United States District Court,
W.D. Texas, San Antonio Division.

RED ARROW PRODUCTS COMPANY LLC, a Limited Liability Company,
Plaintiff.
v.
RESOURCE TRANSFORMS INTERNATIONAL, LTD., and Forest Flavors International, Inc., a Kentucky Corporation,
Defendants.

No. Civ.A. SA03CA0751FB(

April 6, 2006.

Troy B. Klyber, Mayer, Brown, Rowe & Maw, LLP, Chicago, IL, Paul R. Gupta, Mayer, Brown, Rowe & Maw, LLP, New York, NY, Edward F. Valdespino, Strasburger & Price, LLP, San Antonio, TX, for Plaintiff.

Gino Catena, Paul E. Krieger, Thomas D. Paul, Fulbright & Jaworski, L.L.P., Houston, TX, Dean V. Fleming, Fulbright & Jaworski, San Antonio, TX, for Defendants.

MEMORANDUM AND RECOMMENDATION OF THE UNITED STATES MAGISTRATE JUDGE

NANCY STEIN NOWAK**, Magistrate J.**

I. *Introduction*

The matter before the Court is the construction of five patents assigned to plaintiff Red Arrow Products Company LLC (Red Arrow). The patents at issue are U.S. Patent Nos. 5,039,537 (" '537 Patent"), 5,135,770 (" '770 Patent"), 5,270,067 (" '067 Patent"), 5,292,541 (" '541 Patent"), and 5,397,582 ("Patent '582"). Plaintiff Red Arrow brings this suit against defendants Resource Transforms International, Ltd. (RTI), and Forest Flavors International, Inc. (Forest Flavors) for infringement of the five patents.

I have authority to enter this Memorandum and Recommendation under 28 U.S.C. s. 636(b) and the District Court's Order referring all pretrial matters in this proceeding to me for disposition by order, or to aid in their disposition by recommendation where my authority as a Magistrate Judge is statutorily constrained. FN1

FN1. Docket Entry 62.

II. *Background and Procedural History* FN2

FN2. The parties declined to provide a joint statement of undisputed facts. The background information is gleaned from Red Arrow's amended complaint and from the claim construction briefs.

Plaintiff Red Arrow is a Wisconsin limited liability company. Defendant RTI is an Ontario Canada corporation, and defendant Forest Flavors is a Kentucky corporation. Plaintiff holds assignments of patents for processes used to produce natural browning agents that in turn provide an oven roasted, brown color to meat and other food products.

Early in its existence, plaintiff developed smoke flavorings specifically designed to address a perceived need for color and flavor in the meat industry. In the 1980's, the company expanded its efforts to develop products that provided a greater amount of the desired coloration to treated foods while imparting lesser amounts of smoke flavoring than had been obtained by previous products. Plaintiff's research led to several patents for processes that achieved the desired results. The company pursued the product line farther by producing "browning only" products marketed under the trade name Maillose0. Plaintiff holds assignments of patents for Maillose0 and related products.

Plaintiff commenced this action on August 8, 2003, alleging that defendants had infringed on the '541 patent and the '582 patent by making, using, selling, and/or importing one or more products embodying the patented inventions. In its complaint, plaintiff requested preliminary and permanent injunctions pursuant to 35 U.S.C. s. 283, prohibiting defendants, defendants' agents, and defendants' employees from directly or indirectly infringing on the '541 patent and the '582 patent. Plaintiff further requested an accounting of all gains, profits, and advantages derived by the defendants from the alleged infringement of the patents along with an award of damages and treble damages pursuant to 35 U.S.C. s. 284. Finally, plaintiff requested a finding that this is an exceptional case and asked for an award of attorney fees pursuant to 35 U.S.C. s. 285. FN3

FN3. Docket Entry 1.

On August 17, 2004, plaintiff filed a motion requesting leave to amend its complaint. FN4 The District Court granted plaintiff's motion to amend, and the complaint was filed on December 14, 2004. FN5

FN4. Docket Entry 36.

FN5. Docket Entries 43 and 44.

In the amended complaint, plaintiff added claims that defendants infringed on the '067 patent, the '037 patent, and the '770 patent. Plaintiff renewed it request for injunctive relief, an accounting of gains and profits, damages, treble damages, and attorneys fees based on defendants' alleged infringement of all five patents.

Plaintiff alleged that defendants offered for sale and sold goods in Texas and other states, that infringe on those patents. Plaintiff further alleged that the defendants have sold goods to J & B Sausage Company, Inc., located in Waelder, Texas. Plaintiff advised that '541 patent and '582 patent remain effective until March 8, 2011; the '067 patent remains in effect until December 14, 2010; and patents '537 and '770 remain in effect until September 25, 2007, and therefore, the requested relief is appropriate.

III. *Applicable Legal Standards*

A patent lawsuit generally includes a charge of infringement that "rest[s] on allegations that the defendant 'without authority ma[de], use[d], or [sold the] patented invention, within the United States during the term of the patent...." ' FN6 The determination of patent infringement involves two steps.FN7 Initially, the claims must be construed to correctly determine the scope of the patent; then the properly construed claims are compared to the defendant's product or process to determine whether the defendant has engaged in infringement.FN8

FN6. Markman v. Westview Instruments, Inc., 517 U.S. 370, 374, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) (quoting 35 U.S.C. s. 271(a).

FN7. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581-82 (Fed.Cir.1996); Texas Instruments, Inc. v. Linear Technologies Corp., 182 F.Supp.2d 580, 583 (E.D.Tex.2002).

FN8. Texas Instruments, 182 F.Supp.2d at 583.

Claim construction is the determination of the scope of the claims; in other words, what is or is not covered by the words of the claims. "Claim construction, including interpretation of terms of art, is a question of law reserved exclusively for the court." FN9

FN9. *Id*. (citing Markman, 517 U.S. at 383-91).

The claim defines the scope or spectrum of the process, the machine, the manufacture, the composition of matter, or the design that is the invention, and delineates the patentee's right to exclude others from utilizing the invention. It never covers or secures the function, or result of the invention, nor the scientific explanation of its operation.FN10 The claim forbids another not only from producing an exact copy of the patented invention, but also a product that " 'go[es] to the heart of an invention but avoids the literal language of the claim by making a noncritical change." ' FN11

FN10. Markman, 517 U.S. at 373; *see also* Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed.Cir.2005) (the "bedrock principle" of patent law is that the claims define the right to exclude).

FN11. Markman, 517 U.S. at 373-74 (quoting H. Schwartz, *Patent Law and Practice,* at 82 (2d ed.1995).

