United States District Court,
N.D. New York.

CARGILL, INCORPORATED,
Plaintiff.
v.
SEARS PETROLEUM & TRANSPORT CORP., and Sears Ecological Applications Co., LLC,
Defendants.

No. CIV.A. 503CV0530DEP

Aug. 27, 2004.

Background: Competitor brought action seeking a declaratory judgment to include, inter alia, a finding of noninfringement of patent describing a low molecular weight carbohydrate and salt based composition for road de-icing and anti-icing. Patentee counterclaimed, alleging willful infringement, misappropriation of trade secrets and breach of contract.

Holdings: Upon cross-motions for summary judgment addressing various issues, the District Court, Peebles, United States Magistrate Judge, held that:
(1) various terms including "de-icing and anti-icing composition," and "aqueous solution" were construed;
(2) genuine issues of material fact existed as to whether patent was entitled to the benefit of earlier filing dates of nonprovisional parent and/or grandparent applications, precluding summary judgment in favor of competitor on issue of patent invalidity based on claim of anticipation;
(3) summary judgment in favor of patentee was precluded on competitor's defense of inequitable conduct;
(4) competitor failed to establish defense of inequitable conduct based on failure to disclose a co-inventor since evidence of deceptive intent was absent;
(5) genuine issue of material fact existed as to whether certain accused products infringed patent;
(6) genuine issue of material fact existed as to propriety of competitor's reliance on counsel's incomplete opinion letter, precluding summary judgment in favor of competitor on defense to willful infringement claim; and
(7) summary judgment in favor of competitor was precluded on trade secret misappropriation and breach of contract counterclaims.

Motions granted in part and denied in part.

6,299,793. Construed.

MacKenzie, Hughes Law Firm, Syracuse, NY (Nancy L. Pontius, of counsel), Fulbright, Jaworski Law Firm, New York City (Mark Mutterperl, of counsel), Fulbright, Jaworski Law Firm, Minneapolis, MN (Alan M. Anderson, Scott A. Marks, Christopher Young, Renee L. Jackson, of counsel), for plaintiffs.

Duane, Morris Law Firm, New York City (William R. Hansen, John Dellaportas, of counsel), Wall, Marjama & Bilinski, LLP, Syracuse, NY (Indranil Mukerji, of counsel), for defendants.

DECISION AND ORDER

PEEBLES**, United States Magistrate Judge.**

This action has as its genesis a commercial dispute between plaintiff Cargill, Incorporated ("Cargill"), one of the world's largest privately-held companies with operations centered around the manufacture and sale of agricultural products, and defendant Sears Petroleum Transport Corporation ("Sears"), a family-run petroleum products company headquartered in upstate New York. FN1 At the heart of this multi-faceted controversy is United States Patent No. 6,299,793 (the " '793 patent") issued in October of 2001, and assigned to Sears, as well as the invention which that patent teaches. The claims associated with the '793 patent describe a low molecular weight carbohydrate and salt based composition developed to address problems associated with roadway icing, although the language of the claims contained within the patent does not specifically limit use of the patented product solely to direct application upon road surfaces.

FN1. Sears Ecological Applications Co., LLC ("SEACO"), a Sears affiliate, is also named as a defendant in the action. Since SEACO's role in this controversy is limited, unless otherwise noted the term "Sears" as used herein will refer solely to Sears Petroleum Transport Corporation.

Currently pending before the court is an application by the parties for construction of certain disputed terms within the '793 patent, as well as cross-motions for summary judgment addressing various issues presented in the case surrounding the patent claims and defenses asserted by the parties including, *inter alia,* infringement, patent unenforceability, patent invalidity, and willful infringement. Cargill also seeks summary dismissal of common law counterclaims asserted by Sears, stemming from defendants' contention that prior to issuance of the '793 patent Cargill misappropriated and used to its own commercial benefit the principles associated with the underlying invention.

I. ***BACKGROUND***

A. ***Evolution and Prosecution of*** the '793 Patent

Development of the invention forming the basis of the '793 patent was driven by a perceived need for an improved roadway de-icing agent lacking in certain undesirable characteristics linked to previously available commercial products. According to background information set forth in the patent, products used in the past by municipalities and others for preventing or removing ice and snow buildup on pavement surfaces were found to possess inherently undesirable traits, including the tendency to promote corrosivity and environmental contamination.

Prompted by a desire to develop de-icing agents which did not exhibit these deleterious features, the industry turned to alternative formulations including those utilizing agricultural waste materials and by-products as base constituents. Prior art cited in the '793 patent references products derived from a wet milling process of shelled corn, soaked in a hot solution concerning sulphurous acid, yielding steep water solubles used in the de-icing product; a composition which included an "admixture of waste concentrate of alcohol distilling"; and a composition "formed from a waste product of the process of removing sugar from sugar beet molasses, also known as desugared sugar beet molasses." Marks Invalidity Aff. Exh. 1, col. 1, Ins. 28-48. FN2

FN2. The '793 patent at issue in this case is included in various places in the record, including Marks Invalidity Aff. Exh. 1, and Hansen Aff. Exh. A. It will be hereinafter cited simply as the " '793 patent."

The problems associated with these earlier organic products using agricultural residues, including brewers condensed solubles ("BCS"), as a base element included extreme variations in composition, viscosity, film forming tendency, freezing temperature, and other functional aspects, resulting in potentially greatly varied performance from batch to batch.FN3 The presence of "highly undesirable or unnecessary ingredients", including high organic contents, phosphorous compounds and heavy metals, in such earlier products also led to additional problems such as "stratification in storage, biological degradation, odor, plugging of filters and spray nozzles and environmental difficulties[.] " '793 patent, col. 1, ln. 67; col. 2, ln. 24.

FN3. As will be seen, the viscosity of a substance generally describes its flow characteristics. *See* p. 28, n.11, *post*.

To address these undesirable qualities associated with earlier formulations, the co-inventors of the '793 patent-David Wood, a Sears employee, and Robert A. Hartley, a Canadian chemist-set out to meet "an immediate need for synthetic, chemically modified thickeners, and carefully purified materials which can be substituted for the currently used agricultural residues ... [to] improve performance and reduce metal corrosion, spalling of concrete, toxicity and [address] environmental concerns." '793 patent, col. 2, Ins. 8-13. Among the objects of the invention listed in the '793 patent is the desire to provide 1) "a deicing formulation which exhibits improved performance standards which overcomes [sic] the prior art problems described above"; 2) "a deicing formulation which utilizes a synergistic combination of a low molecular weight carbohydrate and an inorganic freezing point depressant"; 3) "for improved ice melting properties and ... less corrosion"; 4) "consistent physical and chemical properties, thereby assuring consistent quality and performance"; and 5) "an economical, highly effective deicing formulation. " '793 patent, col. 2, Ins. 14-32.

Upon determining that the principal organic components of the prior art formulations consisted of carbohydrates, the '793 inventors set about testing to probe the efficacy of the use of carbohydrates to formulate a more consistent and effective de-icing agent. In one set of tests BCS was diluted and divided into several fractions, which were then added to a mixture of ethanol and methanol, mixed with magnesium chloride in varying proportions, and assayed to determine their effects upon freezing point depression. Testing, including that calculated to identify the active constituents of BCS, revealed to the inventors that low molecular weight carbohydrates had the greatest impact on freezing point depression when mixed with magnesium chloride.

The inventors next identified several potential sources of carbohydrates in the low molecular weight range of less than 1,000, including glucose/fructose (180), disaccharides (342), trisaccharides (504), tetrasaccharides (666), centasaccharides (828), and hexasaccharides (990). Potential commercial sources of such low molecular weight carbohydrates were listed by the inventors in the '793 patent to include Corn Syrup Solid DE 44, high maltose corn syrup, high fructose corn syrup, and glucose.

Inventors Wood and Hartley initiated the patent prosecution process by the filing of utility patent application no. 09/224,906, on January 4, 1999. *See* Hansen Aff. Exh. C. That application, which has been referred to by the parties as a parent non-provisional application, and has been abandoned by the inventors, claimed an invention using a combination of three key components to formulate a de-icing composition which did not exhibit the problems associated with the cited prior art. Those components were described to include a freezing point depressant, which could consist of "any suitable inorganic or organic material and mixtures thereof", which could include either a chloride and/or an organic substance such as, notably, sugars (hexoses, saccharides) and an array of other potentially suitable components; a film former, comprised of "any suitable water soluble or water resoluble material"; and water. *Id*. While the film former is described in that application as intended to immobilize the freezing point depressant to prevent runoff from the road surface to which it is applied, it is also described as "itself a freezing point depressant" with the resulting

effect of "further improv[ing] the efficiency of ice melting and aid[ing] in the reduction of metal corrosion [.]" *Id*.

On January 7, 1998 inventors Hartley and Wood filed provisional application no. 60/070,636. Hansen Aff. Exh. B. That application disclosed the same concept of using the combination of a freezing point depressant, a film former, and water in a refined form to overcome the problems associated with then-existing de-icer formulations, as was the subject of the earlier parent non-provisional application. *See id*.

While Sears has not altogether abandoned its claim of priority dating back to the provisional parent application filed on January 4, 1999, it acknowledges experiencing the serendipity which ultimately led to the issuance of the '793 patent in December of 1998, when it received a report from Bodycote Ortech, Inc. ("Bodycote"), a Canadian materials testing laboratory engaged at the request of inventors Wood and Hartley to conduct testing regarding the characteristics of Ice Ban-an existing, commercially available de-icing product. That report disclosed a synergism between the magnesium chloride and the Ice Ban. In analyzing the Ice Ban product Bodycote isolated five primary constituents, and discovered that one of those five components, identified as "Fraction E", consisted predominantly of carbohydrates appearing to be low molecular weight saccharides, or sugars. On December 31, 1998 Sears received a supplemental report stating that "lower molecular weight [carbohydrates] appear[ed] to produce the greatest influence on the freezing point of the solution." Hansen Aff. Exh. T, at SP01024.

Wood and Hartley filed continuation-in-part ("CIP") application no. 09/755,587, the application which ultimately resulted in issuance of the '793 patent, on January 5, 2001. Hansen Aff. Exh. D. In that application, the inventors disclosed ten references to prior art, including nine de-icer patents containing agricultural waste product constituents.FN4

FN4. Among the prior art disclosed were patent nos. 4,664,832, issued to Sandvig ("waste products such as sawdust"); 4,676,918, issued to Toth, *et al*. ("waste concentrate of alcohol distilling"); 5,135,674, issued to Kuhajek ("gelling agent such as hydroxethyl cellulose"); 5,635,101, issued to Janke, *et al*. (by-products of a wet milling process of shelled corn); 5,709,812, issued to Janke, *et al*. ("liquids that remain after the coagulated cheese has been removed from the milks"); 5,709,813, issued to Janke, *et al*. ("by-products from the fermentation and production of wine"); 5,849,356, issued to Gambino ("carbohydrates produced by wet processing"); 5,922,240, issued to Johnson ("by-products from a commercial beer brewing"); and 6,080,330, issued to Bloomer ("waste product of the process of removing sugar" from sugar beet molasses).

Following review of the application by Patent and Trademark Office ("PTO") Examiner Greene, certain of the claims in the application were initially rejected based upon that prior art, including the Janke '813, Johnson and Gambino patents. Examiner Greene commented that the prior art already taught the use of products containing carbohydrates, and that the choice of molecular weight range is "a matter of obvious choice or design best determinable through routine experimentation and optimization within the art and producing no unexpected results absent a showing otherwise." Hansen Aff. Exh. E, at 3-4.

In response to these concerns, Wood cited research by co-inventor Hartley reflecting that the prior art involved components with "any number of extraneous, and frequently undesirable, compounds" that "either alone or in combination with magnesium chloride, ... were producing the various problems" encountered with the prior products. Hansen Aff. Exh. F, at 2. Wood went on to note that the invention practiced by Wood and Hartley was designed to "develop a more pure liquid for combining with the magnesium chloride (or other chloride salts) that would eliminate the problems noted ... as well as provide uniform performance and quality to the market." Id. After amendment of the application to specify not only the molecular weight range of the carbohydrate component but additionally a listing of potential sources for that element, the claims were subsequently allowed, and the '793 patent was issued on October 9, 2001.

B. ***The Parties' De-Icing Industry Business Ventures***

Neither Cargill nor Sears is a stranger to the commercial de-icing business. Cargill notes that it has been involved in the winter highway maintenance industry for approximately forty years, and during more than twenty of them has focused considerable efforts on technology related to ice melting, corrosion reduction, and environmental safety. For approximately fifteen of those years, Cargill has manufactured and sold de-icing and anti-icing products, and in October of 2000 began selling the ClearLane line of de-icing and anti-icing materials, which are at the heart of this matter.

For its part, Sears entered the commercial de-icing business in the late 1990s by way of a joint venture through which it distributed Ice Ban, a liquid de-icer made from waste products of the brewing and corn milling industries. Along the way, Sears claims to have recognized the need for a new "synthetic" product, based on refined agricultural ingredients, to avoid or minimize the environmental and corrosive problems associated with prior products, including Ice Ban. Toward that end, in November of 1997 Robert Hartley, a Canadian-based chemist, was engaged to conduct scientific research, with the aid of Bodycote, ultimately yielding the December, 1998 discovery of the synergistic effect of combining low molecular weight carbohydrates with chloride salts.

On July 29, 1999 a meeting was held at Sears' offices in Rome, New York. In attendance were two Cargill employees, Richard Rose and Gerald Thornton, and representatives of Sears and its partner, Innovative Materials, U.S. ("IMUS"), including David Wood. The circumstances surrounding the genesis of that meeting are sharply disputed. Sears maintains that in the summer of 1999, Cargill approached Sears and proposed supplying it with agricultural products, and in turn purchasing Sears' finished de-icing products in bulk. According to Sears, such an arrangement would have been beneficial for a variety of reasons, including the fact that Cargill operated a large salt mine in nearby Lansing, New York. Cargill, in contrast, maintains that it was Sears that first approached Cargill with a proposal to meet, after learning that Cargill was planning to meet with Ice Ban America, a Sears competitor.

Prior to the July 29, 1999 meeting, Cargill's Richard Rose faxed a letter to IMUS representative Crawford, with a copy to David Wood of Sears, pointing out that Cargill had been working to develop its own technology in the areas to be discussed, and advising Sears and IMUS that Cargill's "agreement to meet with you is contingent on your acknowledgment that no confidential or otherwise proprietary information shall be exchanged." Marks Trade Secrets Aff. Exh. 7. That letter went on to warn that information disclosed by Sears and/or IMUS during the meeting would not be regarded as confidential or proprietary, and there would be no limitation on Cargill's right to use or disclose any such information. Id.

As will be seen, there is also sharp disagreement over the extent of disclosure of the claims forming the basis of the '793 patent during the July 29, 1999 meeting, which lasted approximately one hour. Cargill contends that several references in the record, including deposition testimony of David Wood, strongly suggests that the specifics of the invention were disgorged during that meeting. Sears, nonetheless, maintains that the patent application and underlying technology were only generally discussed in a preliminary way during that initial session, with a view toward more complete disclosure during subsequent, follow-up meetings.

A second, day-long session was conducted between Sears and Cargill representatives at Cargill's facility in North Olmstead, Ohio on August 25, 1999. As a prelude to that day-long meeting, the parties entered into a written confidentiality agreement which was to govern the exchange of information during those talks. *See* Marks Trade Secrets Aff. Exh. 9. At that meeting Sears discussed the development of its new "synthetic" de-icing product, and its discovery that low molecular weight carbohydrates, in combination with magnesium chloride, produced enhanced freezing point depressive characteristics. Also discussed at the

second session were marketing, sales, and pricing issues as well as the future market potential for the new product.

Shortly after the Ohio meeting, Cargill terminated discussions with Sears concerning a business relationship between the two entities. The explanation given by Cargill regarding that abrupt termination was based upon its discovery, following the second meeting, that Sears personnel had discussed with its customers a possible business relationship with Cargill-a matter which Cargill viewed as a breach of the parties' confidentiality agreement. Despite Sears' acceptance of responsibility for the secrecy breach and a request for further meetings to discuss a possible business venture, no further talks were held between the parties.

On June 4, 2002 United States Patent No. 6,398,979 (the " '979 patent") was issued and assigned to Cargill. Hansen Reply Aff. Exh. AAA. That patent describes a de-icer containing molasses solids and magnesium chloride in proportions covered by the claims in the '793 patent. Throughout this litigation Cargill has claimed that its ClearLane brand de-icer line of products is covered by this '979 patent.

II. *PROCEDURAL HISTORY*

After being advised, including by letter dated October 12, 2001, of Sears' contention that it was infringing the '793 patent, Cargill commenced this action on February 22, 2002 in the Southern District of New York seeking a declaratory judgment to include, *inter alia,* a finding of noninfringement. Upon motion subsequently filed by defendant Sears, arguing the lack of any meaningful nexus between that court and the parties or the existing controversy, the case was ordered transferred to this district on April 17, 2003.FN5,FN6 *See* Dkt. No. 19.

