.

Unlike the water limitation issue, however, SEACO raised the molecular weight range limitation issue at the Interference. (See id. at 7-8.) In response, MLI contended that the molecular weight ranges covered by its post-critical date claims overlapped with the weight ranges covered in its pre-critical date claims. (See MLI Opp'n to SEACO Preliminary Mot. 3, Ex. X to Sullivan Decl., Dkt. No. 45-25, 10-11.) Most importantly, and despite its holding that SEACO did not meet its burden because it failed to compare MLI's pre- and post-critical date claims, the Board considered SEACO's argument as to the molecular weight range limitations for carbohydrates. (Bd. Decision, 37) ("Nevertheless, we shall consider [SEACO's] Motions 3 and 5 in light of originally filed MLI Claims 1-35."). Therefore, SEACO's argument as to the molecular weight range limitation for carbohydrates does not constitute a new legal theory and warrants consideration.

In support of its motion, SEACO argues that the hydroxyl-containing compound recited in MLI pre-critical date claims 3 and 5 does not necessarily have a molecular weight between 180 and 342, whereas both MLI post-critical date claims 43 and 44 require the recited carbohydrate to have a molecular weight within that range. In response, MLI contends its pre-critical date claims recite monosaccharides such as glucose and disaccharide sucrose (both carbohydrates) which inherently have molecular weight ranges of

180 to 342, thereby establishing a sufficient nexus between the pre- and post-critical date claims.

Even assuming MLI is correct in its assertion that the monosaccharide compounds disclosed in its pre-critical date claims inherently have molecular weights between 180 and 342, the same claims permit the use of alternative carbohydrate compounds with inherent molecular weights outside the range stated in MLI's post-critical date claims. For example, MLI's expert, Dr. Chaplin, stated at his deposition that the hydroxyl-containing compound claimed in pre-critical date claim 3 would allow a carbohydrate with a molecular weight greater than 342. (Chaplin Dep., Ex. U to Sullivan Decl., Dkt. No. 45-22, 128:12-16.) He also went on to state that the same claim did not require a specific monosaccharide and could include pentoses which carry a molecular weight of about 150. (Id. at 130:19-131:7.)

Although MLI argues that Dr. Chaplin raises an issue of fact because he also states that all limitations of post-critical date claims 43 and 44 are properly supported by pre-critical date claims 3 and 5, (see MLI's Opp'n Mem. of Law, Dkt. No. 50, 18 n.11), a review of the cited deposition testimony indicates otherwise. During his deposition, Dr. Chaplin was asked to commit to a position on whether MLI's pre-critical date claim 3 included the limitation that the hydroxyl-containing compound have a molecular weight between 180 and 342. (Chaplin Dep., Ex U to Sullivan Decl., Dkt. No. 45-22, 125:5-21.) In his response, Dr. Chaplin ambiguously admitted that the claim "doesn't mention those numbers." (Id.) When pressed to clarify his answer, Dr. Chaplin explains that the claim "*includes* monosaccharides which would be within that limitation." (Id.) (emphasis added) However, he eventually conceded that the claim did not require that the hydroxyl-containing compound have a molecular weight range between 180 and 342. (Id.)

The Board also concluded that MLI's pre-critical date claims allow for at least some deicing and anti-icing compositions that fall outside the scope of the subject matter disclosed in MLI's post-critical date claims. (See Bd. Decision, 44.) Despite finding that "*some, but not all*, of the deicing and anti-icing composition encompassed by post-critical date Claims 42-44 of MLI '975 and the deicing and anti-icing composition encompassed by pre-critical date Claims 3 and 5 of MLI '975, share the same, or substantially the same components and component proportions," (id.) (emphasis added), the Board determined that all material limitations for the post-critical date claims were included within the pre-critical date claims. (Id. at 45.)

Both MLI's argument and the Board's decision with respect to SEACO's § 135(b) motion contravene the holding in Parks which states that a post-critical date claim will relate back to the timely filing date of a pre-critical date claim if, and only if, all material limitations of the post-critical date claim necessarily occur in the pre-critical date claim. 773 F.2d at 1580. In Parks, the Federal Circuit considered whether a party's post-critical date claim was entitled to the earlier filing date of its pre-critical date claim. Id. at 1578. Preliminarily, the Parks court determined that the absence of a catalyst during the decomposition of the recited compounds was a material limitation of the post-critical date claim. Id. at 1579-80. Following that conclusion, the court considered whether the Board properly concluded that the pre-critical date claim included the "absence of a catalyst" limitation. Id. at 1580. The Parks court rejected the Board's decision that the post-critical claim was entitled to the earlier filing date of the pre-critical date claim after finding that the "absence of a catalyst" limitation did not necessarily occur in the pre-critical date claim. Id. The court found it insufficient that the specification for the pre-critical date claim merely implied that catalysts were not required. Id.