Courts are to construe claims from "the vantage point of a person of ordinary skill in the art FN12 at the time of the invention." FN13 Words of the claims are to be "given their ordinary and customary meaning." FN14 The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective date of the patent application." FN15 This inquiry provides an objective starting point based on the understanding that

inventors are typically persons skilled in the field of a particular invention, and the patent is the concern of and addressed to other persons skilled in that same field.FN16

FN12. Art is the relevant field in which the invention is created. Schwartz, *supra* at 14.

FN13. Texas Instruments., 182 F.Supp.2d at 583 (citing *Markman,* 517 U.S. 383-91).

FN14. Phillips, 415 F.3d at 1312 (quoting Vitronics, 90 F.3d at 1582 (Fed.Cir.1996).

FN15. *Id*. at 1313.

FN16. *Id*.

A person of ordinary skill in the art is deemed to read the claim terms in the context of a particular claim and also, in the context of the patent as a whole. Other claims of the patent can assist in ascertaining the meaning of a claim because terms are normally used consistently throughout the patent. Likewise, differences among the claims can provide instructions as to a term's meaning.FN17 A person of ordinary skill in the art reads the patent documents with an understanding of the terms in the context they are used and any special meaning and usage that the terms might have in the field.FN18

FN17. *Id*. at 1314.

FN18. *Id*. at 1313.

However, a patentee may choose to act as his or her own lexicographer, and use a term in a manner other than the term is ordinarily used. In that case, the special definition of the term must be clearly stated in the patent specification or the prosecution history.FN19

FN19. Vitronics, 90 F.3d at 1582.

In construing claims, the court should initially rely on the intrinsic evidence. Along with the patent claims, intrinsic evidence includes the patent specification and the patent's prosecution history.FN20

FN20. *Id*.

The patent specification must always be reviewed to determine whether the inventor has supplied definitions or used any terms "in a manner inconsistent with their ordinary meaning." FN21 "The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." FN22

It is the best source for understanding a technical term because of the close relationship between the claim and the specification's description of the invention.FN23

FN21. *Id*.

FN22. *Id*.

FN23. Phillips, 415 F.3d at 1316.

The court should also consider the patent's prosecution history. "The prosecution history ... consists of the complete record of the proceedings before the [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." FN25 It shows the ongoing negotiation between the Patent and Trademark Office and the inventor. The prosecution history gives insight into how the inventor understood his or her patent, and whether he or she limited the invention, making the scope of the claim narrower than it otherwise would have been.FN26 The doctrine of prosecution history estoppel or prosecution disclaimer precludes a patent holder from obtaining a claim construction that would resurrect or recapture specific meanings surrendered or disclaimed during the patent prosecution. FN27

FN25. *Id*. at 1317.

FN26. *Id*.

FN27. Hughes Aircraft Co. v. United States, 717 F.2d 1351, 1362 (Fed.Cir.1983); Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed.Cir.2003).

Although intrinsic evidence is preferred, the Federal Circuit has authorized district courts to use extrinsic evidence in claim construction matters. Extrinsic evidence " 'consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." ' FN28 Of the class of extrinsic evidence, dictionaries and treatises hold favored status. They provide the accepted meaning to terms used in various fields of science and technology, and are properly recognized among the tools that can be used to determine the meanings of particular terms to persons skilled in the art of the invention.FN29

FN28. Phillips, 415 F.3d at 1317 (quoting Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995)(en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996)).

FN29. *Id*. at 1317.

Likewise, the inventor may provide insight to assist the court in understanding the technical aspects relevant

to the patent. However, testimony concerning the inventor's subjective intent as to the scope of the claims, if not appearing in the patent documents, cannot be used to vary a construction of claims that appears unambiguously in the patent documents.FN30

FN30. Vitronics, 90 F.3d at 1582.

In summation, extrinsic evidence is generally considered less reliable than the intrinsic evidence of the patent documents and prosecution history. Extrinsic evidence may be useful to the court, but it must be considered in the context of the intrinsic evidence in order to determine the proper construction of the claim terminology.FN31

FN31. Phillips, 415 F.3d at 1319

IV. *Analysis*

The parties initially requested the construction of several claim terms contained in the patents at issue. During the course of the claims construction process, the parties reached agreement concerning the construction of some of the disputed claim terms and submitted a stipulation of the agreed terms. FN32

FN32. The stipulated constructions are attached to this memorandum and recommendation.

The following claim terms remain at issue:

A. From claim 16 of the '541 patent and claim 20 of the '582 patent-"high browning flavorless aqueous composition" and "derived from a vapor of a pyrolyzed material."

B. From claim 1 of the '537 patent-"a high browning liquid smoke composition comprising," and dependant claims 2, 3, 4, and 5-"a liquid smoke composition," and from claim 1 of the 770 patent-"a high browning liquid composition comprising," and dependant claims 2 and 3-"a high browning liquid composition of claim 1."

C. From claims 1, 14, 18, and 21 of the '067 patent-"a high browning, low flavor liquid composition" and "derived from a feedstock," and from claims 1 and 21-"without adding undesired sensory properties to the food."

A. Patents '541 **and '582** FN33

FN33. In its memorandum in support of claim construction, plaintiff states that the " '582 patent arose from a continuation application of the application for the '541 patent, i.e. they disclose the same matter and are entitled to the same filing date. Accordingly, citations to the '541 patent specification and/or prosecution history also apply to the '582 patent, unless otherwise noted." Docket Entry 42, at 4, n. 2.

1. Independent claims to be construed

Number 16 of the '541 patent claims:

A high browning flavorless aqueous composition derived from vapor of a pyrolyzed material selected from the group consisting of sugar, starch, and mixtures thereof, wherein said composition has a soluble organic content of less than about 50 (deg.) Brix, a browning index greater than about 30 and a ratio of titrable acidity to browning index of less than about 0.06.

Number 20 of the '582 patent claims:

A high browning, flavorless aqueous composition derived from vapor of a pyrolyzed material selected from a group consisting of a sugar, a starch, and mixtures thereof, wherein the material is pyrolyzed at about 400 (deg.) C. to about 1000 (deg.) C. and the composition has a soluble organic content of less than 50 (deg.) Brix, a browning index greater than about 30, and a ratio of titrable acidity to browning index of less than about 0.06.

2. Patent Specification

The '541 patent abstract explains:

The invention relates to a process for producing a liquid product for coloring and flavoring a foodstuff by pyrolyzing sugars and starches. The liquid product is useful for imparting a brown smoked color to a foodstuff without adding undesired strong smoked flavors to the foodstuff.

The '582 patent abstract similarly describes the invention as:

A method of producing a browning liquid product by pyrolyzing sugars and starches. The browning liquid imparts a brown, smoked color to a cooked foodstuff without imparting an undesirable strong smoked flavor to the foodstuff.