FN5. Sears originally sought dismissal of Cargill's complaint. Dkt. No. 8. That motion was denied by order issued by District Judge Denny Chin on October 28, 2002, resulting in the subsequent filing of a venue transfer motion. Dkt. Nos. 15, 19-20.

FN6. Since the transfer to this court, the parties have consented to my jurisdiction in the case, which accordingly has been referred to me for all purposes pursuant to 28 U.S.C. s. 636(c). Dkt. No. 61.

Following completion of pre-trial discovery, both Sears and Cargill elicited the court's assistance with regard to claim construction. A hearing was held on June 29, 2004 to address the disputed claim terms. On the following day, oral argument was heard regarding various dispositive and non-dispositive cross-motions which have been interposed in the action.

III. *DISCUSSION*

A. *Claim Construction*

[1] As a threshold matter, a court confronted with patent infringement claims must construe any controverted provisions of the patent in issue. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). Toward that end, I have been called upon by the parties to assist in the construction of several controversial portions of the claims set forth within the '793 patent. To assist in this endeavor, the parties presented their respective positions regarding the disputed claim terms during the *Markman* hearing, both in the form of oral argument, and through the testimony of Dr. E. Bruce Nauman, a Professor of Chemical and Biological Engineering at the Rensselaer Polytechnic Institute, offered by Sears as a claim construction expert, and Dr. Wilfred A. Nixon, a Civil and Environmental Engineering Professor at the University of Iowa with highway maintenance experience, who was called on behalf of Cargill.FN7

FN7. A vast array of other materials have been supplied by the parties in support of their respective claim construction positions, including an expert report of L. David Minsk, who possesses a bachelors of science degree in chemistry and a masters of science in physics and is identified and offered by Sears as an expert in the field of snow and ice control and removal, and Cameron K. Weiffenbach, a former PTO employee and currently a patent attorney affiliated with a large law firm, advanced by Cargill as an expert in several areas, including in patent prosecution. Neither Minsk nor Weiffenbach was called to testify during the claim construction hearing.

[2] [3] Patent claim construction begins with the non-controversial premise that the issue is one of law, to be decided by the court. Markman, 52 F.3d at 979; *see also* Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed.Cir.1999) (citing *Markman*). When engaged in patent construction, a court must construe claims as one of ordinary skill in the relevant art would understand and interpret them. Markman, 52 F.3d at 986; *see also* K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1365 (Fed.Cir.1999).

The Federal Circuit's decision in Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed.Cir.1996), is widely regarded as defining the contours of the claim construction inquiry. Under *Vitronics,* a court should look first to the intrinsic evidence of record, including the patent itself and its express claims; the specification; and any available prosecution history in order to inform the construction analysis. *Id*. at 1582. A court engaged in claim construction must bear in mind the paramount consideration that the intrinsic evidence, including the patent itself, specification, and file history-all matters of public record-should control wherever possible, since it is this record upon which competitors and others must rely in order to determine the scope and extent of the protected rights associated with the patent in issue. *Id*. at 1583.

[4] [5] Perhaps the most definitive sources of guidance concerning the construction of a claim are the words found within it. *See id*. at 1582. Words contained within a patent should normally be given their ordinary and customary meaning, unless the patent prosecutor has chosen to set forth specific, nontraditional definitions of the particular term in the patent specification or file history. *Id*. When divining the ordinary meaning of a claim term, courts generally afford first-level consideration to dictionary definitions revealing the ordinary meaning of particular claim terms. FN8 Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed.Cir.2003) (citing Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002)); *see also* CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366-67 (Fed.Cir.2002). Technical treatises and dictionaries may also be used by the court at any time in construing terms, provided that the dictionary definitions do not contradict the express or implied meaning set forth in the patent record. Vitronics, 90 F.3d at 1584 n. 6; Canton Bio-Medical, Inc. v. Integrated Liner Techs., Inc., 19 F.Supp.2d 22, 28 n. 2 (N.D.N.Y.1998) (Scullin, J.) (citing *Vitronics*), *aff'd,* 216 F.3d 1367 (2d Cir.2000).

FN8. It is true that dictionary definitions, like technical treatises, are properly regarded as extrinsic, rather than intrinsic, evidence. Vitronics, 90 F.3d at 1584 n. 6. Despite this status, the *Vitronics* court noted that such sources "are worthy of special note", observing that
[j]udges are free to consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent document.

Id.
[6] [7] In addition to the express terms of a patent claim, the patent specification, which is akin to an internal dictionary, must be reviewed to determine whether the inventor has used any term in a manner inconsistent with its ordinary meaning; " '[c]laims must be read in view of the specification, of which they

are a part.' " Vitronics, 90 F.3d at 1582 (citing Markman, 52 F.3d at 979). The specification is the "single best guide to the meaning of a disputed term." Vitronics, 90 F.3d at 1582. The specification must be considered as a whole, and all portions should be read in a manner that renders the patent internally consistent. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1379-80 (Fed.Cir.2001). "Where 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." SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed.Cir.2001).

[8] The third category of relevant intrinsic evidence to be considered is the prosecution history surrounding the patent. The prosecution history, which is customarily though not always offered to assist the court in fulfilling its claim construction responsibilities, is comprised of the complete record of proceedings before the PTO, including any express representations made by the applicant regarding scope of the claims being made, and an examination of the prior art. Vitronics, 90 F.3d at 1582-83. Such evidence, which normally chronicles the dialogue which occurs with the PTO and provides reliable indication of any limitations or concessions on the part of the applicant, can often be highly instructive in the issue of claim construction. Accordingly, courts supplied with such evidence strive to avoid definitions upon which the PTO could not reasonably have settled in order to ensure against the possibility of an applicant obtaining a scope of protection which encompasses subject matter that, through the conscious efforts of the applicant, the PTO did not examine. Genentech, Inc. v. Wellcome Foundation Ltd., 29 F.3d 1555, 1564 (Fed.Cir.1994). Similarly, representations made in an attempt to overcome objections by the patent examiner provide particular enlightenment in construing claims and estopping inventors from later attempting to broaden their arguments beyond the scope of those presented in the PTO. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 535 U.S. 722, 733-34, 122 S.Ct. 1831, 1838-39, 152 L.Ed.2d 944 (2002).

[9] If analysis of the available intrinsic evidence resolves ambiguity of a disputed claim term, the inquiry ends there. Vitronics, 90 F.3d at 1583. If, on the other hand, there remains genuine ambiguity in the claims after consideration of all available intrinsic evidence, the court should next examine available extrinsic evidence, including expert testimony, inventor testimony, dictionaries, and technical treatises and articles, for guidance in reconciling any conflicting intrinsic indicators. Id. at 1584. Such extrinsic evidence may only be used to help the court understand the claims, however, and does not justify any departure from or contradiction with the claim language. *Id*. To assist in resolving ambiguity, a court may in its discretion admit and rely on prior art, whether or not cited in the specification or file history. *Id*. at 1584-85. Prior art and dictionaries, as publicly accessible, objective information, are for obvious reasons preferable to expert testimony as tools for resolving ambiguity.*Id*. at 1585; *see also* Texas Digital Sys., 308 F.3d at 1202-03.

[10] Ultimately, interpretation of patent claim terms can only be determined with full understanding of what the inventors actually invented and intended to envelop within the claim. Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed.Cir.1998). For this reason, when inventors distinguish their invention from prior art, that prior art is properly excluded from the claims' coverage. Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc., 267 F.Supp.2d 533, 543 (N.D.W.Va.2003) (citing SciMed Life Sys., Inc., 242 F.3d at 1343).

[11] Throughout its presentation Cargill has urged the court to approach claim construction from a perspective which takes into account the intended embodiment of the invention as having been principally designed to assist in the control of snow and ice on roadways. "[W]hile it is true that claims are to be interpreted *in light of* the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims[.]" *See* Sjolund v. Musland, 847 F.2d 1573, 1581 (Fed.Cir.1988) (emphasis added). As another judge of this court has observed, "[n]or should particular embodiments in the specification be read into the claims; the general rule is that the claims of a patent are not limited to the preferred embodiment." Cornell Univ. v. Hewlett-Packard Co., 313 F.Supp.2d 114, 126

(N.D.N.Y.2004) (Mordue, J.) (citing, *inter alia,* Texas Digital Sys., 308 F.3d at 1204). I have therefore interpreted the '793 patent in a manner which admits of other, non-roadway uses, though mindful of the history and context in which the invention was developed.FN9

FN9. As will be seen, I specifically reject Cargill's assertion that the '793 patent teaches a product whose use is limited to direct roadway application. *See* pp. 29-32, *post*.

The '793 patent presents four independent claims, including claims one, four, seven and eight. Each independent claim describes a "de-icing and anti-icing composition comprising an aqueous solution which contains a low molecular weight carbohydrate", together with a chloride salt, in constant proportions, by weight, of between three and sixty percent of carbohydrates and five to thirty-five percent chloride salt. '793 patent, col. 9, ln. 47-67-col. 12. Claims one and four limit the molecular weight of the carbohydrate ingredient to a range of 180 to 1500, while claims seven and eight refine the maximum allowable carbohydrate molecular weight to 1000. Id. Independent claims four and eight further provide for inclusion of a thickener within specified weight ranges. Id. Dependent claims two and five narrow the chloride salt component of the solution to be "at least one selected from the group consisting of sodium chloride, magnesium chloride and calcium chloride." Id. Dependent claims three and six allow for the inclusion of a "colorant to provide visual aid in applying the composition to a surface." Id.

1) *Person Of Ordinary Skill In The Art*

[12] In addressing claim construction, the relevant inquiry for the court is how a person of ordinary skill in the art would understand the claim terms at the time of the invention. Markman, 52 F.3d at 986. Put another way, patent claims must be construed not through the eyes of the court, or those of any proffered experts, but instead from the standpoint of a person skilled in the art. Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1332 (Fed.Cir.2001). In constructingthe person of ordinary skill in the art, the court should consider the educational level of the inventor, the type of problems encountered in the art, the prior art solutions to the 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) (citation omitted). As one might gather, claim construction can often turn upon the court's definition of a person of ordinary skill in the art.

[13] Not surprisingly, the parties differ somewhat markedly concerning the applicable relevant art to be applied in this case. Both parties agree that the "art" in question is that of chemical road de-icing and anti-icing. FN10 The parties' respective positions diverge, however, when it comes to the required level of practical experience in road de-icing and anti-icing, as well as the degree of sophistication necessary in the field of chemistry. Sears, noting that the patent teaches a chemical composition and not a process for removing ice and snow from roadways, urges a definition which would require a bachelors degree in chemistry or chemical engineering with continued work in the field since graduation. Cargill, in contrast, proposes a more relaxed requirement with regard to education, including a bachelors degree in physical science and at least four courses in chemistry, together with approximately five years of involvement in research, development or characterization of de-icing and anti-icing chemicals.

FN10. In its claim construction brief Sears makes this concession despite its potential inconsistency with the opinions of its expert, Dr. Nauman. In his claim construction report Dr. Nauman writes that because the '793 patent does not contain any claims specifying particular uses or applications of the de-icing solution taught, in his opinion "a person of ordinary skill in the art need not have specific knowledge in fields such as aviation deicing, marine deicing, railroad deicing, or highway deicing." Hansen Aff. Exh. I para. 6. Dr. Nauman's position is consistent with the precept, noted earlier, that terms should be interpreted without regard to a particular preferred embodiment of an invention. *See* p. 214, ante.

When analyzed in a vacuum, the claims set forth in the '793 patent seemingly support Sears' proposed requirement of a bachelors degree in chemistry or chemical engineering, without education or practical experience in the field of roadway de-icing. The claims teach a chemical composition containing, as the principal ingredients, carbohydrates-polymers which can include simple sugars such as glucose and fructose as the monomers-and a chloride salt. Because the patent focuses upon the synergistic effect of these mixtures, as well as the addition of water, thickeners, and colorants, Sears argues that what is essential to understanding the '793 patent terms is an understanding of solution thermodynamics of chemical compositions in various states of equilibrium.

Cargill counters that one cannot overlook the fact that the invention practiced in the '793 patent sprung from a perceived need to improve over earlier products utilized as roadway de-icing and anti-icing agents. Accordingly, Cargill maintains, at least some level of understanding of the de-icing and anti-icing processes to which this invention could be put to use would be helpful. It is for this reason that Cargill proposes to define the person of ordinary skill in the art to include someone with additional practical experience in understanding de-icing and anti-icing beyond receipt of a bachelors degree in the physical sciences.

In arriving at a formulation to define the elusive person of ordinary skill in the art, I have considered the educational and practicalexperiences of the inventors. In this instance, co-inventor Robert A. Hartley, while-as Cargill argues-not possessing a bachelor's degree in chemistry, apparently received an equivalent degree in the United Kingdom, and has extensive expertise in the field of chemistry extending well beyond that expected of a person of ordinary skill in the field. Coinventor David H. Wood, while not a chemist, has practical knowledge of winter highway maintenance. It is this combination, in my view, that informs the definition of one with ordinary skill in the art. I will therefore define a person of ordinary skill in the art as possessing a bachelors degree, or the equivalent, in chemistry or chemical engineering, with some coursework in the field of organic chemistry, and additional post-graduate involvement in research or practical experience in the field of roadway ice management.

2. ***Construction of Claim Terms in Contention***

The parties appear to be in agreement regarding the need for the court to construe the terms "de-icing and anti-icing composition," "aqueous solution," "carbohydrate" (referred to by Sears as "low molecular weight carbohydrate"), "chloride salt," "balance," "colorant," and "thickener." Although it does not appear to be controversial, Cargill also requests guidance concerning the claim term "viscosity." FN11

FN11. The term "viscosity" describes the fluidity of a liquid, and is sometimes defined as "internal resistance to flow exhibited by a fluid [.]" Hawley's Condensed Chemical Dictionary 1168 (14th ed.2001), as cited in Marks Claim Construction Aff. Exh. 12. Since the parties do not appear to be in disagreement over this definition, it will therefore be attributed to the '793 patent claims.

i) ***De-icing and Anti-icing Composition***

[14] The first disputed claim term to be construed is "de-icing and anti-icing composition." While the parties' positions regarding this term do not differ markedly, Cargill attempts to restrict the term to direct pavement and roadway usage, citing the genesis for the invention and its description within the patent as a basis for its argument. Sears opposes such a restrictive interpretation, countering that there is nothing in the claims themselves to limit the utility of the invention to roadways, and that it can and should be construed to extend to other areas where icing occurs.

Notwithstanding the parties' quarrel over this term, at first blush the phrase consists of simple, understandable and unambiguous words. The use of the prefix "de" before a word is commonly accepted to mean "[r]emove or remove from [.]" American Heritage Dictionary of the English Language 465 (4th ed.2000). Similarly, use of the term "anti" to precede a word is defined to mean "[d]estroying[.]" Id. at 76. Consistent with these elementary definitions, the term "de-ice" is defined in one generally accepted dictionary as meaning "to keep free or rid of ice." Marks Claim Construction Aff. Exh. 6 (Websters Third New International Dictionary, (1993 ed.) 595).

Despite this more expansive reach of the words themselves, the phrase "de-icing and anti-icing composition" cannot be interpreted in a vacuum; instead, one must look to the patent as a whole, including the circumstances under which it was developed and the prior art described. Plainly, each of these sources is strongly suggestive of an intended use of the '793 invention to control ice on roads and other similar surfaces. Indeed, as Cargill argues when advocating a more restrictive definition than that propounded by Sears, the '793 patent describes the background of the invention in conjunction of snow and ice removal from roadways, and begins with the observation that "[t]he current state of the art for coping with snow and ice on roads usually involves applying a deicer material such as a salt to the road surface." '793 patent, col. 1, Ins. 10-12. Similarly, as Cargill notes one of Sears' own experts, L. David Minsk, defines the terms de-icing and anti-icing in the context of pavement maintenance. Indeed, even Sears' own promotional material for its products and those of SEACO describes anti-icing as a "preventive/proactive strategy designed to prevent packed snow or ice from bonding to pavement surfaces." Marks Claim Construction Aff. Exh. 9, at SP 03826.

Arguing in favor of a definition which restricts the de-icing and anti-icing composition to controlling ice on roadways, Cargill goes one step further, suggesting an additional circumscription which would require that the material be directly applied to the road or other pavement surface. I reject this additional limitation as unsupported by the patent claims and specification. Indeed, this position overlooks the language within the '793 patent itself which describes the inclusion of

[t]hickeners which are used ... to increase the viscosity of the compositions so that the liquid remains in contact with the road surface or with the solid particles in piles of rock salt/sand, or rock salt/aggregates, or rock salt alone, or sand or aggregate.