(“[T]he implication in the specification that catalysts would not or need not be used does not imply that they must not be used.”). Instead, Parks explained that the issue was whether the limitation prohibiting the use of a catalyst “necessarily occurs” in the pre-critical date claim. Id. (citing Corbett, 568 F.2d at 766).

Like Parks, MLI’s post-critical date claims do not relate back to the pre-critical date claims because the pre-critical date claims are not necessarily limited to deicing and anti-icing compositions made of carbohydrates with a molecular weight range between 180 and 342. In light of Dr. Chaplin’s admissions during his deposition and even the Board’s own findings as to the scope of claims 3 and 5, MLI’s pre-critical date claims allow for carbohydrates that fall outside the molecular weight range of 180 to 342. Therefore, MLI’s post-critical date claims 43 and 44 are not the same or substantially the same as pre-critical date claims 3 and 5 and are untimely pursuant to § 135(b).

MLI’s argument that its pre-critical date claims 3 and 5 are limited to only hydroxyl-containing compounds which have an inherent molecular weight range of 180 to 342 is equally unpersuasive because MLI relies upon the specification for the application. In particular, MLI cites to its preferred embodiments for the proposition that its pre-critical date claims are limited to hydroxyl-containing compounds selected from monosaccharides. Without more in the actual claim language, MLI’s reliance upon its preferred embodiments is misplaced. See Laitram Corp., 863 F.2d at 866; Tex. Instruments, Inc. v. U.S. Intern. Trade Comm’n, 805 F.2d at 1563 (citations omitted). Because MLI’s pre-critical claims 3 and 5 and post-critical claims 43 and 44 are not the same or substantially the same, the Board should have barred MLI’s post-critical claims 43 and 44. As a result, MLI will be barred from seeking a priority determination of the subject matter claimed in the ‘325 patent.

IV. CONCLUSION and ORDER

Despite prevailing on the claim construction issue, SEACO's '310 patent is invalid under § 103(a) as obvious to a person of ordinary skill in the art. Rather than expressly disavow the use of pure stream components, the '621 patent does nothing more than express a strong preference for the use of industrial waste streams to derive one or more of the components for the claimed deicing and anti-icing agent. This preference is insufficient to limit the subject matter claimed in the '621 patent to waste stream components. Additionally, there is an overlap in the molecular weight ranges for the carbohydrates claimed in the '310 patent and the '621 patent. The Board's decision to invalidate the '310 patent was based upon substantial evidence.

However, the Board's decision to invalidate SEACO's '325 patent was not based upon substantial evidence because of the differences between the subject matter claimed in that patent and the prior art. Specifically, the prior art teaches away from the use of chloride salts, whereas a number of the claims in the '325 patent require chloride salts.

Finally, the Board failed to consider the material differences between MLI's post-critical date claims 43 and 44 and pre-critical date claims 3 and 5 when it decided not to bar the Interference pursuant to § 135(b). It is insufficient that the pre-critical date claims *allow* for the use of carbohydrates with molecular weights between 180 and 342. Instead, since that molecular weight range is a material limitation of the post-critical date claims, the pre-critical date claims must necessarily teach the use of carbohydrates with molecular weights between 180 and 342 in order for the post-critical date claims to be timely. MLI has failed to raise an issue of fact for whether this material limitation necessarily occurs in pre-critical date claims 3 and 5.

Therefore, it is

ORDERED that

(1) MLI's motion for summary judgment is GRANTED in part and DENIED in part;

(2) SEACO's cross-motion for summary judgment is GRANTED in part and DENIED in part;

(3) The United States Patent and Trademark Board of Appeals and Interferences's decision to invalidate the '310 patent is AFFIRMED and the '310 patent is INVALID;

(4) The United States Patent and Trademark Board of Appeals and Interferences's decision to invalidate the '325 patent is REVERSED and the '325 patent is VALID;

(5) The United States Patent and Trademark Board of Appeals and Interferences's decision not to bar MLI's post-critical date claims 43 and 44 pursuant to § 135(b) is REVERSED and MLI is barred from seeking a priority determination of the '325 patent; and

(6) All remaining claims and counterclaims are DISMISSED as moot.

The Clerk of the Court is directed to enter final judgment and close the file.

IT IS SO ORDERED.



United States District Judge

Dated: September 1, 2009
Utica, New York