Both patents describe the field of the invention as one "directed to pyrolyzing sugars and starches to produce a browning liquid product for coloring and flavoring foodstuffs." FN34 The specification expressly defines "pyrolysis" as used in the patent as "the thermal degradation of a material primarily into smaller, or simpler, molecules and into a minor portion of a residue, including ash and a residual polymeric material, or char." FN35 "Pyrolysis product" and "pyrolysis liquid" are expressly defined as "the degradation products, or the smaller, simpler molecules, that result from pyrolysis, as opposed to the residue, including the pyrolytic char." FN36 Pyrolysis of organic matter yields liquids, which are condensable vapors; gases, which are noncondensable vapors; and solids, which are char and ash. FN37 "Pyrolysis product" is further defined as "the condensable vapors and noncondensable vapors resulting from pyrolysis," while "pyrolysis liquid" is further defined as "the condensable vapors resulting from pyrolysis." FN38

FN34. '541 patent, Col. 1, lines 17-21.

FN35. '541 patent, Col. 1, lines 37-41.

FN36. '541 patent, Col. 1, lines 41-46.

FN37. '541 patent, Col. 1, lines 47-49.

FN38. '541 patent, Col. 1, lines 51-55.

The background of the invention explains that the use of pyrolysis liquids or solutions containing pyrolysis liquids has supplanted the smoking of foodstuffs by direct contact with wood smoke as the industry standard procedure. Pyrolysis liquids termed "liquid smoke" give foodstuffs to which they are applied a typical smoked coloring and flavor.FN39

FN39. '541 patent, Col. 1, lines 62-68, Col. 2, lines 1-3.

The patent identifies a desire by some consumers for foodstuffs having smoked coloration with a very mild or little smoked flavor. At the time of the patent application, the patentees claimed that no product was available to produce this desired result, and therefore, a need for the invention existed.FN40

FN40. '541 patent, Col. 2, lines 23-35.

The summary of the invention explains the method of producing the high-browning liquid product from feedstock selected from the group consisting of sugar, a starch, and mixtures of the two. The resulting pyrolysis liquid has little or no detectable smoke flavoring ability.FN41 Water is added to the pyrolysis liquid to complete separation of undesirable water-insoluble components from the desirable water-soluble components.FN42 Treating a foodstuff with the water-soluble pyrolysis liquid, followed by heating, yields a brown colored foodstuff that has little or substantially no smoke flavor. FN43

FN41. '541 patent, Col. 2, lines 5 9-68, Col. 3, lines 1-2.

FN42. '541 patent, Col. 3, lines 3-9.

FN43. '541 patent, Col. 3, lines 30-34.

The water-soluble pyrolysis liquid can be processed further to remove flavoring materials, especially food flavoring materials that supply smoke flavor and aroma, without removing the materials that supply the brown color to the foodstuffs. After the additional processing, the final browning liquid has substantially no detectable flavoring ability when evaluated by taste. FN44

FN44. '541 patent, Col. 3, lines 35-63.

The patentee provides 11 examples of methods for producing high browning pyrolysis liquids from sugar and starch materials. Example 3 describes a method that initially removes flavor components from the pyrolysis liquid and then further processes the pyrolysis liquid to remove additional flavor constituents. The summation of the example states that the "flavorless browning composition browned the sausages without also contributing a detectable flavor to the sausages.FN45

FN45. '541 patent, Col. 13, lines 25-59.

Examples 4, 5, and 6 describe methods for producing a high browning flavorless aqueous composition from dextrose and lactose. In these examples, the pyrolysis liquids were processed to remove flavor components and further processed to remove low molecular weight flavor components. The resulting flavorless, browning compositions browned the treated sausages without contributing a detectable flavor to the sausages.FN46

FN46. '541 patent, Col. 13, lines 62-68, Col. 14, lines 1-68, Col.15 lines 1-61.

Example 7 describes a method for removing undesirable flavor components from a pyrolysis liquid derived from lactose. The resulting composition was diluted with distilled water and then submitted to a panel for a taste test. A majority of the panel members determined that the diluted extracted sample had virtually no flavor when compared to the two non-extracted diluted samples.FN47

FN47. '541 patent, Col. 15, lines 64-68, Col. 16, lines 1-23.

3. Prosecution History

The patentee filed the applications for the '541 patent and the '582 patent on March 27, 1991. The patent examiner initially rejected the claims set forth in the patent applications. Thereafter, the patentee amended the claims and submitted argument for the approval of the amended application. The examiner again rejected certain of the amended the claims requiring further amendment. After further amendment, argument, and negotiation, the patentee ultimately received approval of the patent application including the amended claims and received the '541 patent and '582 patent.

The patent examiner initially rejected the claims as being obvious extensions of existing technology.FN48 In order to receive approval, the patentees had to distinguish their process for producing a browning composition from the process of caramelization of sugars, a process by which sugars are heated to produce an dark colored liquid used to physically color various products. FN49

FN48. Docket Entry 46, Ech. 3, RTI 0165-0169.

FN49. Docket Entry 46, Ech. 3, RTI 0206.

The patentees argued that pyrolysis of sugars differed from caramelization in that pyrolysis involves the

degradation of the sugar into smaller component molecules, while caramelization involves polymerization resulting in molecules larger than the original sugar molecules. Further, the liquids produced from the two processes colored foodstuff in different manners. While the caramel liquid tinted or applied pigment to the foodstuff, the pyrolysis liquid browned the food through a chemical reaction that occurred when cooking the foodstuff to which the pyrolysis liquid was applied, causing the browning of the food. The color of the pyrolysis liquid had nothing to do with the browning effect. In addition, the patentees argued that the browning liquid produced by the claimed method had "no detectable smoke flavoring ability whether evaluated by taste or smell." FN50 Finally, "the browning liquid product resulting from the claimed process, i.e., pyrolysis, is flavorless." FN51

FN50. Docket Entry 46, Ech. 3, RTI 0207.

FN51. Docket Entry 46, Ech. 3, RTI 0207.

Throughout the prosecution history, the patentees consistently argued to the examiner that the browning liquid product does not impart flavor to the foodstuff to which it is applied and that the browning liquid product is flavorless.

For example, at various times in the application process, the patentees stated:

Conventional browning liquids have a smoked flavor which *imparts* a strong flavor to sausages. However, not all sausages have a "smoked" or a strong flavor, and such mild and non-smoke flavored sausages are desired by a large number of consumers. The claimed browning liquid, as demonstrated in Examples 3 through 6, has the capability of imparting a brown color to a meat product without imparting a detectable flavoring.FN52

FN52. Docket Entry 46, Ech. 3, RTI 0233.

The examiner also asserts that the term "flavorless", [sic] now recited in claim 20, is not supported by the originally-filed disclosure and therefor does not comply with 35 U.S.C. s. 112, first paragraph. However, Applicants disclosed the term "flavorless" in the specification numerous times in reference to a high browning composition as presently-claimed....Accordingly, the term "flavorless" is fully supported in the specification. Applicants' examples further showed that the browning liquids, as claimed, are flavorless (Example 7).FN53
FN53. Docket Entry 46, Ech. 3, RTI 0235-0236.