'793 patent, cols. 7, Ins. 10-15. Cargill's description also ignores the following clarifying language:

While the present invention has been particularly shown and described herein with reference to various preferred modes it will be understood by one skilled in the art that various changes in detail may be effected therein without departing from the spirit and scope of the invention as defined by the claims.

Id. col. 9, Ins. 42-47. Clearly, the '793 patent itself contemplates a composition whose utility is not necessarily limited to direct application on road pavement surfaces. *See* Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1331 (Fed.Cir.2004) ("[t]he patentees were not required to include within each of their claims all of these advantages or features described as significant or important in the written description").

Based upon the foregoing, I construe the term "de-icing and anti-icing composition" as a composition whose intended purpose, through direct or indirect application, is to keep roadways free or rid of ice, or to prevent its formation on such surfaces.

ii) ***Aqueous Solution***

[15] The phrase "aqueous solution", while seemingly non-controversial, has become a significant battleground in this case. The parties' differences with respect to this term focus upon the extent to which

incidental, insoluble components can exist in the specified aqueous solution. Cargill urges a definition requiring a "uniformly disbursed liquid mixture containing water as the primary solvent." Sears offers a more relaxed requirement of a "single-phase, liquid mixture of two or more components, one of which is water and with possible incidental amounts of insoluble components."

The term "solution" is defined in one source as constituting a "homogeneous mixture of two or more substances, which may be solids, liquids, gases, or a combination of these." American Heritage Dictionary, at 1655. The term "homogeneous" is defined elsewhere as "often loosely used to describe a mixture or solution composed of two or more compounds or elements that are uniformly disbursed in each other." Hawley's, at 577, as cited in Jackson Aff. Exh. 1. While both of those sources associate the term "homogeneous" with "solution," the Hawley's definition goes on to observe that "[a]ctually, no solution or mixture can be homogeneous; the situation is more accurately described by the phrase 'uniformly disbursed.' " FN12 Hawley's, at 577, as cited in Jackson Aff. Exh. 1.

FN12. In further support of its definition, Cargill offers a dictionary definition of "solution, true", which defines that term as
[a] uniformly disbursed mixture at the molecular or ionic level, of one or more substances (the solute) and one or more other substances (the solvent). These two parts of a solution are called phases.

Hawley's, at 1031, as cited in Marks Aff. Exh. 11. Sears responds by correctly noting that the more restrictive term "true solution" is nowhere used in the '793 patent.
Use of the term "aqueous" constricts the solution in issue in the '793 patent to a liquid with water as a component, or even the primary solvent. This much is not in dispute. The critical issue presented is the degree of homogeneity required in the aqueous solution. As even the Hawley's dictionary definition recognizes, no solution or mixture can be entirely homogeneous. Moreover, both parties' experts have acknowledged that in practice, there are no solutions which are completely free of extraneous materials, however microscopic they may be. Indeed, even contemporary drinking water standards provide for inclusion of certain impurities including asbestos particles, albeit within exceedingly narrow defined limits.

In consideration of the patent claim language and use of the term aqueous, derived from aqua-which means "[w]ater", American Heritage Dictionary, at 89-I interpret the phrase "aqueous solution" to mean a uniformly disbursed liquid mixture of two or more components, one of which is water, and which can contain incidental amounts of insoluble components.

iii) ***Low Molecular Weight Carbohydrate***

[16] Once again the parties disagree appreciably on the definition to be attributed to this phrase.FN13 The term "carbohydrate" itself is not a controversial one; its definition specifies a "compound of carbon, hydrogen, and oxygen ... in which the ratio of hydrogen to oxygen is the same as in water." Hawley's, at 206, as cited in Marks Aff. Exh. 11. As used in the '793 patent, however, the term is restricted to a carbohydrate with a "low molecular weight," and the carbohydrate source is further specifically limited as being "selected from the group consisting of glucose, fructose, and higher saccharides based on glucose and/or fructose and mixtures thereof." FN14 '793 patent, col. 9, Ins. 47-67-col. 12. The controversy in this instance centers around the source, including its purity and consistency, of the carbohydrate constituent.

FN13. As Cargill correctly notes, it is the term "carbohydrate" that needs definition, since the claims themselves contain specific parameters addressing the permissible molecular weight range for the carbohydrate constituent. Nonetheless, the weight range specified as the likely sources of carbohydrates falling within those ranges is an important consideration when determining the intended degree of purity, or refinement, of the carbohydrate source to ascribe to the framers of the '793 patent claims.

FN14. With a specified molecular weight range of between 180 and 1500, the carbohydrates referred to in the '793 patent can contain a range of carbon atoms per sugar molecule of between six, corresponding to hexoses or monosaccharides, of which glucose and fructose are common examples, to a nonsaccharide. The largest molecule that falls within the more restrictive range of between 180 and 1000, which is set forth in claims seven and eight, is a hexasaccharide, with a molecular weight of 990 and containing thirty-six carbon atoms per sugar molecule.

While the term "carbohydrate" is readily definable, its use in the '793 patent must be considered in light of the limitations expressed, including the molecular weight range and the potential origins or sources of the designated carbohydrates. Indeed, both parties appear to be in agreement on this score. Citing various sources including the patent itself, Cargill urges a definition which requires that the carbohydrate be from a "pure and consistent source." For its part, Sears proposes to limit the allowable carbohydrates to those obtained from a "refined and consistent source." Both note, in support of their respective positions, prior art which was based upon use of agricultural residues and waste products that were notoriously impure and inconsistent.

While Cargill urges a definition which would require purity, there is nothing in the claim or elsewhere in the '793 patent to support such a stringent requirement. Indeed, as Sears argues, the purity requirement propounded by Cargill would exclude various of the examples cited in the patent, since according to the evidence-including the testimony of Dr. Nauman-the carbohydrate sources cited vary in sugar content from 50% to 99% with none being "pure".FN15

FN15. The '793 patent and its parent application cite several examples of the kind of sources of "low molecular weight carbohydrates" available, including glucose, fructose, maltose, lactose, corn syrup DE44, corn syrup DE20, molasses, and maltodextrin.

[17] [18] The '793 patent stresses the importance of the requirement that the carbohydrates utilized be derived from sources with "consistent physical and chemical properties", '793 patent, col. 2, Ins. 28-29, and distinguishes prior art teaching de-icing agents derived from agricultural waste products with famously poor consistency. "[A] claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention." Altiris, Inc., 318 F.3d at 1370 (quoting CCS Fitness, 288 F.3d at 1366). Consistent with this approach, the six specific embodiments set forth in the '793 patent utilize refined agricultural products with just such properties as a designated low molecular weight carbohydrate source. As the Federal Circuit has noted, "the written description of the preferred embodiments 'can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.' " Bell Atlantic Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed.Cir.2001) (quoting SciMed, 242 F.3d at 1344).

From the terms of the '793 patent, including the specified embodiments, consideration of the potential sources of low molecular weight carbohydrates listed, and the prior art referenced, I conclude that a person of ordinary skill in the art would construe the term "low molecular weight carbohydrate", as used in the '793 patent, as a material which includes carbon, hydrogen, and oxygen where the ratio of hydrogen to oxygen is the same as in water, and which is obtained from a refined and consistent source.FN16

FN16. Sears' expert also proposes a requirement that the carbohydrate source have a recognized CAS

registry-a numerical identifier maintained under the auspices of the American Chemical Society. The CAS registry assigns a number to each new substance registered to describe such properties and information as molecular formula, structure diagram, systemic names, generic names, proprietary or trade names for registered substances. Because there is no intrinsic evidence suggesting the additional requirement of a CAS number, I have rejected this additional suggested definitional provision.

iv) *Chloride Salt*

The term "chloride salt", as utilized in the '793 patent, does not seem to be controversial. A salt is generally accepted by one of the ordinary skill in the art as a neutralization product of an acid and a base. Both parties agree that a chloride salt is one in which the anion, or negatively charged portion, is comprised of chlorine, and can include sodium chloride, magnesium chloride and calcium chloride.

v) *Balance*

[19] The independent claims of the '793 patent specify ranges, in percentages by weight, for carbohydrate and chloride salt content, and identify water as constituting the "balance". The parties disagree over whether this term, in combination with the specification of the carbohydrate and chloride salt content range, permits inclusion of any incidental impurities or additional ingredients other than the colorants and thickeners specified in some of the claims. The battle lines regarding this term are drawn based upon the parties' respective positions concerning the permitted extent of impurities in the composition taught by the '793 patent. Cargill urges a confined, closed ended reading of the term, to the exclusion of other, non-specified ingredients, whereas Sears contends that it should be interpreted in such a fashion as to allow for some incidental, unspecified ingredients.

The term "balance", not necessarily restricted to the art of chemistry, is generally accepted to mean "the remainder or rest," Random House Webster's College Dictionary 101(2d ed.1991), or "something left over, remainder", Merriam-Webster Collegiate Dictionary 87 (10th ed.1995). *See* Hansen Aff. Exh. K. At first blush, these sources appear supportive of Cargill's proffered definition. Strictly construed, use of the closed-ended term "balance" in the formulation specified indicates that other than the low molecular weight carbohydrate source and chloride salts, as well as possible addition of thickeners and colorants, the remainder of the solution practiced in the '793 patent is water only. Such a strict definition, however, ignores the realities associated with the patent, and in particular the designated sources of carbohydrates and chloride salts. Commercially available sources for the low molecular weight carbohydrates and the chloride salts, as well as the water, specified within the invention by definition all include impurities. Clearly what the term "balance" was intended to eliminate were the harmful, unlisted ingredients associated with the prior art, based on agricultural waste products which

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 nozzle and environmental difficulties *e.g.,* .... high organic contents (about 40% by weight), presence of phosphorus compounds and heavy metals.

'793 patent, col. 1, In. 66-col. 2, In.6.

It should also be noted that the use of such closed-ended terms as balance, or "consisting essentially of" can allow for the presence of "unlisted ingredients that do not materially affect the basic and novel properties of the invention." PPG Indus. v. Guardian Indus. Corp., 156 F.3d 1351, 1354 (Fed.Cir.1998).

In light of these considerations, and the '793 patent itself, I construe the term "balance", as used, to mean

that aside from the other specified ingredients, including low molecular carbohydrates and chloride salts, and with the possible addition of colorants and thickeners, as well as incidental impurities or harmless ingredients associated with the commercial sources of the key components in the invention, the solution shall contain only water. To hold otherwise, and specifically to adopt Cargill's interpretation, would be to reject the reality of impurities in all of the stated '793 ingredients.

vi) *Colorant*

[20] Claims three and six of the '793 patent provide for the inclusion of a colorant in the invention described in claims one and four, respectively, in order "to provide visual aid in applying the composition to a surface." Once again, the parties differ concerning this term, their disagreement centering upon whether the colorant must be a separately added ingredient, and instead can be inherent in one of the other prescribed constituents.

According to one authoritative chemical dictionary, the term "colorant" is described as a "substance that imparts color to another material or mixture. Colorants are either dyes or pigments and may be (1) naturally present in a material ... (2) admixed with it mechanically ... or (3) applied to it in a solution". Hawley's, at 287, as cited in Marks Claim Construction Aff. Exh. 18. As can be seen, this definition does not appear to limit the term to color additives, but instead is sufficiently broad to allow for inclusion of pigmented or dyed materials already included within the formulation.

To be sure, there is some facial appeal to Cargill's argument that use of the phrase "further includes" suggests that the addition of a separate colorant as an ingredient was envisioned by the inventors. This proffered interpretation, however, is belied by the illustrations given in the patent. As Cargill concedes, certain of the examples cited describe materials which are in some way colored in appearance without the introduction of a separate ingredient to instill color. While in examples I and II a colorant (Caramel YT25) is added, example III describes a solution, with high maltose corn syrup and industrial grade magnesium chloride solution as the key ingredients, which has an appearance described as "[c]lear, light brown" without the addition of any separate colorant.

Based upon the cited examples, the stated objective of including a colorant, and the Hawley's definition of the term, I reject the restrictive reading of the term "further" which would exclude the possibility of a colorant already inherent and present in the solution described in claims one and four. Instead, I adopt a definition of "colorant" to include a substance or material, whether inherent in or separately added to the specified composition, which imparts color to the composition.

vii) *Thickener*

[21] Claims four through six and eight provide for inclusion of a thickener with the previously described solution and, unlike the case with regard to colorants, also provide weight by percentage limits for such thickeners. The parties also disagree upon the definition of this term, and specifically whether it must be a separately added ingredient, or instead can be inherent in the other materials included within the composition.

A "thickening agent" is described by one source as "any of a variety of hydrophilic substances used to increase the viscosity of liquid mixtures and solutions". Hawley's, at 1084, as cited in Marks Aff. Exh. 19. The '793 patent describes the use of thickeners envisioned by the inventors as follows:

Thickeners are used in certain applications as the third key component to increase the viscosity of the composition so that the liquid remains in contact with the road surface or with the solid particles in piles of rocksalt/sand, or rocksalt/aggregates, or salt alone, or sand or aggregate. Thickeners are mainly cellulose

derivatives or high molecular weight carbohydrates.

'793 patent, col. 2, In. 63-col. 3, In. 2. To be sure, inclusion of the phrase "the third key component" in the '793 patent does provide reason for pause. Nonetheless, it is generally understood-and indeed spelled out in the patent-that thickeners, whose sole function is to increase viscosity of a solution, are typically polymers, high molecular weight carbohydrates or cellulose derivatives, including carbohydrates. Reviewing the patent as a whole and the other intrinsic evidence available, I am unable to conclude that a person of ordinary skill in the art would not understand, in the context of this patent, that the thickeners envisioned could be included within the other prescribed constituents. Accordingly, I will construe the term "thickener" to mean a substance or material, whether inherent in or separately added to a composition, which causes an increase in the composition's viscosity.

B. ***Summary Judgment Standard***

In addition to eliciting the court's assistance in connection with claim construction, the parties-principally Cargill-have sought summary judgment addressing several of the claims and defenses asserted in this action.

The entry of summary judgment disposing of a claim or defense is appropriate in a patent infringement suit, provided that the test ordinarily applicable to such applications is met. Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315 (Fed.Cir.1998). Under that test, summary judgment is warranted when "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits ... show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed.R.Civ.P. 56(c); Celotex Corp. v. Catrett, 477 U.S. 317, 322, 106 S.Ct. 2548, 2552, 91 L.Ed.2d 265 (1986); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247, 106 S.Ct. 2505, 2509-10, 91 L.Ed.2d 202 (1986). The moving party has the initial burden of demonstrating that there is no genuine issue of material fact to be decided with respect to any essential element of the nonmoving party's claim. Anderson, 477 U.S. at 250 n. 4, 106 S.Ct. at 2511 n. 4. Once that burden is met, the opposing party must show, through affidavits or otherwise, that there is a material factual issue for trial.FN17 Fed.R.Civ.P. 56(e); Celotex, 477 U.S. at 324, 106 S.Ct. at 2553; Anderson, 477 U.S. at 250, 106 S.Ct. at 2511. When deciding a summary judgment motion, the court must resolve any ambiguities and draw all inferences from the facts in a light most favorable to the nonmoving party. Wright v. Coughlin, 132 F.3d 133, 137-38 (2d Cir.1998). Summary judgment is inappropriate where "reviewof the record reveals sufficient evidence for a rational trier of fact to find in the [nonmovant's] favor." Treglia v. Town of Manlius, 313 F.3d 713, 719 (2d Cir.2002) (citation omitted).

FN17. A material fact is genuinely in dispute "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." Anderson, 477 U.S. at 248, 106 S.Ct. at 2510.

As will be seen, the claims and defenses drawn into issue by the pending cross-motions are subject to differing burden of proof allocations as between the parties as well as, in certain instances, a heightened burden beyond mere preponderance of the evidence. When assessing a motion for summary judgment the court should take into consideration the question of who bears the burden of proof, as well as the extent of that burden. Anderson, 477 U.S. at 252-55, 106 S.Ct. at 2512-14.

C. ***Patent Invalidity***

In its motion Cargill seeks a finding, as a matter of law, that the '793 patent is invalid. In support of its position plaintiff urges 35 U.S.C. s. 102(b), contending that the claimed invention was the subject of both sales and printed publications describing the invention and dating back more than one year prior to the

filing date of the patent application. Cargill's invalidity argument hinges upon its claim that the date of application for the '793 patent should be affixed as January 5, 2001, and that Sears should not derive the benefit of either of its two earlier applications when determining the appropriate priority date to be applied.