In contrast, a browning liquid product produced by a claimed method is *not* an inherently dark product, but imparts a dark color to foodstuffs by heating the treated foodstuff ... This results in a chemical reaction between the components of the browning liquid product and proteins in the foodstuff which produces the color. In addition, a browning liquid product produced by the claimed methods has no detectable smoke flavoring ability whether evaluated by taste or smell.FN54
FN54. Docket Entry 46, Ech. 3, RTI 0239.

The examiner also contends that no unexpected results or advantages are observed from a product produced by the presently claimed method. This contention is made after citing art directed to inherently dark thermolysis products of a sugar, i.e., a caramel. In contrast, the products resulting from the presently claimed method are colorless and flavorless products that impart a brown color to cooked *food, especially microwaved food*. This color is imparted *without* imparting a smoke flavor to the food and *without* including a caramel type product.... FN55
FN55. Docket Entry 46, Ech. 3, RTI 0241-0242.

In contrast, a browning liquid product produced by the claimed method is *not* a pigment or a stain, but imparts a dark color to foodstuffs by heating the treated foodstuff (specification, page 11, lines 10-31). Heating results in a chemical reaction between the components of the browning liquid product and proteins in the foodstuff which produces the color. In addition, a browning liquid product produced by the claimed methods has no detectable smoke flavoring ability when evaluated by taste. Furthermore, browning liquid products produced by a claimed method are *pyrolyzed,* not thermolyzed like in caramelization; and, contrary to the teachings of Fennema, the browning liquid product resulting from the claimed process is flavorless.FN56
FN56. Docket Entry 46, Ech. 3, RTI 0275.

4. High browning flavorless aqueous composition

Plaintiff argues that the phrase "high browning flavorless aqueous composition" as used in the '541 patent and '582 patent should be construed to mean "a composition capable of imparting a brown color to foodstuffs without imparting virtually any detectable flavor to foodstuffs (whether a composition is flavorless is determined by comparing treated foodstuffs to untreated foodstuffs by taste, not smell)." FN57 Defendant counters that the proper construction is "a virtually flavorless water containing composition or product capable of imparting a brown color to foodstuffs, considering smell as well as taste of the product (the product applied to the meat must have virtually no flavor)."

FN57. Docket Entry 69 at 4.

The parties' dispute turns on the meaning of the word "flavorless" as used in the claim. Plaintiff contends that flavorless refers to the compositions effect on foodstuffs to which it is applied. In short, the composition adds virtually no flavor to the foodstuffs. Defendants argue that "flavorless" refers to the composition itself. The composition has virtually no flavor.

The customary and ordinary usage of "high browning flavorless aqueous composition" supports defendants' construction insofar as they argue that "flavorless" refers to the composition and not the foodstuffs treated. There is no dispute among the parties that aqueous describes composition, nor do they dispute that "high browning" refers to the composition's ability to impart color to the treated foodstuffs.

"Flavorless" is an adjective,FN58 which immediately precedes the noun, "composition" in the claims at issue. The ordinary usage of an adjective would dictate that the preceding adjective commonly describes the following noun. Accordingly, "flavorless" would describe "composition." Therefore, the customary and

ordinary construction of claim 20 of the '541 patent and claim 16 of the '582 patent is that the aqueous composition is flavorless.

FN58. *See* Defendants' claim construction hearing Exhibit 11 at 3.

Notwithstanding this unambiguous construction, plaintiff argues that the patentees acted as their own lexicographers and defined the "high browning flavorless" composition in a manner other than its ordinary and customary usage. However, the patentees did not expressly define the terms in the specification. Rather, plaintiff argues that the terms, high browning flavorless composition, are defined by the reference of the composition's effect on the foodstuffs.

While it is true that the patentees make clear that the purpose of the invention is to provide coloring to foodstuffs without adding smoke flavor, it is likewise true that the patentees claimed that the pyrolysis liquid produced from the claimed method is flavorless. Such a construction is supported not only by the claims language and the specification examples, but also by the selected portions of the prosecution history provided above.

Plaintiff argues that defendants have "cherry picked" selected portions of the prosecution history and read the selections out of context to support defendants' construction that the term "flavorless" refers to the browning liquid. However, plaintiff's contention is not supported by the record. The above cited portions of the prosecution history were all made in appeal of the patent examiner's rejection of claims originally numbered 1-4 and 7-27. FN59 The patentees made the arguments to persuade the Commissioner of Patents that the examiner erred in rejecting the patent claims 1-4 and 7-27. These selections show that the patentees took the position that the browning liquid did not impart flavor to the treated foodstuffs because the liquid itself was flavorless. The prosecution history contains additional instances of the patentee arguing that the browning liquid is flavorless and therefore, does not impart flavor to the treated foodstuff.FN60

FN59. Docket Entry 46, Ech. 3, RTI 0266.

FN60. See Docket Entry 46, Ech. 3, RTI 0283, 0284, 0288, and 0293.

Finally, plaintiff argues that defendants improperly construe the claims by adding the additional components of taste and smell. However, to the extent that defendants construe flavor to include the sensory perceptions of taste and smell, they are correct that a person of ordinary skill in the art would understand flavor to encompass both senses.

In considering the patent applications, the patent examiner cited a number of reference sources relevant to the art. Pertinent to the issue of "flavor," the examiner referred to the text *Food Chemistry*. *Food Chemistry* explains the ordinary and customary usage of "flavor" in the art:

The term "flavor" has evolved to a usage that implies an overall integrated perception of all the contributing senses (smell, taste, sight, feeling, and sound) at the time of food consumption. The ability of specialized cells of the olfactory epithelium of the nasal cavity to detect trace amounts of volatile odorants accounts for the nearly unlimited variations in intensity and quality ... Taste buds located on the tongue and back of the

oral cavity enable humans to sense sweetness, sourness, saltiness, and bitterness, and these sensations contribute to the taste component of flavor. Nonspecific or trigeminal neural responses also provide important contributions to flavor perception through detection of pungency, cooling, umami or delicious attributes, as well as other chemically induced sensations that are incompletely understood.FN61

FN61. *Food Chemistry,* 586 (Owen R. Fennema ed., Marcel Dekker, Inc., 2d ed.1985)

The patent examiner included the above passage in his analysis of the claims in question. The patentee did not contest the usage of flavor contained in the above passage, but rather addressed the patent examiner's reliance on the work to reject the claims. Accordingly, the quoted passage constitutes intrinsic evidence of the meaning of the term "flavor" as understood by one of ordinary skill in the art. Even if *Food Chemistry* constitutes extrinsic evidence, the text is a technical work that holds a favored position and provides the accepted meaning of flavor in the art.

Accordingly, the District Court should construe the phrase "high browning flavorless aqueous composition" to mean "a virtually flavorless water containing composition or product capable of imparting a brown color to foodstuffs, considering smell as well as taste of the product (the product applied to the meat must have virtually no flavor)."

5. Derived from vapor of a pyrolyzed material

The parties also disagree on the construction of the phrase "derived from a pyrolyzed material." Plaintiff maintains that the quoted language is unambiguous and needs no further construction. Defendants contend that phrase should be construed as "derived from a vapor of pyrolyzed sugar, starch and/or mixtures thereof by removing all remaining flavor-causing components from a liquid condensate of the vapor.

Plaintiff's construction of the phrase at issue is better supported by the intrinsic evidence. First the language of the claim is plain. The browning liquid is derived or produced from pyrolyzed material. Each of the claims specify that the pyrolyzed material is "selected from the group consisting of sugar, starch, and mixtures thereof." Accordingly, defendants' proposal, which replaces "material" with "sugar, starch, and/or mixtures thereof," adds nothing to the construction and is redundant.

Further, defendants' limitation "by removing all remaining flavor-causing components from a liquid condensate of the vapor" is redundant in light of the construction that flavorless refers to the browning liquid composition. The specification sets forth the process for pyrolyzing the sugars and starches. After the pyrolysis vapor is condensed, the resulting water soluble pyrolysis liquid can be further processed to remove flavoring materials. This additional processing yields the high browning flavorless aqueous liquid described in the claims. Nothing in the specification requires the removal of all the remaining flavor-causing components from the liquid. The construction that all remaining flavoring materials are removed is also inaccurate because the parties preface their claims as being "virtually" flavorless whether speaking terms of the browning liquid or the foodstuffs to which it is applied.

Based on the foregoing, the District Court should determine that the phrase "derived from a pyrolyzed material" is unambiguous and requires no further construction.

B. Patents '537 **and '770**

1. Independent and dependant claims to be construed.

Number 1 of the '537 patent claims:

A high browning liquid smoke composition comprising: a liquid solution having a brix of less than about 50, a browning index greater than about 30, and a transmittance value greater

Numbers 2, 3, 4, and 5 of the '537 patent begin with the phrase "[a] liquid smoke composition of claim 1 ..."

Number 1 of the '770 patent claims:

A high browning liquid composition comprising a liquid solution having a ration of browning index to percentage of carbonyls in the liquid solution of greater than 0.8.

Numbers 2 and 3 of the '770 patent begin with the phrase "[a] high browning liquid composition comprising of claim 1...."

2. Patent Specification

The '537 patent abstract and the '770 patent abstract are identical and explain the invention as follows:

This invention relates to a high browning liquid smoke composition made from the condensable liquids of pyrolyzed wood or cellulose. The high browning liquid smoke composition has the capability to flavor and to impart characteristic smoke color to a foodstuff and has a brix less than about 50, a browning index greater than about 30, and a transmittance value of greater than about 50% at 590 nm. A method of making the high browning liquid smoke composition and the use of the composition with a food product is also disclosed.FN62

FN62. Docket Entry 56, Exhs. 1A and 1B.

Both patents describe the inventions as methods for making "a liquid smoke composition from the condensable products resulting from the fast pyrolysis of wood or cellulose and, more particularly, to a method of making a high browning liquid smoke composition." FN63 The liquid smoke composition is used in place of direct contact of foodstuffs to wood smoke to give foodstuffs and food casings a smoke flavoring and coloring.FN64

FN63. '537 patent, Col. 1, lines 18-22; '770 patent, Col. 1, lines 19-23.

FN64. '537 patent, Col. 1, lines 26-31; '770 patent, Col. 1, lines 26-31.

The patents expressly define "pyrolysis" as "a general term for the thermal decomposition of any organic matter, such as wood, plants, or fossil fuels, which occurs either during combustion or in the absence of combustion." FN65 Either method of pyrolysis produces condensable liquids, non-condensable gases, and solids in varying proportions.FN66

FN65. '537 patent, Col. 1, lines 50-53; '770 patent, Col. 1, lines 50-53.

FN66. '537 patent, Col. 1, lines 63-65; '770 patent, Col. 1, lines 63-65.

The patents summarize the inventions as methods for making very high browning liquid smoke compositions from the fast pyrolysis of wood or cellulose to give a raw liquid smoke composition. The raw liquid is diluted with water and concentrated, or further processed and concentrated to produce the final high browning liquid smoke composition.FN67

FN67. '537 patent, Col. 3, lines 36-68, Col. 4, lines 1-7; '770 patent, Col. 3, 36-68, Col. 4, lines 1-7.

The high browning liquid smoke composition is preferably made from the condensable products of the fast pyrolysis of wood or cellulose. Other lignin-cellulose sources are acceptable as feedstock. "The pyrolysis feedstock may be any suitable wood product, but is preferably hardwoods such as maple, hickory, birch, oak, beech or poplar." FN68

FN68. '770 patent, Col. 4, lines 55-62; '537 patent, Col. 4, lines 55-68.

3. Prosecution History

The patentee filed the applications for the '537 patent on October 4, 1989, and the '770 patent on June 6, 1991.FN69 Neither party argues that the prosecution histories of these patents provide assistance in the construction of the claims at issue.

FN69. Docket Entry 56 Ech. 1D, RA 1654, Ech. 1E, RA 1914.

4. "High browning liquid smoke composition comprising" or "a high browning liquid composition."

Plaintiff contends that the preambles of claim 1 of the '537 patent and claim 1 of the '770, "a high browning liquid composition comprising," are superfluous. Plaintiff argues that the phrase and the reference to "a high browning liquid composition of claim 1" in the dependant claims do not limit the scope of the claims beyond what is set forth in the body of the claims. In other words, claim 1 of the '537 patent claims "a liquid solution having a brix of less than about 50, a browning index greater than about 30, and a transmittance value greater than about 50% at 590 nm," while claim 1 of the '770 patent claims "a liquid solution having a ration of browning index to percentage of carbonyls in the liquid solution of greater than 0.8." Even if the phrase acts as a limitation, plaintiff argues that the terms should be construed as "a high browning liquid composition derived from pyrolyzed organic matter."

Defendants argue that the scope of the claim is limited to a solution made from wood or cellulose. Defendants claim that the proper construction of the claim should be "a high-browning liquid solution made from the condensable liquids of pyrolyzed wood or cellulose."