[22] [23] Analysis of the validity of the '793 patent must proceed against the backdrop of the independent presumption of validity which by statute attaches to each claim contained within a regularly issued patent under 35 U.S.C. s. 282.FN18 Continental Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1266-67 (Fed.Cir.1991) (citing 35 U.S.C. s. 282 and Altoona Publix Theatres v. American Tri-Ergon Corp., 294 U.S. 477, 487, 55 S.Ct. 455, 459, 79 L.Ed. 1005 (1935)); Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1534 (Fed.Cir.1983) (under section 282 a "party asserting invalidity not only has the procedural burden of proceeding first and establishing a *prima-facie* case, but the burden of persuasion on the merits remains with that party until final decision."); *see also* ConMed Corp. v. Erbe Electromedizin GmbH, 241 F.Supp.2d 187, 192 (N.D.N.Y.2003) (Hurd, J.), *vacated due to settlement,* No. 00-CV-987, 2004 WL 1576596 (N.D.N.Y. June 29, 2004). A party seeking to overcome this presumption and establish patent invalidity must do so by clear and convincing evidence. Rosco, Inc. v. Mirror Lite Co., 304 F.3d 1373, 1377 (Fed.Cir.2002); Pfizer, Inc. v. Perrigo Co., 933 F.Supp. 377, 379 (S.D.N.Y.1996) (citing, *inter alia,* Ralston Purina Co. v. Far-Mar-Co., Inc., 772 F.2d 1570, 1573 (Fed.Cir.1985)).

FN18. The statute giving rise to this presumption provides that
[a] patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.... The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

35 U.S.C. s. 282.
[24] [25] Under 35 U.S.C. s. 102, any sale, offer for sale, or public use of a product within the scope of the claimed invention more than one year prior to the date of application for the patent renders a patent invalid as anticipated. Petrolite Corp. v. Baker Hughes Inc., 96 F.3d 1423, 1425 (Fed.Cir.1996). A patent is also invalid as anticipated if any patent or printed publication has described the invention outside of that same one year period. C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1349 (Fed.Cir.1998).

[26] [27] Anticipation as a defense to a patent infringement claim must be proven by "clear and convincing evidence". Ralston Purina, 772 F.2d at 1573-74. Ordinarily, the defense of anticipation presents questions of fact, including whether or not an element of a patent claim is inherent in the prior art. Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1346 (Fed.Cir.1999) (citation omitted).

[28] [29] When addressing a claim of anticipation, a court must first define the claims of the patent, and then compare the properly construed claims to the prior art. In re Cruciferous Sprout Litigation, 301 F.3d 1343, 1346 (Fed.Cir.2002). "To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." Atlas Powder Co., 190 F.3d at 1346 (internal quotations and citation omitted). Anticipation of a patent claim requires a finding that the claim at issue "reads on" a prior art reference-in other words, if granting patent protection would permit the patentee to exclude the public from practicing the prior art, the claim is anticipated, regardless of whether it also covers subject matter not in the prior art. *Id.*

[30] [31] When a patent claims a chemical composition in terms of ranges of elements, any single prior art reference that falls within each of the ranges anticipates the claim. Atlas Powder Co., 190 F.3d at 1347. A prior art reference may also anticipate when the claim limitation or limitations not expressly found in that reference are nonetheless inherent in it. *Id.*

[32] [33] Under the doctrine of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates. Atlas Powder Co., 190 F.3d at 1347. Inherency is not necessarily coterminous with the knowledge of those of ordinary skill in the art; artisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art. *Id*. Discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. *Id.; see also* Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 782 (Fed.Cir.1985). In *Atlas Powder Co.,* the Federal Circuit noted that "[t]he public remains free to make, use, or sell prior art compositions or processes, regardless of whether or not they understand their complete makeup or the underlying scientific principles which allow them to operate." 190 F.3d at 1348. Moreover, as the Federal Circuit has noted,

[t]o serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.

Continental Can Co., 948 F.2d at 1268.

In support of its anticipation argument, Cargill urges several pieces of prior art and publications, including 1) Ice Ban, a product that has been sold since at least 1994; 2) Caliber M1000, an anti-icing and de-icing material consisting of a low molecular weight carbohydrate and solution of magnesium chloride on sale as of August 27, 1999 with a first bulk sale of October of 1999; FN19 3) the Janke '812 patent, issued in January of 1998; 4) the Johnson patent, issued in July of 1999; and 5) the Janke '135 patent, issued in August of 1999.

FN19. Sears has apparently also commenced a patent infringement suit stemming from the sale of the Caliber product line. Sears clarifies that this suit is based on a 2000 formulation of Caliber. Apparently, it was viewed by Sears as a very close call whether the 1999 formulation of Caliber fit within the '793 claims range. Since introduction of the initial formulation the makers of Caliber have increased its carbohydrate content, and Sears now believes that the product falls squarely within the '793 patent.

The first step in evaluating Cargill's invalidity claim is to determine the proper priority date to assign to the '793 patent. Cargill asserts that the '793 patent application date of January 5, 2001 is the appropriate priority date, arguing that Sears is not entitled to the benefit of the two earlier parent and grandparent applications. Sears counters by contending that, at the very least, it is entitled to a priority date of January 4, 1999-the date of its non-provisional parent application.

A patent application will be deemed to relate back to and receive the benefit of the filing of a parent application when

(1) the applications are submitted by the same inventor or inventors;

(2) the applications were co-pending, meaning that the second application was filed while the first application was still pending;

(3) the later application contains a specific reference to the prior application; and

(4) the prior application disclosed the invention in the manner required by 35 U.S.C. s. 112.

Pfizer, 933 F.Supp. at 380 (citing 35 U.S.C. s. 120 and 3 Ernest B. Lipscomb Ill, Walker on Patents s. 9:10 28 (1985)). The first three of these conditions do not appear to be controversial; Cargill seemingly acknowledges that each is satisfied by the '793 patent application when considered together with its predecessor applications. Cargill contests, however, Sears' ability to satisfy the fourth element of this governing test-the written description requirement.

[34] Speaking to the written description requirement, the relevant statutory provision requires that

[t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is mostly nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. s. 112. Pertinently,

[a] claim in a CIP [continuation-in-part] application is entitled to the filing date of the parent application which the claimed invention is described in the parent specification in a manner that satisfies, inter alia, the description requirement of 35 U.S.C. s. 112.

Therma-Tru Corp. v. Peachtree Doors, Inc., 44 F.3d 988, 992 (Fed.Cir.1995). Put another way, an application complies with section 120 and acquires an earlier filing date "if, and only if," it could have been added to an earlier application without interjecting new matter. Studiengesellschaft Kohle, M.B.H. v. Shell Oil Co., 112 F.3d 1561, 1564 (Fed.Cir.1997). "Each application in the chain must describe the claimed features." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572 (Fed.Cir.1997). The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed " 'reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter[,]' " rather than the presence or absence of literal support in the specification for the claim language. Ralston Purina, 772 F.2d at 1575 (quoting In re Kaslow, 707 F.2d 1366, 1375 (Fed.Cir.1983)). While the section 102(b) bar to patentability and its applicability to a particular case presents a question of law to be determined by the court, compliance with the written description requirement of section 112 presents an issue of fact to be decided based upon the particulars of each case. Pfizer, 933 F.Supp. at 380-81 (citing Eiselstein v. Frank, 52 F.3d 1035, 1038 (Fed.Cir.1995)); MSM Investments Co., LLC v. Carolwood Corp., 70 F.Supp.2d 1044, 1055 (N.D.Cal.1999) (citations omitted), *aff'd,* 259 F.3d 1335 (Fed.Cir.2001).

[35] Having reviewed the record and considered the arguments of the parties, I am unable to affix an appropriate priority date for the '793 patent as a matter of law. Sears claims the benefit of at least January 4, 1999-the date of the filing of utility patent application no. 09/224,906, as a priority date. Such a date would defeat most of Cargill's prior art claims. Sears' argument in this regard is supported by an analysis offered by its expert, Professor Nauman, explaining that the 1999 parent application disclosed "sugars (hexoses, saccharides)" to be used in combination with chloride salts for the purpose of freezing point depression. Hansen Aff. Exh. DD, at 27-28. According to Dr. Nauman, at the time of the invention a person of ordinary skill in the art would have understood sugars to be carbohydrates with molecular weights ranging from 180 (hexoses) to about 1476 (oligosaccharides). Professor Nauman further notes that the parent application discloses a carbohydrate range (3-60%) identical to, and a chloride salt range (5-30%) nearly the same as, those of the '793 patent. Additionally, Professor Nauman observes that two of the examples in Table 4 of the 1999 application disclose mixtures of magnesium chloride and low molecular weight carbohydrate sources (molasses and maltodextrin no. 15) within the limits of the '793 patent.FN20, FN21

FN20. Cargill's expert, Dr. Nixon, did not offer opinions on the question of anticipation and priority date.

FN21. Testimony of an expert witness can constitute "substantial evidence" on issues of patent validity. *See* Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1333-34 (Fed.Cir.2002); GNB Battery-techs v. Exide Corp., 38 U.S.P.Q.2d 1506, 1508, 1996 WL 75335 (Fed.Cir.1996).

It is true that the inventors transitioned from reference to "sugars" to "low molecular weight carbohydrates" between the January 4, 1999 application and the later application upon which the '793 patent was granted. The precise terminology utilized in a parent and CIP application need not, however, be verbatim; rather, "there may be some variation in the scope of the claimed subject matter" which will not affect the priority date of the earlier application provided that the "claims in the CIP application are substantially based upon disclosures contained in the parent application." ConMed Corp., 241 F.Supp.2d at 193.

It is true, as Cargill argues, that the essence of plaintiff's patent-the synergistic interplay between the low molecular weight carbohydrates and the chloride salts contained in the mixture taught by the '793 patent-was not "discovered" by Sears until December of 1998, and thus by definition could not have been disclosed in the earlier iteration filed in January of 1998. Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1254-55 (Fed.Cir.2004) ("the Chiron scientists, by definition, could not have possession of, and disclose, the subject matter of chimeric antibodies that did not even exist at the time of the 1984 application. Thus, axiomatically, Chiron cannot satisfy the written description requirement for the new matter appearing in the 561 patent, namely chimeric antibodies.") Nonetheless, I cannot rule out the possibility that a reasonable factfinder could conclude that the prior two applications-and particularly the second, filed in January of 1999-adequately disclosed the later inventions such as to entitle Sears to the benefit of the earlier filing dates.

Having determined that a reasonable factfinder could conclude that the '793 patent is entitled to a priority date extending back at least until January 4, 1999, and potentially to the date of the earlier, provisional parent application on January 7, 1998, I now turn to Cargill's claim of anticipation based upon the specific prior art urged in support of that argument. Before discussing the specific prior art, it is worth reiterating that as the party challenging the validity of a presumptively valid patent, Cargill bears the burden of proof, a burden which in this case requires it to establish the existence of an on-sale bar by clear and convincing evidence. Abbott Labs. v. Geneva Pharms., Inc., 182 F.3d 1315, 1318 (Fed.Cir.1999). As the Federal Circuit noted in *Abbott Labs.,* however,

[i]t is well settled in the law that there is no requirement that a sales offer specifically identify all the characteristics of an invention offered for sale or that the parties recognize the significance of all of these characteristics at the time of the offer. If a product that is offered for sale inherently possesses each of the limitations of the claims, then the invention is on sale, whether or not the parties to the transaction recognize that the product possesses the claimed characteristics.

Id. at 1319 (internal citations omitted).

1. *Ice Ban*

According to Cargill, Ice Ban has been sold since 1994, and Sears has been distributing that product since 1997. Cargill urges anticipation of independent claims one, two, and seven of the '793 patent based upon the Ice Ban sales in the one year prior to the applicable priority date.

According to Sears, reference to Ice Ban as providing an on-sale bar suffers from the same infirmities as

several other instances of prior art, many of which were considered and rejected by the PTO as impediments to the issuance of the '793 patent. In support of its position, Sears notes that BCS are among the principal ingredients in Ice Ban.

It is true, as co-inventor David Wood admitted during his deposition, that the agricultural by-products used to make Ice Ban can be rich in carbohydrates of the type required by the '793 patent. Both Wood and co-inventor Hartley have acknowledged that the active ingredients in the prior art by-products are in fact carbohydrates. As Professor Nauman has noted, however, use of BCS and other similar fermentation wastes, such as corn steep water, in a de-icer formulation does not anticipate the claims of the '793 patent since prior art utilizing in these types of waste products, including the Johnson, Janke, and Rudnick patents, was considered by the PTO examiner during the course of the '793 patent prosecution.

The record reflects that the Ice Ban products now urged by Cargill were disclosed in the Janke and Johnson patents which, in turn, were considered by the PTO examiner prior to the issuance of the '793 patent. In light of this fact and the expert report of Dr. Nauman, a reasonable factfinder could conclude that the sale of Ice Ban more than one year prior to the appropriate priority date for the '793 patent does not render the patent invalid.

2. *Caliber M1000*

Caliber is an anti-icing and de-icing material that contains a low molecular weight carbohydrate and a solution of magnesium chloride. Caliber was on sale as of August 27, 1999, and a bulk sale of Caliber M1000 was made in October of 1999. Cargill claims that Caliber's ingredients fall within the ranges of the '793 patent, offering co-inventor Wood's admission during his deposition that Sears views Caliber as the same product that is disclosed in the '793 patent as support for its position.FN22 In response to Cargill's arguments surrounding the Caliber M1000 product, Sears has countered that both elements of the '793 patent claims, requiring a carbohydrate and a chloride salt, are not met since according to one authoritative source, Caliber's Steve Bytnar, Caliber has never included magnesium chloride as a component. Moreover, Sears asserts, Bytnar characterizes the early sales of the product as mere "field trials."

FN22. Co-inventor Hartley has also admitted that the Caliber product falls within the carbohydrate ranges in the '793 patent.

In light of my finding of genuine issues of material fact regarding the appropriate priority date to apply, it is unnecessary to address the parties' competing contentions regarding the effect of the Caliber M1000 development and sale. If Sears is found to be entitled to the earlier priority date of January 4, 1999, based upon the filing of the nonprovisional parent application, then the development and sale of the competing product Caliber does not invalidate the '793 patent.

3. *The Janke* '812 Patent

The Janke patent discloses a de-icing material made from whey, water, and sodium chloride. Cargill submits that typical whey powder is generally between 70 and 75% lactose, a low molecular weight sugar identified in the '793 patent. Janke's carbohydrate content thereby falls within the '793 range.

Sears' response with respect to this and the other three patents which Cargill claims anticipate the '793 patent is the same. "[F]or purposes of determining issues of invalidity, this court must adopt the same construction of the ... patent's claims as it adopted in deciding the infringement issue." Astrazeneca AB v. Mutual Pharm. Co., 278 F.Supp.2d 491, 516 (E.D.Pa.2003). Sears argues that none of the patents cited as prior art contain low molecular weight carbohydrates derived from a "pure and consistent source", as Cargill

requires in its *Markman* brief, nor from a "refined and consistent source", the definition which Sears has proposed. Instead, those prior patents disclose de-icing inventions containing the kind of agricultural waste products expressly disclaimed by Sears. In Janke '812, those products are the "liquids that remain after the coagulated cheese has been removed from the milks". Hansen Aff. Exh. BB.

Sears also asserts that PTO Examiner Greene considered the Janke '812 patent during the prosecution of the '793 patent, and seeks to distinguish it from the '793 invention as not disclosing the amounts of carbohydrates and salts, or of any synergy between the two. Sears further notes that Janke does not teach the use of colorants or thickeners. Cargill responds that discovering synergy is discovering a new characteristic of an existing invention, which does not preclude a finding of anticipation.FN23 Atlas Powder Co., 190 F.3d at 1348-49.

FN23. Cargill questions whether Hartley and Wood are even entitled to credit for this discovery, since an open letter to "Friends of Ice Ban America" from Ice Ban referred to the "synergistic effects" of Ice Ban mixed with chloride salts as early as 1997. Young Aff. Exh. 5.

Based upon the record I am unable to conclude, as a matter of law, that claims one, two, and seven of the '793 patent were anticipated by the Janke '812 patent, particularly in light of the disclosure of that patent as prior art in the '793 patent application and the granting of that patent notwithstanding that cited prior art.

4. ***The Johnson Patent***

Cargill also contends that the independent claims of the '793 patent were anticipated by the Johnson patent, issued in July of 1999. Because this argument depends upon a finding that Sears is not entitled to a January 4, 1999 priority date, the unresolved fact questions surrounding that determination preclude the entry of summary judgment on this contention.

5. ***The Janke*** '135 Patent

Cargill also offers the Janke '135 patent, issued in August of 1999, in support of its anticipation claim. That patent, which unlike Janke '812 was not cited during the patent prosecution in this case, describes a de-icing and anti-icing composition containing at least 10% by weight of vintners' condensed solubles ("VCS"). Cargill argues that VCS contains 3.6% by weight of unfermented sugars which, in turn, consist essentially of carbohydrates based on glucose and fructose and falls within the ranges of the '793 patent.