In this case, the claim language and the specification weigh in favor of defendants' construction of the

claims. The preambles "high browning liquid smoke composition" of the '537 patent and "high browning liquid composition" describe the purpose and function of the liquid set forth in the body of the claim. The liquid in both instances must be "high browning" in that the liquid used to color edible foodstuffs produces a dark smoked color in foodstuffs to which the liquid is applied.FN70 In the case of the '537 patent, the browning liquid must be a "liquid smoke composition." The standard industry practice at the time of the inventions was to use liquid smoke solutions in place of direct contact with wood smoke to impart smokehouse attributes of coloring and flavoring to foodstuffs and food casings.FN71 Therefore, when read by a person of ordinary skill in the art, the preambles, "high browning liquid composition" and "high browning liquid smoke composition," give meaning to the claims and should be construed with the balance of the claim. FN72

FN70. '770 patent, Col. 1, lines 24-25 and 28-31; '537 patent, Col. 1, 23-25, 28-31.

FN71. '770 patent, Col. 1, lines 26-37; '537 patent, Col. 1, 26-37.

FN72. *See* Pitney Bowes, Inc. V. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed.Cir.1999)("If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim.").

Further, both patents state that a meat processor at the time of the inventions normally has to compromise the amount of smoke coloring or browning of the meat with the amount of the smoke flavoring. The liquid smoke solutions of the prior art generally imparted a too intense smoke flavor at the desired level of coloring. The patents recognized a "need in the industry for a liquid smoke solution with good coloring or browning properties that has acceptable flavoring properties." FN73

FN73. '537 patent, Col. 1, lines 38-46; '770 patent, Col. 1, lines 38-46.

The typical method for creating liquid smoke solutions at the time of the invention began with the pyrolysis and limited combustion of wood. Wood feedstock, usually dried ground sawdust, generated the smoke product through conventional pyrolysis involving relatively slow thermal reactions occurring at moderate temperatures. The patent specification claims that yield of the liquid smoke products may be improved by using a fast or flash pyrolysis method using extremely fast heating rates and short residence times for the material and vapor.FN74

FN74. '537 patent, Col. 2, lines 18-38; '770 patent, Col. 2, lines 18-38.

The detailed descriptions of the inventions state that each invention provided a high browning liquid smoke composition and also provided a method for making high browning liquid smoke through the fast pyrolysis of wood or cellulose. FN75 The feedstock used in the inventions is wood or cellulose or other lignin-cellulose sources. Any suitable wood product may be used, but hardwoods such as maple, hickory, birch, oak, beech, or poplar are preferable.FN76

FN75. '537 patent, Col. 4, lines 16-27; '770 patent, Col. 4, lines 16-27.

FN76. '770 patent, Col. 4, lines 55-62; '537 patent, Col. 4, lines 55-68.

The detailed description further sets forth three systems for the fast pyrolysis process. Each system refers to the "wood feedstock" as the pyrolyzed material used in the process.FN77

FN77. '770 patent, Col. 5, lines 1-2, 23-30, 50-53; '537 patent, Col. 5, lines 1-2, 23-30, 39-45, 50-53.

Finally, three of the examples provided in the patents have wood and cellulose as the feedstock used in the pyrolysis process. Example 1 used ground poplar wood, Example 3 used maple sawdust, and Example 8 used cellulose in the form of Avicel0 to produce a liquid smoke product.FN78 Examples 2, 4, 5, 6, 7, 9, and 10 involve the testing of the liquid smoke compositions of Examples 1, 3, and 8. None of the examples provided by the patentees utilized any feedstock material for pyrolysis other than wood or cellulose.

FN78. '537 patent, Col. 10, line 15, Col. 11 lines 66-67, Col. 14, line 19; '770 patent, Col. 10, line 15, Col. 11, lines 66-67, Col. 14, line 15.

Accordingly, the patentees limited the invention by the specification statements and the preferred embodiments. The District Court should construe "high browning liquid smoke composition comprising" as used in claim number 1 of the '537 patent and the dependent claims 2, 3, 4, and 5, or "a high browning liquid composition" as used in claim number 1 of the '770 patent and dependent claims 1 and 2, to mean "a high-browning liquid solution made from the condensable liquids of pyrolyzed wood or cellulose."

C. The '067 Patent

1. Independent Claims 1, 14, 18, and 21 and dependent claims 2, 6, 8, 9, 10, 12, 13, 15, 16, 19, and 20.

Number 1 claims:

A peelable casing made by a method comprising the step of: contacting the casing with a high browning, low flavor liquid composition having soluble organic components and a ratio of browning index to (deg.)Brix greater than 0.9, wherein the liquid composition is derived from a feedstock selected from the group consisting of sugar, a starch, a monosaccharide, a disaccharide, a trisaccharide, a starch hydrolysate, cellobiose, hemi-cellulose and mixtures thereof, and wherein the composition imparts a satisfactory brown color to a food subsequently encased in the casing without adding undesired sensory properties to the food.

Numbers 2, 6, 8, 9, 10, and 13 relate to "a casing according to claim 1...."

Number 12 claims:

A casing according to claim 1 wherein the liquid composition is derived from the group consisting of sugars, starches and mixtures thereof.

Number 14 claims:

A peelable cellulosic casing treated with high browning, low flavor liquid composition, wherein the liquid composition includes soluble organic components and has a ratio of browning index to (deg.)Brix greater than 0.9 and is derived from a feedstock selected from the group consisting of a sugar, a starch, a monosaccharide, a disaccharide, a trisaccharide, a starch hydrolysate, cellobiose, hemi-cellulose and mixtures thereof, and wherein the treated casing has a ratio of organic components to browning index density less than 12.0.

Numbers 15 and 16 relate to "a casing according to claim 14...."

Number 18 claims:

A peelable cellulosic casing treated with high browning, low flavor liquid composition, wherein the liquid composition includes soluble organic components and has a ratio of browning index to (deg.)Brix greater than 0.9 and is derived from a feedstock selected from the group consisting of a sugar, a starch, a monosaccharide, a disaccharide, a trisaccharide, a starch hydrolysate, cellobiose, hemi-cellulose and mixtures thereof, and wherein the treated casing has a ratio of phenols to browning index density less than 0.1.

Numbers 19 and 20 relate to "a casing according to claim 18...."

Number 21 claims:

A food product produced by a process comprising the steps of:

(a) treating a peelable casing with a high browning, a low flavor liquid composition having soluble organic components and a ratio of browning index to (deg.)Brix greater than 0.9 to provide a treated peelable casing, wherein the liquid composition is derived from a feedstock selected from the group consisting of a sugar, a starch, a monosaccharide, a disaccharide, a trisaccharide, a starch hydrolysate, cellobiose, and mixtures thereof;

(b) introducing a food substance into the treated peelable casing to provide an encased food product;

(c) heating the encased food product such that the treated peelable casing imparts a satisfactory brown color to the food without adding undesired sensory properties to the food; and

(d) removing the treated peelable casing from the encased food product.

2. Patent Specification

The '067 patent abstract explains the invention as follows:

The present invention relates to a casing which is impregnated with a high browning, low flavor liquid composition in order to impart a desirable brown color to a food contained in the casing without adding undesirable sensory characteristics to the food.FN79

FN79. Docket Entry 56, Ech. 1C.

The patent describes the field of the invention as relating generally to "a casing impregnated with a high browning, low flavor liquid composition that imparts or adds a desirable brown, smoked color to an encased food." FN80 The casing is impregnated with a liquid composition that browns the encased food, but does not impart a strong, smoked flavor to the foods. The invention also includes a method of making impregnated casings.FN81

FN80. '067 patent, Col. 1, lines 17-20.

FN81. '067 patent, Col. 1, lines 20-24.

At the time of the invention, the use of liquid smoke solutions in place of directly contacting food with wood smoke had become the standard industry practice. The liquid solutions are applied to foods to give a characteristic smoke flavor and a brown, smoked color to the food. The application of the liquid solution can be carried out in a variety of ways including spraying or dipping the food during processing, incorporating the liquid smoke in the recipe, and treating a casing which contacts the food. FN82

FN82. '067 patent, Col. 1, lines 27-53.

The patent states that the conventional methods for spraying and dipping the casings at the time of the invention yield unsatisfactory results. The encased food is not uniformly treated, and the processor normally is unable to achieve the desired level of smoke color because the flavor imparting ability of the known liquid smoke solution is too intense. Additionally, treated encased sausages lacked uniform smoke color and often, the surface of the sausages included light and dark streaks, light and dark blotches, uncolored spots, dark surface discoloration, and black spots.FN83 Therefore, the patentees determined the existence of a "need in the industry for impregnated casings having both good coloring or browning properties and acceptable flavoring properties." FN84

FN83. '067 patent, Col. 1, lines 53-68, Col. 2, lines 1-9.

FN84. '067 patent, Col. 3, lines 8-11.

The summary of the invention states that the present invention "provides a casing suitable to impart a brown color to food and provides a method of making a casing that includes contacting a casing with a high browning, low flavor liquid composition having a high ratio of browning index to the amount of soluble organic components in the composition ((deg.) Brix)." FN85 The preferable ratio of browning index to organic components produces a liquid composition that imparts a satisfactory brown, smoked color to the food contained in the casing without imparting undesired sensory properties to the food.FN86

FN85. '067 patent, Col. 3, lines 14-19.

FN86. '067 patent, Col. 3, lines 20-24.

The detailed description states that the "present invention provides a casing and a method of making a casing in which the casing has higher browning capabilities and less intense flavor properties compared to previously reported food casings." FN87 The advantages claimed by the invention are due in part to three characteristics of the liquid solutions applied to the casings. The liquid solutions have:

FN87. '067 patent, Col. 3, lines 62-65.

i) low acid content (the ratio of browning index to total organic components is very high);
ii) high levels of browning carbonyls (the ratio of browning index to carbonyls is higher than in reported liquid smoke solutions and results in food products having good coloring using casings treated with less solution); and

iii) low levels of phenols (the high ratio of browning index to phenols gives a food with desirable brown color and less flavor).FN87

FN87. '067 patent, Col. 5, lines 10-23.

The patent claims that the indirect application of the liquid composition to the food from the casing results in a lack of a strong or undesirable flavor in contrast to conventional or known liquid smoke solutions, which must be used in high concentrations to achieve the desired levels of browning or coloring. The high concentrations of liquid smoke have a flavor which may be too intense. The use of the liquid compositions provided by the invention "allows a processor to achieve a desired brown, smoke. [sic] like color without necessarily imparting too much flavor to a food.FN88

FN88. '067 patent, Col. 6, lines 24-35.

The liquid solution applied to the casings is produced by a fast pyrolysis process.FN89 "Suitable feedstocks for producing a high browning, low flavor liquid composition are generally a member of the group consisting of wood, sugars, cellulose, polysaccharides, other cellulosic biomass materials, and/or mixtures thereof." FN90

FN89. '067 patent, Col. 6, lines 43-46.

FN90. '067 patent, Col. 8, lines 21-25.

3. Prosecution History

The patentees filed the application for the '067 patent on August 12, 1991. FN91 The examiner initially rejected claims 1-30 under the doctrine of obviousness-type double patenting.FN92 The rejected claims related to the method of treating a peelable casing with a high browning, low flavor liquid composition; a peeleable casing made by the method of contacting the casing with the high browning, low flavor composition; a peelable cellulosic casing; and a food product.FN93 The peelable casing of the rejected claims was "treated, or impregnated, with a composition that imparts a satisfactory brown color and low smoke flavor to a food subsequently encased in the casing." FN94

FN91. Docket Entry 56, Ech. 1F, RA 2313.

FN92. Docket Entry 56, Ech. 1F, RA 2380-81.

FN93. Docket Entry 56, Ech. 1F, RA 2393.

FN94. Docket Entry 56, Ech. 1F, RA 2392.

To distinguish the rejected claims from the issued claims in existing patents, the applicants argued that the existing patents did not teach or suggest the impregnation of a peelable casing, prior to encasing the food, with a high browning, low flavor solution.FN95 They also argued that their invention demonstrated new and unexpected advantages "by a peelable casing treated with a liquid composition prepared by a fast pyrolysis process compared to a casing treated with a prior art, tar-depleted liquid smoke composition...." FN96 These advantages include a substantially higher browning index; a neutralized composition having a low viscosity and high browning index value; a higher browning index density compared to casings loaded with the same amount of tar-depleted liquid smoke product; smaller amounts of the load of organic components to provide an equivalent amount of browning index value as prior art compositions; low smoke flavor; and peelable casings do not develop black spots.FN97

FN95. Docket Entry 56, Ech. 1F, RA 2393-95.

FN96. Docket Entry 56, Ech. 1F, RA 2396-97.

FN97. Docket Entry 56, Ech. 1F, RA 2397.

4. A high browning, low flavor liquid composition

Plaintiff contends that the phrase "a high browning, low flavor liquid composition" recited in the claims at issue should be construed as "a liquid composition capable of imparting a brown color to foodstuffs without imparting strong flavor to the foodstuffs (whether a composition is low flavor is determined by comparing treated foodstuffs to untreated foodstuffs by taste, not smell)." Defendants counter that the phrase should be construed as "a low flavor liquid solution with substantially no smoke flavoring ability, considering smell as

well as taste."

The parties dispute whether "low flavor" refers to the liquid composition or the foodstuffs which are encased by the casings treated with the liquid composition. They parties also disagree as to whether "flavor," as used in the claims, encompasses smell as well as taste.