As was true of the Johnson patent, in order to invalidate the '793 patent, the Janke '135 patent would have had to issue more than one year prior to the priority date attributable to the '793 patent. Based upon the unresolved fact question concerning the priority date, and specifically whether Sears is entitled to a priority date of January 4, 1999, summary judgment on the question of invalidity, based upon this patent, is also inappropriate.

6. ***The Daly Patent***

The last matter offered by Cargill in support of its anticipation argument is the Daly patent, No. 5,639,319, issued in June of 1997. That patent involves a wheel tire ballast substance comprised of molasses and up to about 50% by weight of calcium chloride or magnesium chloride. Cargill offers the Daly patent as a basis for finding anticipation in the unlikely event that in construing the '793 patent I do not find that the "de-icing and anti-icing composition" preamble of the independent claims represents a limitation on all of the patent's claims. Since this is one of the few points in the *Markman* analysis on which the parties are in agreement-that each claim should be limited to a de-icing and anti-icing composition-this patent clearly does not provide any basis for Cargill's anticipation argument.FN24

FN24. Even were this patent found to be relevant to the question of anticipation, the same fact issues discussed with respect to the other agricultural waste-based patents would exist with respect to this patent.

In sum, largely though not exclusively because of the unresolved fact issue regarding the priority date to attribute to the '793 patent, I deny Cargill's motion for summary judgment on the issue of patent invalidity. E-Z Bowz, L.L.C. v. Professional Prod. Res. Co., Inc., No. 00 Civ. 8670, 2003 WL 22068573, at (S.D.N.Y. Sept. 5, 2003).

D. ***Patent Unenforceability***

Among the relief sought by Cargill in this action is a declaration that the '793 patent is unenforceable as a result of inequitable conduct by the inventors. The claimed inequitable conduct falls into two distinct categories, including 1) alleged failure on the part of the inventors to fully disclose the material prior art known to them at the time their patent application was made and remained pending, and 2) the failure to list Bodycote as one of the inventors. The parties have cross-moved, each seeking the entry of summary judgment with respect to this inequitable conduct claim.

As a preliminary matter, it is worthy of note that claims of inequitable conduct in connection with the prosecution of a patent are by no means foreign to patent infringement litigation. The inequitable conduct defense has seemingly "attached to every patent prosecution, diverting the court from genuine issues and simply spawning satellite litigation." Multiform Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1482 (Fed.Cir.1998). Indeed, the frequency with which the defense is raised in response to infringement litigation has led the Federal Circuit to observe that "[t]he habit of charging inequitable conduct in almost every major patent case has become an absolute plague." Burlington Indus., Inc. v. Dayco Corp., 849 F.2d 1418, 1422 (Fed.Cir.1988).

[36] [37] Unlike many of the other defenses raised by Cargill to Sears' claims of infringement, the defense of inequitable conduct is "entirely equitable in nature, and thus not an issue for a jury to decide." Perseptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 225 F.3d 1315, 1318 (Fed.Cir.2000). In order to render an otherwise properly issued patent unenforceable on the basis of inequitable conduct, a court must be satisfied by clear and convincing evidence that such inequitable conduct has occurred. Seiko Epson Corp. v. Nu-Kote Int'l, 190 F.3d 1360, 1367 (Fed.Cir.1999). Moreover, as was previously noted the defense is purely equitable; since intent and materiality generally implicate issues of fact which must be resolved before the court may rule on the defense, however, the issue is not ordinarily amenable to resolution on motion for summary judgment. Paragon Podiatry Lab., Inc. v. KLM Labs., Inc., 984 F.2d 1182, 1190 (Fed.Cir.1993).

The requirement of disclosure implicated by Cargill's inequitable conduct claims finds its roots in 37 C.F.R. s. 1.56, which imposes a "duty of candor and good faith" in dealing with the "[Patent and Trademark] Office" on "[e]ach individual associated with the filing and prosecution of a patent application [.]" FN25 37 C.F.R. s. 1.56(a). The obligation imposed under that section "includes a duty to disclose to the Office all information known to that individual to be material to patentability[.]" FN26 37 C.F.R. s. 1.56(a).

FN25. The term "individuals associated with the filing or prosecution of a patent application" is defined by section 1.56 to include
(1) Each inventor named in the application;
(2) Each attorney or agent who prepares or prosecutes the application; and
(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

37 C.F.R. s. 1.56(c).
FN26. Information constituting "prior art" subject to disclosure includes both patents and printed publications. 35 U.S.C. s. 102.

[38] When analyzing a claim of inequitable conduct, a court must engage in a two-step analysis. The trial court must first determine whether the withheld reference meets a threshold level of materiality, and additionally whether the evidence presented establishes a threshold level of intent to mislead the PTO. *See* Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed.Cir.1995). If satisfied that the evidence meets or exceeds these threshold levels of intent to mislead and materiality, the court must then weigh the materiality and intent. *Id.; see also* ConMed, 241 F.Supp.2d at 194.

[39] When assessing these factors, the court must consider that the more material the omission or misrepresentation, the lower the level of intent that is required; conversely, when persuasive evidence of an intent to deceive is offered, a diminished showing of materiality is required in order to establish inequitable conduct. Critikon, Inc. v. Becton Dickinson Vascular Access, Inc., 120 F.3d 1253, 1256 (Fed.Cir.1997) (citation omitted); ConMed, 241 F.Supp.2d at 194.

"[I]nformation is material to patentability when it is not cumulative to information already of record or being made of record in the application, and (1) establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) refutes, or is inconsistent with, a position the applicant takes[.]" FN27,FN28 37 C.F.R. s. 1.56(b). "[N]o patent will be granted on an application in connection with which ... the duty of disclosure was violated through bad faith or intentional misconduct." 37 C.F.R. s. 1.56(a).

FN27. The governing regulations provide that
[a] prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

37 C.F.R. s. 1.56(b).
FN28. In their submissions the parties disagree as to the standard to be applied in addressing the question of materiality. As Sears points out, throughout its submissions Cargill refers to a "reasonable examiner" standard cited in many Federal Circuit opinions, including PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 225 F.3d 1315, 1321-22 (Fed.Cir.2000), when addressing the question of materiality. Application of this test would require a court to determine whether there is a "substantial likelihood that a reasonable examiner would have considered [the disputed information] important in deciding whether to allow the application to issue as a patent." Id. at 1321. In response to considerable confusion within the courts concerning the application of this standard and the myriad others that preceded it, however, the PTO has adopted the current version of 37 C.F.R. s. 1.56 in 1992. *See* 56 FR 37321. In *PerSeptive,* the Federal Circuit acknowledged this change but applied the older rule in that case since it had been in effect when the patents at issue were prosecuted, 225 F.3d at 1322 n. 2. Since the '793 patent was prosecuted well after the advent of the current standard, I have applied the test enunciated in 37 C.F.R. s. 1.56.

[40] [41] The threshold inquiry of materiality requires a detailed factual analysis of the relevance of the teachings of the reference in question, both with respect to the claims at issue and in connection with prior

art which was before the examiner. Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1367 (Fed.Cir.2003). There is no obligation to disclose an otherwise material reference if it is cumulative or less material than those already before the examiner. Halliburton Co. v. Schlumberger Tech. Corp., 925 F.2d 1435, 1440 (Fed.Cir.1991). When determining whether uncited prior art is more material than that before the examiner, courts should consider the degree of similarity and differences between the prior art and the claims involved; in making this determination a court must also consider portions of the prior art references which teach away from the claimed invention. Id. at 1441.

[42] When examining intent to deceive, the court must weigh all evidence, including evidence of good faith. GFI, Inc. v. Franklin Corp., 265 F.3d 1268, 1274 (Fed.Cir.2001). "Close cases should be resolved by disclosure, not unilaterally by the applicant." LaBounty Mfg., Inc. v. U.S. Internat'l Trade Comm'n, 958 F.2d 1066, 1076 (Fed.Cir.1992). Intent may be inferred where the applicant knew or should have known that withheld information would be material to the PTO's consideration. Critikon, Inc., 120 F.3d at 1256.

In assessing intent a court must also be cognizant of the fact that intent to deceive is rarely suggested by direct evidence. GFI, Inc., 265 F.3d at 1274 (citation omitted); Elk Corp. of Dallas v. GAF Bldg. Materials Corp., 168 F.3d 28, 32 (Fed.Cir.1999). "Intent is ... most often proven by a showing of acts, the natural consequences which are presumably intended by the actor." Molins PLC, 48 F.3d at 1180. In the absence of direct evidence, intent to deceive can be inferred from facts and circumstances. Id. at 1180-81.

1. ***Failure To Disclose Prior Art***

[43] In support of its argument that the '793 inventors engaged in inequitable conduct by not disclosing material information, Cargill cites five examples, including three patents, not referenced directly during the '793 patent prosecution; FN29 an article authored by Sebree, Chung and Seib, discussing the presence of low molecular weight sugars in BCS and known to inventors Wood and Hartley in 1999; an article by Hull, Peter, Cox and Montgomery, addressing the chemical composition of corn steep water; the existence of Caliber M1000; knowledge of Ice Ban and Ice Ban Magic products; and other industry literature highlighted by Bodycote regarding the freezing point depressive effects of sugars and corn syrups, and including Highway Innovative Technology Evaluation Center ("HITEC") reports discussing the Ice Ban composition. Cargill maintains that the '793 inventors were aware of the existence of these highly relevant documents, but withheld them from the PTO office. Sears counters by maintaining that the cited references are merely cumulative and are not material, and further that in any event there has been no showing of any intent by the inventors to deceive the PTO.FN30

FN29. In this portion of its argument Cargill refers to U.S. Patent Nos. 4,746,449 (the "Peel patent"), 4,668,416 (the "Neal patent"), and 4,824,588 (the "Lin patent"). According to Cargill, each of those patents discloses a de-icing and anti-icing composition utilizing an agricultural waste by-product containing low molecular weight carbohydrate sugars, with the Peel patent teaching the use of pulp mill black liquour as a component of the de-icing formulation specified, and the Neal and Lin patents both addressing the role of spent sulfite liquour and lignosulphate in de-icers.

FN30. The parties' cross-motions addressing this issue are not precise mirror images. Sears seeks summary judgment in its favor on the inequitable conduct claim as a whole. Cargill, by contrast, requests summary judgment on only the portion of its inequitable conduct claim grounded in the failure to disclose the cited products and references, suggesting the existence of material fact questions relating to the portion of its argument based upon non-disclosure of the Peel, Neal and Lin patents.

Having reviewed the cited references offered in support of Cargill's claim of inequitable conduct, I find as a

preliminary matter that they exhibit a low degree of materiality, and in most instances are largely cumulative of other materials disclosed to the patent examiner. The Peel, Neal and Lin patents, for example, all employ as their key ingredient a highly variable, ill-defined waste product lacking in the refinement and consistency of the sources specified in the '793 patent, and appear to exemplify the problems experienced with prior waste stream sources of de-icing agent ingredients which are cumulative of those cited by inventors Wood and Hartley. Similarly, the Hull and Sebree articles merely confirm that components disclosed in prior art, including corn steep and BCS, contain low molecular weight carbohydrates-a fact specifically disclosed in the '793 patent. The cited authoritative sources reflecting the depressant effect of low molecular weight sugars are also immaterial, in that the gist of the '793 patent is not that low molecular weight carbohydrates have a depressive effect on freezing points-a matter well-known to those of ordinary skill in the art-but instead that a combination of such a carbohydrate with a salt generates a synergistic effect, something not well-known in the industry.

For similar reasons, Ice Ban, which utilizes BCS and corn steep, use of both of which in de-icing products was disclosed repeatedly during the prosecution of the '793 patent, would merely have been cumulative to the prior disclosures. Finally, with respect to Caliber, it is noted that the inventor of the patent underlying that product, Steve Bytnar, admitted that his invention did not come into being until late June 1999, after the Sears discovery of the synergism and its filing of a non-provisional patent application with the PTO. Caliber therefore could be construed as subsequent, rather than prior, art which the '793 inventors were not required to disclose. *See* Kolmes v. World Fibers Corp., 107 F.3d 1534, 1538 (Fed.Cir.1997).

In light of my finding of minimal materiality and likely cumulative effect of the cited prior art, combined with the paucity of evidence in the record of any intent to deceive, and the heavy burden which Cargill faces in attacking the patent on the basis of inequitable conduct, I decline its invitation to award summary judgment on this issue. Given the existence of disputed facts, when resolving all ambiguities and drawing all inferences against the moving party, however, I find that at this juncture Sears is not entitled to summary judgment on this issue, and will instead defer a ruling on this question.

Since any decision on the issues, including materiality, associated with the equitable conduct claim based upon non-disclosure of prior art would hinge upon many of the same factual issues required in order for the jury in this matter to decide plaintiff's invalidity claim, and to avoid the possibility of internally inconsistent results, I will follow the procedure outlined in Herman v. William Brooks Shoe Co., No. 95 CIV. 1324, 1998 WL 832609, at (S.D.N.Y. Dec. 1, 1998), and engage in a two-step process whereby the jury will be asked specific questions, in its advisory capacity, regarding the materiality of the prior art at issue as well as the question of intent. In the event of a jury finding favorable to Cargill on both those issues, I will thereafter engage in the second step of the inequitable conduct analysis by weighing materiality and intent to deceive.

2. *Inventorship*

The second prong of Cargill's inequitable conduct defense is based upon its contention that Bodycote should have been identified as one of the inventors of the de-icing composition discovered. Sears now moves for summary judgment dismissing this portion of the affirmative defense to its infringement counterclaims.

[44] Cargill's inventorship argument implicates 35 U.S.C. s. 116, which provides, with respect to joint inventors, that

[w]hen an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath ... Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.

35 U.S.C. s. 116. Section 103(a), however, provides that "[p]atentability shall not be negatived by the manner in which the invention was made." 35 U.S.C. s. 103(a). Instead, under section 256

[W]henever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Director may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.

35 U.S.C. s. 256. "This rule is meant to allow the correction of honest mistakes. It is essentially an equitable rule which says that patents should not be invalidated for technical reasons which do not harm either the public or individual litigants, and where the moving party has obtained no fraudulent gain." U.S. Indus., Inc. v. Norton Co., 184 U.S.P.Q. 187, 189 (N.D.N.Y.1974) (Foley, J.) (citations omitted).

[45] Since "a patent is presumed valid, there follows a presumption that the named inventors on a patent are the true and only inventors." Trovan, Ltd. v. Sokymat SA, Irori, 299 F.3d 1292, 1301 (Fed.Cir.2002) (internal citations omitted). Consequently, to overcome this presumption of validity misjoinder or nonjoinder of inventors must be proven by clear and convincing evidence. Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 979-80 (Fed.Cir.) (citation omitted), *cert. denied,* 520 U.S. 1277, 117 S.Ct. 2459, 138 L.Ed.2d 216 (1997).

The Federal Circuit has defined a "joint invention" as "the product of a collaboration between two or more persons working together to solve the problem addressed." Burroughs Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223, 1227 (Fed.Cir.1994) (citing, *inter alia,* Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co., 973 F.2d 911, 917 (Fed.Cir.1992)), *cert. denied,* 516 U.S. 1070, 116 S.Ct. 771, 133 L.Ed.2d 724 (1996). " 'The fact that each of the inventors plays a different role and that the contribution of one may not be as great as that of another does not detract from the fact that the invention is joint if each makes some original contribution, though partial, to the final solution of the problem.' " PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 12 F.Supp.2d 69, 84 (D.Mass.1998) (quoting Kimberly-Clark, 973 F.2d at 916-17). If a person contributes to the conception of just one limitation in a patent, then that person is a joint inventor. Trovan, 299 F.3d at 1302.

[46] Determining inventorship requires deciding who conceived the claimed subject matter of the patent. *See* Sewall v. Walters, 21 F.3d 411, 415 (Fed.Cir.1994). "All that is required of a joint inventor is that he or she (1) contribute in some significant manner to the conception or reduction to practice of the invention, (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art." Pannu v. Iolab Corp., 155 F.3d 1344, 1351 (Fed.Cir.1998).

[47] Conception is the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice." Amgen, Inc. v. Chugai Pharm. Co., Ltd., 927 F.2d 1200, 1206 (Fed.Cir.1991) (citations and internal quotations omitted). "Conception requires both the idea of the invention's structure and possession of an operative method of making it." *Id.* (citation omitted). "[T]he test for conception is whether the inventor had an idea that was definite and permanent enough that one skilled in the art could understand the invention[.]" Burroughs Wellcome, 40 F.3d at 1228. Moreover, an "idea is definite and permanent when the inventor has a specific, settled idea, a

particular solution to the problem at hand, not just a general goal or research plan he hopes to pursue." *Id.* The Federal Circuit has also held that "[a]n inventor may solicit the assistance of others when perfecting the invention without 'losing' any patent rights." Trovan, 299 F.3d at 1302 (citing Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed.Cir.1985)).

[48] "Absent fraud or deceptive intent, the correction of inventorship does not affect the validity or enforceability of the patent for the period before the correction." Viskase Corp. v. American Nat'l Can Co., 261 F.3d 1316, 1329 (Fed.Cir.2001). Where the accuser has not been harmed by the allegedly improper joinder of inventors, the accuser must prove that the patentee made a "fraudulent gain" by virtue thereof. U.S. Industries, 184 U.S.P.Q. at 189.

[49] Cargill contends that the invention claimed in the '793 patent was Bodycote's invention, and not that of the claimed inventors, Wood and Hartley. Cargill's expert, Dr. Nixon, opines that the exhibits from the deposition of a Bodycote representative show that the company suggested various steps to be taken and determined the formulations which eventually resulted in the '793 patent. It was Bodycote, Cargill notes, that proposed separating Ice Ban into fractions in order to examine the freezing point depressive effect of each isolated portion of the composition.

Sears counters that Wood and Hartley operated as a unit in taking the steps leading up to discovery of the invention, with Wood having experience in the industry, and Hartley with knowledge of chemistry. Sears offers the declaration of John McNeil, Ph.D, the Operations Manager of Bodycote in charge of the Sears testing, to establish that Bodycote's role was essentially that of a laboratory for hire, with all testing having been conducted under the direction of, and fully authorized by, either Hartley and/or Wood, and that Bodycote did no independent testing without instruction-a fact which both Hartley and Wood have confirmed.FN31 As Sears' expert, Dr. Nauman, has noted, it is not uncommon for inventors to enlist assistance in reducing to practice their inventions, especially when they lack the inside resources.

FN31. Although Cargill points out that it was Bodycote that offered the suggestion for the thickener in the '793 patent, suggesting that an environmentally friendly compound could be used to build viscosity, it fails to mention that the compound it proposes in that same sentence is "the cellulosic materials recommended by Bob Hartley." Marks Invalidity Aff. Exh. 29, at B01061.

In support of its position regarding the limited role played by Bodycote, Sears cites *Burroughs Wellcome,* in which the Federal Circuit held that the laboratory scientists at the National Institute of Health (NIH) were not co-inventors, because the testing performed by that agency merely confirmed the operability of the patentee's idea. 40 F.3d at 1230-31. Key to the court's determination in that case was the fact that the patentee had a draft patent application in hand before hiring the NIH. *Id.* Sears points out that in this case inventors Wood and Hartley not only had their provisional patent application in draft form, but in fact it was actually on file with the PTO, before Bodycote was engaged.

Cargill distinguishes *Burroughs Wellcome* by arguing that in this instance the critical discoveries later claimed, including the synergism between the carbohydrate and salt elements, were made by Bodycote and incorporates its argument that the invention was not originally disclosed in the earlier applications. Obviously, this is an issue that is intertwined with the ultimate issue in the case; if the actual invention was not disclosed in earlier applications, that affects the priority analysis as well as the invalidity determination. Drawing all inferences, and resolving all ambiguities, in favor of Cargill, as the non-moving party, I find that there are genuine issues of material fact to be determined at trial with regard to the issue of Bodycote's role in conception of the invention which is the subject of the '793 patent.

The discernment of an issue of fact with regard to conception, however, does not end the inquiry. A finding

of invalidity based upon failure to disclose a co-inventor also requires a showing of deceptive intent. To counter Cargill's claim of deceptive intent, Sears cites to section ten of the signed project agreement between Sears and Bodycote, which provides that

[a]ll resulting inventions, patents thereon and applications for patents thereon shall, after completion of and payment for all the services which are to be provided under this Agreement ... become the property of and be assigned or licensed to the Client for and to the extent of their use within the objectives of the Project[.]

Hansen Aff Exh. R, at SP 00611. During his deposition testimony, Bodycote manager John McNeill confirmed this agreement regarding allocation of intellectual priority rights.

Against this backdrop Cargill, which has had the opportunity to fully depose Bodycote, has offered no evidence of any intent on the part of inventors Wood and Hartley to deceive the PTO regarding the question of inventorship. In the absence of such evidence, I find no issue of material fact on the question of intent to deceive, and will therefore grant Sears' motion for summary judgment dismissing this portion of Cargill's inequitable conduct defense. *See* Celotex, 477 U.S. at 324, 106 S.Ct. at 2553.

E. ***Non-Infringement***

In its counterclaims, Sears contends that four Cargill products infringe the '793 patent,including ClearLane Liquid, ClearLane Treated Salt, ClearLane PNS Liquid, and ClearLane PNS.FN32 Cargill now seeks the entry of summary judgment finding non-infringement as a matter of law.

FN32. Sears has also claimed, but appears now to lack any evidence establishing, that ClearLane Liquid Plus infringes the '793 patent.

In appropriate cases where the requisite showing has been made, a court may grant summary judgment on the issue of infringement. As the Federal Circuit has noted,

[d]etermination of infringement, whether literal or under the doctrine of equivalents, is a question of fact. "Thus, summary judgment of non-infringement can only be granted if, after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims."

Hilgraeve Corp. v. Symantec Corp., 265 F.3d 1336, 1341 (Fed.Cir.2001) (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed.Cir.1999)), *cert. denied,* 535 U.S. 906, 122 S.Ct. 1206, 152 L.Ed.2d 144 (2002).

[50] 35 U.S.C. s. 271(a) prohibits making, using, offering to sell or selling the invention embodied in the '793 patent. 35 U.S.C. s. 271(a). Only one of these proscribed activities need be proven in order to support a finding of infringement. Roche Prods., Inc. v. Bolar Pharm. Co., Inc., 733 F.2d 858, 861 (Fed.Cir.), *cert. denied,* 469 U.S. 856, 105 S.Ct. 183, 83 L.Ed.2d 117 (1984).FN33 Determination of infringement is a question of fact, and requires proof by a preponderance of the evidence. Hilgraeve Corp., 265 F.3d at 1341 (citation omitted); Rohm & Haas Co. v. Brotech Corp., 127 F.3d 1089, 1092 (Fed.Cir.1997).

FN33. While *Roche* was statutorily overridden on other grounds, it remains good law to the extent of supporting this general proposition.

[51] [52] All that is required to infringe a patent is to infringe any one claim of the patent. Bio-Technology

Gen. Corp. v. Genentech, Inc., 80 F.3d 1553, 1562 n. 8 (Fed.Cir.), *cert. denied,* 519 U.S. 911, 117 S.Ct. 274, 136 L.Ed.2d 197 (1996). In order to establish infringement on a specific claim, however, the claimant must show the presence of each element of that claim in the accused product. Lemelson v. United States, 752 F.2d 1538, 1551 (Fed.Cir.1985).

[53] "Where the evidence of infringement consists merely of one expert's opinion, without supporting tests or data, the district court is under no obligation to accept it." W.L. Gore & Assocs., Inc. v. Garlock, Inc., 842 F.2d 1275, 1280 (Fed.Cir.1988). By the same token, competent expert testimony can constitute "substantial evidence of infringement." *See* Ultradent Prods., Inc. v. Life-Like Cosmetics, Inc., 127 F.3d 1065, 1070 (Fed.Cir.1997).

With these elementary and noncontroversial principles in mind, I will turn to analysis of the record regarding each of the four accused products.

1. *ClearLane Liquid and ClearLane PNS Liquid*

[54] ClearLane Liquid is a product used by Cargill to spray onto rock salt to form its ClearLane Treated Salt.FN34 ClearLane Liquid has had two separate formulations. The original configuration, referred to as "old ClearLane", was marketedbetween October 4, 2000 and the Fall of 2002. The "new ClearLane", marketed from 2002 forward, contains a lower concentration of molasses. Sears has produced in the record written interrogatory responses from Cargill, internal Cargill documents, and results of testing of samples of ClearLane provided to Sears by Cargill to establish the composition of Cargill's ClearLane products.

FN34. Cargill has referred to the products utilized in this fashion as "pre-wetting agents."

As an overarching theme, Cargill begins by noting that molasses is the only source of carbohydrates found in its accused products. Cargill challenges the contention that its molasses-based products infringe any of the claims of the '793 patent, since molasses is not a purified and consistent source of carbohydrates. In support of this contention, Cargill points to Sears' acknowledgment that molasses includes approximately twenty-five by weight of solid materials other than low molecular weight carbohydrate sugars, including inorganic materials, other carbohydrates, and additional organic materials. Cargill also contends that ClearLane Liquid is not a de-icing and anti-icing composition, in that it is designed not for direct application to a roadway or pavement surface, but instead to be applied primarily as a pre-wetting agent. Cargill further contends that ClearLane Liquid is not a truly aqueous solution, and that in any event there is no proof in the record that ClearLane Liquid has ever been made, used, or sold in the form designated in Cargill's MSDS and technical data sheets applicable to that composition. Finally Cargill insists that at least partial summary judgment with regard to ClearLane Liquid is appropriate since it does not include a colorant, as required in claim three of the '793 patent, nor does it contain a thickener or the required viscosity described in independent claims four through six and eight.

Based upon the evidence contained within the record, a reasonable factfinder could conclude that the ClearLane Liquid infringes each of the elements of one or more of the claims of the '793 patents. ClearLane Liquid is plainly susceptible of being considered a de-icing and/or anti-icing composition, as I have construed that claim. In my estimation, based upon the record, a reasonable factfinder could conclude that ClearLane Liquid comprises an aqueous solution, and that the low molecular weight carbohydrates specified in the '793 patent exist in ClearLane Liquid within the weight ranges specified in the patent's claims. Extrapolating from the molasses content of the product, a reasonable factfinder could also find that ClearLane Liquid contains low molecular weight carbohydrates within the ranges set forth in the '793 patent. Such a factfinder could also find the presence of magnesium chloride in the specified ranges when it is mixed for use in making ClearLane Treated Salt. I further find, consistent with my claim construction, that

ClearLane Liquid could be found to include both the requisite colorant and thickener to fall within the dependent claims adding those elements. Finally, the fact that ClearLane Liquid is not intended by Cargill to be applied directly to roadways is not dispositive in view of my finding that the claims of the '793 patent should not be construed so narrowly.

In addition to falling within one or more of the claims of the '793 patent, I conclude that the record adequately establishes issues of fact regarding Cargill's manufacture, use, offering for sale, or sale of ClearLane Liquid as an infringing product. The record, including Cargill's interrogatory responses, could support a finding that it did manufacture ClearLane Liquid even though, as Cargill argues, it is merely an intermediate step in the process leading to the manufacture of a final de-icing product. In any event from the record a reasonable factfinder could conclude that Cargill has used ClearLane Liquid, a potentially infringing product.

Also at issue with regard to Cargill's summary judgment motion addressing the issue of infringement is ClearLane PNS Liquid. That product is used, in conjunction with rock salt, in much the same way as ClearLane Liquid is used as a pre-wetting agent to form ClearLane Treated Salt. ClearLane PNS Liquid, according to the record, is a mixture of molasses and magnesium chloride hexahydrate, with molasses constituting 50% of the mixture. For much the same reason as applies to ClearLane Liquid, a reasonable factfinder could conclude that ClearLane PNS Liquid does infringe one or more of the claims of the '793 patent, as I have construed them.

I therefore will deny Cargill's motion for summary judgment on the issue of noninfringement with regard to these products.

2. ***ClearLane Treated Salt and ClearLane PNS***

Two other of the accused products in this action are Cargill's ClearLane Treated Salt and ClearLane PNS. According to the record, ClearLane Treated Salt consists of a mixture of six gallons of magnesium chloride and two gallons of molasses with one ton of rock salt. ClearLane PNS is a similar end product derived from ClearLane PNS Liquid.

Sears' argument with regard to ClearLane Treated Salt is derivative, in that it relates to the manufacture and use of the infringing liquids, including ClearLane Liquid and ClearLane PNS Liquid, used to pre-wet the rock salt. While, as indicated above, the use of ClearLane Liquid and ClearLane PNS Liquid in this fashion could potentially constitute infringement, the manufacture and sale of ClearLane Treated Salt and ClearLane PNS in and of itself does not, since, among other things, it does not constitute an aqueous solution as I have construed the claims of the '793 patent.

Cargill is therefore entitled to summary judgment finding that the manufacture and sale of ClearLane Liquid Plus, ClearLane Treated Salt, as well as ClearLane PNS, in and of itself, and excluding the contention that the use of ClearLane Liquid and ClearLane PNS Liquid in conjunction with these products could constitute infringement, should be dismissed.

F. ***Willful Infringement***

In their counterclaims, defendants allege willful patent infringement on the part of Cargill, and accordingly seek enhanced damages. Cargill now requests the entry of summary judgment dismissing this element of Sears' infringement claim, arguing that no reasonable factfinder could conclude that any infringement which may have occurred was willful. In support of this argument, Cargill relies virtually exclusively upon an opinion of its outside patent counsel, to the effect that the appropriate priority date for the '793 patent was January 5, 2001, in which case Cargill's '979 patent, which encompasses its ClearLane materials and was

applied for on February 28, 2000, has priority.

[55] In the patent infringement setting, the question of willfulness presents an issue of fact which must be decided utilizing a clear and convincing evidence standard. Comark Comms., Inc. v. Harris Corp., 156 F.3d 1182, 1190 (Fed.Cir.1998) (citing Read Corp. v. Portec, Inc., 970 F.2d 816, 829 (Fed.Cir.1992)). Taking into account the enhanced burden of proof, as I must on a motion for summary judgment, *see* Anderson, 477 U.S. at 252-55, 106 S.Ct. at 2512-14, the critical inquiry at this juncture is a determination of whether a reasonable factfinder could conclude, based upon the record now before the court and resolving all ambiguities and deciding all inferences in favor of Sears, as the non-moving party, that clear and convincing evidence exists to establish that Cargill acted in disregard of the '793 patent and had no reasonable basis for believing that its actions were justified. The burden of demonstrating that no reasonable factfinder could conclude that Sears can meet its burden of establishing willfulness by clear and convincing evidence is a heavy one, notwithstanding the enhanced burden of proof which it faces at trial on this issue. Comark Comms., Inc., 156 F.3d at 1190. It is against this backdrop that Cargill's request for summary judgment removing the willfulness issue from the jury's consideration must be assessed.

[56] [57] Willfulness may be found where it is demonstrated that the infringer acted in disregard of a patent and had no reasonable basis for believing it had a right to act as it did. *See* SRI Int'l v. Advanced Tech. Labs., Inc., 127 F.3d 1462, 1464-65 (Fed.Cir.1997); Electro Med.Sys., S.A. v. Cooper Life Scis., Inc., 34 F.3d 1048, 1056 (Fed.Cir.1994). In making that assessment a jury must determine "whether, under all the circumstances, a reasonable person would prudently conduct himself with any confidence that a court might hold a patent invalid or not infringed." Ryco, Inc. v. Ag-Bag Corp., 857 F.2d 1418, 1428 (Fed.Cir.1988). In the event of a finding of willfulness the trial court may, in its discretion-although it is not required to-award enhanced damages of up to three times the compensatory damage award pursuant to 35 U.S.C. s. 284. Read, 970 F.2d at 826.

[60] One way in which accused infringers typically strive to fulfill the obligation of due care is to seek and rely upon legal opinions. Legal opinions that conclude no liability-even if ultimately found to have been incorrect-can serve to insulate an infringer from a willful finding if they are 1) competent and 2) followed. *See* Ortho Pharm., 959 F.2d at 944-45; *see also* Read Corp., 970 F.2d at 828-29. The competency requirement applies to both the quality of the person giving the opinion and its content. Jurgens v. CBK, Ltd., 80 F.3d 1566, 1572 (Fed.Cir.1996). An opinion is competent if it is "thorough enough, as combined with other factors, to instill a belief in the infringer that a court might reasonably hold the patent is invalid, not infringed, or unenforceable." Ortho Pharm., 959 F.2d at 944. An opinion can be competent regardless of whether it turns out to be contrary to the outcome of the litigation. Graco, Inc. v. Binks Mfg. Co., 60 F.3d 785, 793-94 (Fed.Cir.1995) (citing *Read* and *Ortho Pharm.*). Competency must be judged objectively, based upon the opinion's tone and apparent rooting in an adequate foundation. Read Corp., 970 F.2d at 830; Ortho Pharm., 959 F.2d at 945.

A client's reliance on an opinion is reasonable so long as the opinion contains "sufficient internal indicia of creditability". Underwater Devices, 717 F.2d at 1390. The most important consideration is that nothing in the letter would alert a client to reject it as "an obviously bad opinion." Read Corp., 970 F.2d at 830. The client need not necessarily understand the opinion, or evaluate its legal competence, as that would defeat the purpose of obtaining legal counsel. *Id.*

[61] [62] "A written opinion may be incompetent on its face by reason of its containing merely conclusory statements without discussion of facts or obviously presenting only a superficial or off-the-cuff analysis." Read Corp., 970 F.2d at 830 (citing Underwater Devices, 717 F.2d at 1390). An opinion might not suffice where an outside attorney was reluctant to give an oral opinion based on the facts before him or her, but was pressured into doing so, or where a client had previously received detailed written opinions but in that case

had acted on the basis of an oral opinion. Radio Steel & Mfg. Co. v. MTD Prods., Inc., 788 F.2d 1554, 1559 (Fed.Cir.1986). "[L]egal advice is only one factor to be considered [on the question of willfulness], and an opinion of counsel does not guarantee against a finding of willfulness." Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1580 (Fed.Cir.1992) (citing, *inter alia,* Ryco, Inc., 857 F.2d at 1428). In a case where the infringer knows or has reason to believe that reliance upon the opinion of counsel is not reasonable, a finding of willfulness can result. Minnesota Mining & Mfg. Co., 976 F.2d at 1580-81.

[63] The record now before the court reveals that on October 12, 2001-three days after its issuance-Sears' counsel wrote to Cargill accusing it of infringing the '793 patent. In response, in or about November of 2001 Cargill retained outside patent counsel, whose reputation and competency in the field Sears does not challenge, to opine concerning the claim of infringement. FN35 Cargill reportedly received an oral opinion from that counsel in January of 2002, followed by a written opinion of February 1, 2002 and a more formalized, signed opinion letter dated February of 2003, and asserts that each of those oral and written opinions was consistent with the conclusion that the proper priority date attributable to the '793 patent is January 5, 2001, and that Cargill was in possession of the ClearLane product formula prior to that date. Cargill's continued development and sale of ClearLane products, in reliance upon that opinion, forms the basis for its motion for summary judgment on this issue.

FN35. There is some uncertainty regarding the date upon which Merchant & Gould was engaged by Cargill to render an opinion. The draft opinion letter, dated February 1, 2002, recites January 25, 2002 as the date of Cargill's request that the firm conduct an analysis and provide a legal opinion regarding the matter.

[64] While reliance upon an opinion of counsel can be a powerful, and even dispositive, factor in the willfulness inquiry, a party may not blindly rely upon a flawed or incomplete opinion of counsel in defense of a willful infringement claim, particularly if it possesses knowledge of the flaw or incompleteness. Minnesota Mining & Mfg., 976 F.2d at 1580-81. It is such blind reliance which, Sears argues, should result in denial of Cargill's summary judgment motion on this issue.

As the draft opinion letter itself reflects, Merchant & Gould was asked to address only whether Sears was entitled to an earlier priority date than January 5, 2001 for its '793 patent, based upon the filings of the parent and grandparent applications, and if not whether Cargill's prior art deprives Sears of its claim of priority. Merchant & Gould was apparently not tasked with opining on the ultimate issue of infringement;indeed the firm specifically stated in its letter that it did not have available to it the "chemical compositional analysis of the specific industrial molasses that Cargill uses in its composition." Marks Willfulness Aff. Exh. 6, at C 005936. Importantly, the Merchant & Gould opinion letter relied upon provides only that "any claim interpreted to cover the Cargill ClearLane composition is *prima facie* invalid" in light of Cargill's February 28, 2000 provisional application. Id. at C 005950 (emphasis supplied). The letter goes on to clarify that by referring to invalidity as only " *prima facie* ", the firm

meant that, in the absence of an additional showing by Sears Petroleum, any claims of '793 found to cover ClearLane as defined would be concluded to be invalid given the conditions stated. Of course, if Sears Petroleum or Hartley et al. were able to establish that the invention claimed in '793 was in fact in their possession prior to February 28, 2000, it potentially removes the effect of the February 28, 2000, Cargill provisional filing, as prior art.

Id. The letter further disclaims any knowledge or information within Merchant & Gould's possession regarding Sears' activities prior to January 5, 2001. Id.

Sears maintains, and a reasonable jury could conclude, that unlike Merchant & Gould, Cargill well knew, as

a result of the July and August, 1999 meetings, that inventors Hartley and Wood were in fact in possession of the invention claimed in the '793 patent prior to February 28, 2000, in which case the ground upon which the opinion rests would be undermined. Under these circumstances I am unable to conclude that no reasonable factfinder could find willful infringement by clear and convincing evidence, notwithstanding the presence of the opinion letter offered by Cargill in defense of the willful infringement claim. I will therefore deny Cargill's motion for summary judgment on this issue.FN36

FN36. As will be seen, I find the existence of issues of fact regarding Sears' claim of Cargill's misappropriation of its trade secrets, including the formula practiced in the '793 invention. Such misappropriation, if demonstrated, could properly be considered by a jury in determining whether willful infringement has occurred. Minnesota Mining & Mfg., 976 F.2d at 1581-82.

G. ***Dismissal of Common Law Trade Secret and Breach of Contract Claims***

Among the counterclaims asserted in this case are causes of action asserted by Sears for misappropriation of trade secrets and breach of the parties' written confidentiality agreement. The essence of those claims is Sears' contention that Cargill was never genuinely interested in pursuing a business relationship with Sears, but instead encouraged and participated in a meeting in order to gain commercial intelligence regarding its new de-icing product and ultimately appropriate the information exchanged during the meetings to its own use. In support of this contention Sears cites internal Cargill documents reflecting that immediately following the meetings Cargill significantly altered its course, terminating prior unsuccessful research programs and launching a new program to develop a de-icing product with cane molasses as its basis. According to Sears, the Cargill chemist credited with "inventing" ClearLane, Scott Koefed, acknowledged in his deposition that before the meeting with Sears he had never researched cane molasses as a de-icing product.

The record suggests that Cargill's Richard Rose-who had no formal scientific education-first asked Koefed to research the use of cane molasses a few days after the August 25, 1999 meeting with Sears. By September of that year, Cargill had begun pricing commercial cane molasses sources for use in a de-icing product, and by September 3, 1999 had commenced testing cane molasses for that purpose for the first time. Even prior to receiving the results of that testing, Rose had begun to tout to Cargill management the "synergistic effect" of molasses and sodium chloride. Hansen Aff. Exh. IIII. Cargill's ClearLane product was ultimately brought to market in October of 2000, in time for the new winter season.

Cargill now moves seeking summary judgment in its favor on Sears' common law counterclaims. In its motion Cargill has requested dismissal of Sears' common law counterclaims for misappropriation of trade secrets and breach of contract, the latter of which is based upon the parties' confidentiality agreement executed in anticipation of the August, 1999 meeting. In support of that motion, Cargill argues that the disputed information, including the chemical composition of the formula later discussed in the '793 patent, does not qualify as trade secret information, and in any event Sears' claims are precluded by the fact that Sears voluntarily and unconditionally disclosed the reputedly confidential information to Cargill during an unrestricted meeting at which the parties had specifically promised not to exchange confidential information. Alternatively, should the common law claims survive, Cargill requests that the court make a determination at this juncture that damages are unavailable on those claims after November 21, 2000, at a time when the confidential information allegedly entered the public domain, and certainly at the time of the issuance of the '793 patent. Sears has countered by arguing law of the case, based upon this court's decision dated September 25, 2003 denying Cargill's motion to dismiss or, in the alternative, for summary judgment with regard to those claims. *See* Dkt. No. 87.

[65] [66] Generally speaking, law of the case tenets dictate that when a court rules upon an issue, that

decision continues to govern the same issues in subsequent stages of that case. Pescatore v. Pan Am. World Airways, Inc., 97 F.3d 1, 7-8 (2d Cir.1996); United States v. Yonkers Bd. of Educ., 856 F.2d 7, 11 (2d Cir.1988) (citations omitted). Although the doctrine is admittedly discretionary, and a court is always free to modify its own pretrial rulings at any time before it enters a final judgment, based upon jurisprudential principles underlying the law of the case doctrine-including the desire that litigants be able to rely on judicial holdings and to insure predictability of results-courts normally decline to re-examine issues previously decided in the case absent compelling circumstances, such as an intervening change of controlling law, the introduction of new evidence, or the need to correct a clear error or prevent manifest injustice. Pescatore, 97 F.3d at 8; Doe v. New York City Dep't. of Soc. Servs., 709 F.2d 782, 789 (2d Cir.) (citations omitted), *cert. denied sub nom.,* Catholic Home Bureau v. Doe, 464 U.S. 864, 104 S.Ct. 195, 78 L.Ed.2d 171 (1983).

[67] In this instance I need not linger in addressing the law of the case doctrine. The earlier ruling which forms the underpinning of Sears' law of the case argument was in response to a motion filed at an early procedural juncture, prior to the completion of discovery, and upon a scant record, particularly in contrast to the exhaustive materials now before the court. Under these circumstances, the interests of justice militate against blind application of the law of the case doctrine, and I will instead re-examine the issues now raised anew, based upon the present state of the record.

[68] [69] The parties agree that at least insofar as the trade secret misappropriation claim is concerned, New York law should apply. *See, e.g.,* Hudson Hotels Corp. v. Choice Hotels Int'l, 995 F.2d 1173, 1176 (2d Cir.1993), *abrogated on other grounds,* Nadel v. Play-by-Play Toys & Novelties, Inc., 208 F.3d 368, 380 n. 9 (2d Cir.2000); Frink Am., Inc. v. Champion Rd. Mach. Ltd., 48 F.Supp.2d 198, 204-05 (N.D.N.Y.1999) (McAvoy, J.). To recover under New York law for misappropriation of trade secrets, a claimant must show that it possessed a trade secret, and that it was used in breach of an agreement, confidential relationship, or duty, or as a result of discovery through improper means. Hudson Hotels, 995 F.2d at 1176 (citations omitted). According to the Restatement definition of trade secrets, which is followed in New York, a trade secret may consist of any formula, pattern, device or compilation of information used in one's business, and gives its owner an opportunity to obtain an advantage over competitors who do not know or use it. *Id.* (citing Restatement of Torts s. 757 comment b (1939)). Factors used in determining the existence of a trade secret include the

1) extent to which the information is known outside of owner's business;

2) extent to which the information is known by employees and others involved in the owner's business;

3) extent of measures taken by the owner to guard the secrecy of his information;

4) value of the information to the owner and to his competitors;

5) amount of effort or money expended by the owner in developing the information; and

6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

Id. at n. 1 (citing Restatement s. 757). Under this definition, the primary characteristic of a trade secret is the existence of a "substantial element of secrecy". Frink Am., Inc., 48 F.Supp.2d at 206-07 (citing Restatement s. 757 comment b); *see also* Lehman v. Dow Jones & Co., Inc., 783 F.2d 285, 298 (2d Cir.1986); Kadant, Inc. v. Seeley Mach., Inc., 244 F.Supp.2d 19, 35-36 (N.D.N.Y.2003) (Hurd, J.).

[70] In its motion, Cargill asserts that the freezing point depressive effect of low molecular weight carbohydrates and sugars was widely known within the industry prior to July of 1999. While Sears does not

deny this, it notes that the invention which formed the basis of the later '793 patent is grounded in the synergistic effect of the low molecular weight carbohydrates, in a refined state, in combination with chloride salts. Cargill responds by citing industry literature making reference to the combination of low molecular weight carbohydrates and salts, including one of the HITEC reports which specifically references Ice Ban in combination with salt, yielding the product "Ice Ban Plus", as well as an open letter to "Friends of Ice Ban America", dated September 10, 1997, stating that "Ice Ban, when mixed with chloride salt solutions, show synergistic effects resulting in much lower eutectic temperatures and refreeze temperature as melting dilution occurs." Young Aff. Exh. 5, at SP04085.

Drawing all inferences and resolving all ambiguities in favor of Sears, as the nonmoving party, I am unable to conclude that no reasonable jury could find that the information disclosed by Sears to Cargill during the 1999 meetings, including the synergistic effects of combining low molecular weight carbohydrates and magnesium chloride in enhancing freezing point depression and the fact that cane molasses and cane syrup had tested well as two potential sources of low molecular weight carbohydrates, and additionally information regarding Sears' marketing, sales and pricing information, did not constitute trade secrets.

Cargill also argues that even if the information at issue can be properly regarded as a trade secret, the misappropriation claim is undermined by the fact that it was freely disclosed by Sears during a meeting in July of 1999 with Cargill representatives. In support of this contention Cargill offers numerous record cites which are strongly suggestive of the conclusion that the confidential information was in fact disgorged during that meeting. Nonetheless, at this juncture I am required to resolve all ambiguities, and draw all inferences, favorable to Sears. Since there is at least some degree of ambiguity and inconsistency among the various versions as to what exactly was disclosed during the roughly one hour meeting in July of 1999, summary judgment resolving this claim is inappropriate.

It must also be recalled that prior to that July meeting a letter was generated by Cargill specifying that it was to be non-confidential, and providing that

Our agreement to meet with you is contingent on your acknowledgment that no confidential information or otherwise proprietary information shall be exchanged.

Marks Trade Secret Aff. Exh. 7. A reasonable factfinder could well find it illogical to assume that a reasonably sophisticated businessman such as David Wood, in the face of that letter, would disclose the '793 invention during a one hour meeting, follow that disclosure by entering into a confidentiality agreement which did not shield the earlier disclosed information, and then meet again for nearly a day in Ohio to discuss the matter further. Since the record is susceptible to a finding that the specifics of the invention were not disclosed during the earlier, one hour meeting, and that only the general nature of the invention was discussed during that meeting, I will deny Cargill's motion for summary judgment dismissing Sears' trade secret misappropriation counterclaim.

[71] Sears' breach of contract counterclaim calls upon the court to interpret and apply the agreement entered into between the parties on August 18, 1999. That letter agreement, which was by its terms was to be construed under Minnesota law, defined confidential information to "mean all information, business plans, data, samples, specifications, processes, methods and formulae, relating to [biomaterial-based ice-melting and corrosion inhibitor supplements] and its potential use by Cargill, that is owned by or in possession of [Sears] or Cargill." Marks Trade Secret Aff. Exh. 9, at C 002556. This definition is consistent with Minnesota law, which defines the term "confidential information" as 1) protected matter not generally known or readily ascertainable, 2) providing a demonstrable competitive advantage, 3) that was gained at expense to the employer, and 4) that the employer intended to keep confidential. Cherne Indus., Inc. v. Grounds & Assocs., Inc., 278 N.W.2d 81, 90 (Minn.1979). The confidentiality agreement also includes exclusionary language, providing that

[c]onfidential Information shall not include that which: (a) is in the public domain prior to the disclosure of the receiving party; (b) is lawfully in the receiving party's possession prior to the disclosure by the other party; (c) becomes part of the public domain by publication or otherwise through no unauthorizedact of omission on the part of the receiving party; or (d) is independently developed by an employee(s) of the receiving party with no access to the disclosed Confidential Information.

Marks Trade Secret Aff. Exh. 9, at C 002557.

For the same reasons articulated above with regard to the trade secret misappropriation claim, I am unable to say that no reasonable factfinder could conclude that the disputed information constituted "confidential information," as defined under the parties' agreement and Minnesota law. Similarly, I cannot conclude from the present record that no reasonable jury could find that Cargill breached its obligations under this confidentiality agreement by misappropriating to its own use allegedly confidential information disclosed by Sears during the August, 1999 meeting.

Based upon the foregoing, I find that Cargill is not entitled to summary judgment dismissing Sears' common law misappropriation of trade secrets and breach of contract counterclaims.FN37

FN37. Cargill has also requested summary dismissal of Sears' additional counterclaims for unfair competition, breach of an implied covenant of good faith and fair dealing, and unjust enrichment based upon the same arguments advanced in support of its summary judgment motion addressing the trade secrets and breach of contract claims. Because of my finding the existence of genuinely disputed, material issues of triable fact, I also deny this aspect of Cargill's summary judgment motion for the same reasons.

H. ***Limitation of Damages on Common Law Counterclaims***

In its motion Cargill has requested that in the event Sears is permitted to pursue its trade secret and breach of contract counterclaims at trial, the availability of damages on those claims should nonetheless be limited based upon certain public disclosures of the information at the heart of those claims. Cargill argues that once the invention taught in the '793 patent entered the public domain through a series of events, including the issuance of the patent itself, any injury associated with the allegedly wrongful misappropriation of disclosed trade secrets ended and was no further compensable beyond that point.

[72] In its response to Cargill's efforts to limit damages Sears acknowledges the principle, fairly characterized by it as "unremarkable", that the issuance of a patent is inconsistent with, and undermines, further recovery of damages for a claimed misappropriation of a trade secret forming the basis for the patent. Ferber v. Sterndent Corp., 51 N.Y.2d 782, 784, 412 N.E.2d 1311, 1312, 433 N.Y.S.2d 85, 86 (1980); Conmar Prods. Corp. v. Universal Slide Fastener Co., 172 F.2d 150, 155-56 (2d Cir.1949). Any recovery following the issuance of a patent for continued unauthorized use of the invention by the patent claims is properly governed by applicable patent laws, including 35 U.S.C. s. 284. Sears also notes in its response that it does not anticipate, and is not requesting, recovery of double damages-that is, compensation for the same injuries under different theories, including misappropriation of trade secrets and patent infringement. It argues, nonetheless, that the affixing of damages is a question of fact for the jury, relying on Hydro Investors, Inc. v. Trafalgar Power Inc., 227 F.3d 8, 18 (2d Cir.2000). In this instance, Sears contends that the trade secret misappropriation by Cargill deprived it of the benefit of being "the first mover" in the relevant market. In support of that contention, Sears cites the report of its economic expert, Professor Blaydon, explaining this phenomenon.

In my view it would be imprudent at this juncture to place unwarranted strictures on the jury's award of

damages under the various theories advanced by Sears, assuming a finding of liability on one or more of those claims. Instead, at trial I intend to provide the jury with appropriate instruction concerning the measure of damages to be awarded in connection with each counterclaim on which liability is found, taking care to insure against double recovery. Should such a duplicitous award be made, and the jury find it appropriate to award trade secret damages extending over a period beyond the issuance of the '793 patent, in that event I can exercise my prerogative under Rule 50 of the Federal Rules of Civil Procedure to set aside any jury damage award which runs afoul of these principles.

Cargill's motion for summary judgment limiting the damages recoverable in this case by Sears in connection with its counterclaims is therefore denied.

I. ***Exclusion Of Bodycote Laboratory Reports***

Although not formally seeking this relief, in a memorandum addressed to the question of claim construction Cargill seeks the exclusion of two reports from Bodycote, one entitled "Preliminary De-icer Sample Analysis", dated April 28, 2003, and the other a "Viscosity" report, dated October 17, 2003. Both of those reports were produced by Sears on December 5, 2003, after the close of fact discovery on September 19, 2003. Cargill contends that because they were not properly disclosed during fact discovery, but were instead initially withheld on the basis of attorney-client privilege, those reports are automatically excludable under Rule 37(c)(1) of the Federal Rules of Civil Procedure.FN38 Because those reports were considered and relied upon by Sears' claim construction expert, I will consider the motion even though it was not properly brought and prefaced by permission from the court.FN39

FN38. That rule provides, in pertinent part, that
[a] party that without substantial justification fails to disclose information required by Rule 26(a) ..., is not, unless such failure is harmless, permitted to use as evidence at a trial, at a hearing, or on a motion any witness or information not so disclosed.

Fed.R.Civ.P. 37(c)(1).
FN39. This court's local rules require that before any non-dispositive motion is made a conference must be conducted, and permission to file a motion must be given by the court. N.D.N.Y.L.R. 7.1(b)(2).

[73] At the outset I note that the requested relief-exclusion under Rule 37 of the Federal Rules of Civil Procedure-is a somewhat harsh remedy, because of its obvious effect of depriving the court and finder of fact of otherwise potentially relevant information to be used in deciding the issues in the case. *New* York v. Almy Bros., Inc., 90-CV-818, 1998 WL 57666, **8-9, 1998 U.S. Dist. LEXIS 1280, at *25-*27 (N.D.N.Y. Feb. 4, 1998) (McCurn, S.J.) (citing, *inter alia,* Hinton v. Patnaude, 162 F.R.D. 435, 439 (N.D.N.Y.1995) (McAvoy, C.J.)). Because of the preference to have issues and claims decided on their merits, rather than on the basis of a procedural shortcoming, the exclusion of otherwise relevant evidence on technical grounds is generally not favored, absent compelling circumstances. *See* Magedson v. Fina, No. 91-CV-213, 1993 WL 113489, at (N.D.N.Y. Apr.12, 1993) (McCurn, S.J.).

As a technical matter Cargill's argument that the two Bodycote reports should have been produced prior to the close of fact discovery may be well-taken. Nonetheless, it appears that by agreement of the parties the deadline for completion of expert disclosure was extended until December 12, 2003, and that the parties negotiated an arrangement under which an exchange of documents relied upon by the parties' experts was to occur not later than December 5, 2003 in connection with the Sears experts. As documents relied upon by Sears' claim construction expert, Professor E. Bruce Nauman, the two disputed documents were timely produced in accordance with that agreement. FN40

FN40. It also appears that both sides continued to make rolling production of documents extending beyond the fact discovery cutoff.

[74] Having reviewed the record and Cargill's application, I find no prejudice resulting from the arguably untimely disclosure of the two disputed documents. After the two disputed reports were produced they were utilized by Cargill in its deposition of Sears' claim construction expert, Professor Nauman. Under these circumstances, I find that to the extent that there may arguably have been a failure to timely disclose, it was harmless, and Sears has offered at least some plausible justification for its delay in producing the documents. Accordingly, Cargill's motion to strike the two disputed reports will be denied.

J. ***Motion To Strike Expert Reports Of Cameron Weiffenbach***

[75] Among the experts retained in this case by Cargill is Cameron Weiffenbach. Weiffenbach, a practicing attorney, holds bachelors and masters degrees in chemistry, and worked in various positions at the PTO from 1967 until his retirement in 1999, including as a patent examiner, protest examiner, special program examiner, supervisory special program examiner, director of the office of enrollment and discipline and, during his last five years of service, as examiner-in-chief at the Board of Patent Appeals and Interferences. Weiffenbach currently practices of counsel with McDermott, Will & Emery in that firm's Washington, D.C. office, engaging in matters primarily involving patent prosecution and litigation.

Though Weiffenbach did not testify during the recent claim construction hearing, he has authored four separate reports in the case, all of which are in the record now before the court, opining on several matters in controversy. Sears now moves to strike the Weiffenbach reports from the record on a variety of bases including, generally, lack of personal knowledge, the impropriety of Weiffenbach offering legal conclusions, and the admissibility of his scientific opinions under Rule 702 of the Federal Rules of Evidence.

In his reports, Weiffenbach offers opinions on a variety of matters which are fairly expansive in scope. In his primary report, Weiffenbach opines regarding assorted issues relating to the '793 patent, including its effective priority date; claim construction; unpatentability under 35 U.S.C. s. 112, first paragraph (requiring enablement of an invention over a broad scope of the claimed subject matter); unpatentability under 35 U.S.C. s. 102(a), (b) and (f) based, *inter alia,* upon prior art and lack of novelty; patent anticipation; the claim that David Wood and Robert Hartley are not the inventors of the subject of the '793 patent; obviousness; and inequitable conduct, based upon the failure to disclose known references and art to the patent examiner. In his rebuttal and supplemental rebuttal reports, Weiffenbach expresses his belief that Sears and one of the '793 inventors, David Wood, disclosed the claimed trade secret information which is the subject of Sears' common law claims to Cargill, freely without conditions, in July of 1999, and further opines that in any event the information disclosed does not qualify as a trade secret.

Sears' motion to strike is brought under Rule 56(e) of the Federal Rules of Civil Procedure, which requires the court to examine the ultimate issue of whether the disputed reports, or testimony consistent with those reports, would be admissible at trial.FN41 Raskin v. Wyatt Co., 125 F.3d 55, 65-67 (2d Cir.1997). That analysis, in turn, requires consideration of the federal evidentiary principles governing admission of expert testimony.

FN41. That rule provides, in relevant part, that
[s]upporting and opposing affidavits shall be made on personal knowledge, shall set forth such facts as would be admissible in evidence, and shall show affirmatively that the affiant is competent to testify to the matters stated therein.

Fed.R.Civ.P. 56(e).
The Federal Rules of Evidence permit receipt of expert testimony at trial under certain prescribed circumstances, providing that

[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed.R.Evid. 702; *see also* Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999); Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 113 S.Ct. 2756, 125 L.Ed.2d 469 (1993). While at common law expert testimony addressing an "ultimate issue" was not permitted, that dictate has been abrogated by Rule 704(a), which provides that "testimony in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact." Fed.R.Evid. 704(a).

Applying Rule 704(a), the general consensus among the various courts is that expert testimony which embraces a legal conclusion should be excluded. *See* Hygh v. Jacobs, 961 F.2d 359, 363-64 (2d Cir.1992). Citing an advisory committee note, explaining elimination of the distinction between admissible and excludable expert opinion testimony skirting an ultimate issue, one court has noted that

[u]nder Rules 701 and 702, opinions must be helpful to the trier of fact, and Rule 403 provides for exclusion of evidence which wastes time. These provisions afford ample assurances *against the admission of opinions which would merely tell the jury what result to reach,* somewhat in manner of the oath-helpers of an earlier day. They also stand ready to exclude opinions phrased in terms of inadequately explored legal criteria. Thus the question, "Did T have capacity to make a will?" would be excluded, while the question, "Did T have sufficient mental capacity to know the nature and extent of his property and the natural objects of his bounty and to formulate a rational scheme of distribution?" would be allowed.

Hygh, 961 F.2d at 363-64 (quoting Fed.R.Evid. 704 advisory committee's note and adding emphasis).

Using these and other relevant guideposts, the parties and court will undoubtedly be required to carefully navigate turbid waters at or prior to trial to determine which portions Weiffenbach's testimony to admit, should he be proffered by Cargill as an expert witness. Undoubtedly, Weiffenbach could be permitted to testify on certain matters on which he has offered views. By way of example, Weiffenbach's testimony based upon his experience as a patent attorney and former PTO employee regarding procedures within that agency and the patent application process itself might prove to be helpful to the trier of fact, and thus permissible. *See* Bausch & Lomb, Inc. v. Alcon Labs., Inc., 79 F.Supp.2d 252, 255 (W.D.N.Y.2000). Other portions of Weiffenbach's testimony might also be admissible, including his opinions concerning the effective filing date of the '793 patent. Id. at 257. Portions of Weiffenbach's reports addressing other issues, however, appear to be more in the nature of legal argument more appropriately contained in a brief or memorandum, and testimony consistent with those excerpts would be plainly excludable. Id. at 258.

In a similar vein, Weiffenbach's opinions concerning Sears' trade secret misappropriation counterclaim would be plainly inadmissible; I am prepared and fully able to instruct the jury concerning the applicable law of trade secrets, and the jury can, after hearing the evidence, draw its own conclusions as to whether or not trade secret information was unconditionally disclosed, with no restrictions, by Sears to Cargill in July of 1999 or instead misappropriated by Cargill after disclosure in the first instance in August of that year. As

was noted by Chief District Judge David Larimer in a somewhat similar case,

[h]ow [the expert] is competent to testify about any of these matters is beyond me. He was not involved in any way in any of the relevant events, and his knowledge is strictly secondhand. Moreover, I cannot see how any of his proposed testimony constitutes expert opinion testimony under Rule 704. [The expert's] purpose in testifying is to render his opinions about certain matters, not to testify about the facts of this case. Although he does state that he intends to testify that [plaintiff] engaged in unfair competition by misappropriating [defendant's] trade secrets, that is a matter solely for a jury to decide, and is not appropriate "expert" opinion testimony. [The expert] is offered as an expert on patent law and procedure, not on the law of unfair competition, and whether [plaintiff] engaged in unfair competition is well within the ken of a properly-instructed jury to decide.

Id. at 259 (citations omitted). For reasons similar to those voiced by Chief Judge Larimer in *Bausch & Lomb,* Weiffenbach's testimony regarding the common law counterclaims will not be permitted at trial.FN42

FN42. Sears' objection to this portion of the testimony rests upon alleged lack of personal knowledge, and relies upon several cases including B.F. Goodrich v. Betkoski, 99 F.3d 505 (2d Cir.1996), *cert. denied sub nom.,* Zollo Drum Co., Inc. v. B.F. Goodrich Co., 524 U.S. 926, 118 S.Ct. 2318, 141 L.Ed.2d 694 (1998). The fact that the expert does not possess personal knowledge on the matters upon which he or she is opining is not unusual-in fact, is quite normal-and does not provide a basis to exclude the proffered testimony assuming that the court is convinced that the requirements of Rule 702 have been met. I do not therefore exclude Weiffenbach's expert testimony regarding the trade secret claims on this basis, but rather because in my view those claims are not properly the subject of expert testimony, and additionally because Weiffenbach has not to date been properly qualified as an expert to testify on those areas.

While clearly the issue will have to be revisited at trial, at this juncture I need only address Sears' request that the Weiffenbach reports be stricken from the record and not considered by the court in connection with the pending dispositive motions. In ruling upon the pending motions, I have considered the Weiffenbach reports, but in the light of the foregoing discussion. Accordingly, to the extent that the reports contain legal argument and conclusions, I have treated them as being in the nature of legal memoranda having no particular evidentiary value. Because of Weiffenbach's chemical and PTO background, however, I have considered his opinions in assisting me to interpret the claims of the '793 patent. Amsted Indus., Inc. v. National Castings, Inc., No. 88 C 924, 1990 WL 106548, **27-28, 1990 U.S. Dist. LEXIS 8553, at (N.D.Ill. July 11, 1990). I have also considered the Weiffenbach reports on the question of anticipation and obviousness as one of the many excerpts in the record addressed to those issues. Id., 1990 WL 106548, *28, 1990 U.S. Dist. LEXIS 8553, at *90.

Because of the posture of the case, I will deny Sears' application to strike the Weiffenbach expert reports, without prejudice to the right to object to the admission of his testimony, wholly or in part, at trial or through motion *in limine* filed prior to trial. When making and opposing any such motion, the parties should be guided by the foregoing discussion as well as various cases including, notably, *Bausch & Lomb, Inc.*

IV. ***SUMMARY AND ORDER***

Having reviewed the '793 patent, the documents associated with its prosecution, and a recitation and description of the prior art, and taking into account the various information supplied to the court by the parties' respective experts, I have now fulfilled my obligation to resolve the parties' differences regarding claim construction as a matter of law. Against that backdrop, I find genuine issues of material fact and am therefore unable to say that no reasonable factfinder could conclude infringement on Cargill's part of one or more of the claims set forth in the '793 patent, as construed, with respect to its ClearLane Liquid and

ClearLane PNS Liquid products. Additionally, I find issues of fact which preclude the entry of summary judgment dismissing defendants' counterclaims for willful infringement, and am unable to resolve as a matter of law the arguments with regard to invalidity and unenforceability, in view of the genuine issues of material fact which exist and must be resolved in order to determine those defenses, except as relates to Cargill's claim that Bodycote should have been listed as an inventor on the applications which gave rise to the '793 patent.

Based upon the foregoing it is hereby

ORDERED as follows:

1. The disputed claims of the '793 patent are hereby construed by the court as follows:

Terms	Construction
"de-icing and anti-icing composition"	a composition whose intended purpose, through direct or indirect application, is to keep roadways free or rid of ice, or to prevent its formation on such surfaces
"aqueous solution"	a uniformly disbursed liquid mixture of two or more components, one of which is water, and which can contain incidental amounts of insoluble components
"low molecular weight carbohydrate"	a material which includes carbon, hydrogen, and oxygen where the ratio of hydrogen to oxygen is the same as in water, and that is obtained from a refined and consistent source
"balance"	aside from the other specified ingredients, including low molecular carbohydrates and chloride salts, and with the possible addition of colorants and thickeners, as well as incidental impurities or harmless ingredients associated with the commercial sources of the key components in the invention, the solution shall contain only water
"colorant"	a substance or material, whether inherent in or separately added to the specified composition, which imparts color to the composition
"thickener"	a substance or material, whether inherent in or separately added to a composition, which causes an increase in the composition's viscosity

2. Cargill's motion for summary judgment on the issue of patent invalidity, based on anticipation, is DENIED.

3. The motions of both Cargill and Sears for summary judgment on the question of inequitable conduct, based upon failure to disclose prior art, are DENIED.

4. Sears' motion for summary judgment on the issue of inequitable conduct, based upon the question of inventorship, is GRANTED, and that portion of Cargill's defense to Sears' infringement counterclaims is

DISMISSED.

5. Cargill's motion for summary judgment dismissing Sears' infringement counterclaims as a matter of law is hereby GRANTED with respect to ClearLane Liquid Plus, ClearLane Treated Salt, and ClearLane PNS, but is DENIED as to ClearLane Liquid and ClearLane PNS Liquid, based upon the court's finding of the existence of genuine issues of material fact;

6. Cargill's motion for summary judgment dismissing Sears' claims of willful infringement is DENIED.

7. Cargill's motion for summary judgment dismissing Sears' common law counterclaims or, alternatively, limiting damages awardable on those counterclaims, is DENIED.

8. Cargill's motion to exclude two reports from Bodycote allegedly disclosed in an untimely manner is DENIED.

9. Sears' motion to strike the report of Cameron Weiffenbach and to preclude him from testifying at trial is DENIED, without prejudice to renewal either on pre-trial motion *in limine,* or at trial.

10. The court will conduct a conference in this matter, to be held by telephone, on September 8, 2004 at 11 a.m. to discuss the case and establish a trial date and the deadline for submission of pre-trial filings. Plaintiff's counsel is hereby directed to initiate the call on that date.