A plain reading of "high browning, low flavor liquid composition" supports defendants' construction. In the context of the claim statements, the customary and ordinary usage of both "high browning" and "low flavor" are as compound adjectives.FN98 Liquid is also an adjective in the context of the claims. Each of the adjectives describes the immediately following noun, in this case, composition. Accordingly, it is the composition that is "high-browning," "low-flavor," and "liquid."

FN98. Using "high" and "low" in conjunction with other descriptive terms create compound adjectives. Compound adjectives that are formed by using "high" or "low" are generally hyphenated. Accordingly, the claim terms should be read as "low-flavor" and "high-browning." *See The American Heritage(R) Book of English Usage,* 255 (Houghton Mifflin Company 1996).

This construction is supported by the patent specification. The specification describes the invention as a "method of making a food casing in which the casing has high browning capabilities and less intense flavor properties compared to previously reported food casings." FN99 According to the patentees, the advantages of the invention are due in part to the characteristics of the browning composition used to treat the casings. Importantly, the browning composition has low levels of phenols. Phenols are the class of chemicals that researchers skilled in the art of smoke solutions have concluded are primarily flavoring and aroma compounds.FN100 Consequently, the liquid composition, which is low in levels of phenols, is also low in flavor.

FN99. "067 patent, Col. 3, lines 62-65.

FN100. '537 patent, Col 2, lines 49-56. Note that the '067 patent is a continuation in part of the '537 patent, Docket Entry 56, Ech. 1F, RA 2313.

As noted in the analysis of the '541 and '582 patents, a person of ordinary skill in the art would understand the term "flavor" to include all the contributing senses (smell, taste, sight, feeling, and sound) at the time the food is consumed. The specialized cells of the olfactory system detect trace amounts of odors and account for variations in quality and intensity. The taste buds of the tongue and back of the mouth sense sweetness, sourness, saltiness, and bitterness.FN101

FN101. *Food Chemistry,* 586 (Owen R. Fennema ed., Marcel Dekker, Inc., 2d ed.1985)

In the context of the '067 patent claims, the description of flavor provided by *Food Chemistry* constitutes extrinsic evidence of the term. Nonetheless, the text constitutes a learned authority that has been cited by a patent examiner as the state of the art in the course of the prosecution of patent of a similar nature. Therefore, the definition of "flavor" contained in the cited text holds a favored place in this claims

construction context.

Accordingly, the District Court should construe the phrase "high browning, low flavor liquid composition" to mean "a low flavor liquid solution with substantially no smoke flavoring ability, considering smell as well as taste."

5. Derived from a feedstock

Plaintiff contends that the phrase "derived from a feedstock" is unambiguous. Therefore, "derived from a feedstock" means "derived from a feedstock," and no additional limitations should be imported into the claim.

Defendants contend that the phrase should be construed as "derived from a condensate of the vapor of a fast pyrolysis after removing flavor causing components." Defendants argue that throughout the specification, the patentees emphasized that the invention was a product derived from a vapor from which all remaining flavor-causing components are removed.FN102

FN102. Docket Entry 56 at 10.

Defendants' argument is not persuasive. The abstract language and the field of invention language cited by Defendants explain that the impregnated casing does not add undesirable characteristics or a strong flavor to the food encased with the treated casing. Neither refers to the removal of all flavor causing components from the liquid composition. Likewise the specification passages cited by Defendants in their brief, while describing the invention's purpose and an apparatus useful for fast pyrolysis of the feedstock, do not require the removal of all the flavor-causing components from the liquid composition. FN103

FN103. Docket Entry 56 at 10-11, '067 patent, Col. 6, lines 32-35, 44-46, 59-69, Col.7, lines 1-69, Col. 8, lines 1-20.

The critical feature of the invention is the low-flavor liquid composition, which has low acid content, high levels of browning carbonyls, and low levels of phenols. Each of these characteristics is described as a ratio to the browning index and in the context of the specification, is relative to the prior art liquid smoke solutions applied to casings. These characteristics make the invention, a casing impregnated with the low-flavor liquid composition, superior to prior art casings treated with liquid smoke solutions.

The specification states that "a fast pyrolysis process which uses hot particulate solids and/or inert gases to rapidly transfer heat to the wood feedstock in a reactor system is preferred" to make the liquid composition. FN104 However, the specification does not expressly or implicitly disavow any other method for producing the low-flavor liquid composition. Accordingly, as pertains to the '067 patent, the critical features of the invention are the characteristics of the liquid composition applied to the casings, and not the method of producing the liquid composition.

FN104. '067 patent Col. 6, lines 43-46

The District Court should determine that the phrase "derived from a feedstock" as used in the claims at issue in the '067 patent is unambiguous and means "derived from a feedstock."

6. Without adding undesired sensory properties to the food.

Plaintiff contends that the phrase "without adding undesired sensory properties to the food" is unambiguous. The undesired properties relate to the food, not the casing, and are detected by the senses.

Defendants argues that the phrase should be construed as "without adding undesirable properties that are detected by sight, smell, taste, or touch (texture), such as degrading or interfering with the integrity and handling capability of cellulosic casings or having too much flavoring capability." Defendants' construction is without merit.

Defendants cite two passages of the '067 patent specification, neither of which supports their construction. The first, from the summary of the invention, states that the ratio of the browning index to organic components should be selected to produce a liquid composition that "imparts a satisfactory brown, smoked color to a food contained in the casing without adding undesired sensory properties to the food." FN105 This statement unambiguously states that the food inside the casing should not receive any undesired sensory properties. Consequently, the passage supports plaintiff's construction of the phrase at issue and not defendants' construction.

FN105. '067 patent, Col. 3, lines 20-26.

The second passage cited by defendants explains the faults of prior art, tar-depleted liquid smoke solutions when applied to food casings. Included in the passage is the statement that casings treated with a tar-depleted solution can become rubber-like and difficult to handle. The patentees claim that the failings of the tar-depleted smoke solutions present a need in the industry for impregnated casings that have good browning and flavoring properties . FN106

FN106. '067 patent, Col 2, lines 55-69, Col. 3, lines 1-8.

The cited passage is wholly concerned with the prior art of tar-depleted liquid smoke solutions. It does not contain any express claims concerning the invention of the '067 patent. While it is undisputed that the '067 patent's invention is designed to meet the perceived need in the industry for impregnated casings that have good browning and flavoring properties, the cited passage does not contain any limitations of the present invention.

Finally, because the phrase "without adding undesired sensory properties to the food" is unambiguous, there is no need to consult the extrinsic definitions cited by defendant. Even so, defendants' definition of the term "sensory" add nothing to the claim.

Accordingly, the District Court should determine that the phrase "without adding undesired sensory properties to the food" is unambiguous and refers to undesired properties of the food, not the casing.

V. *Recommendation*

For the reasons stated above, I recommend that the District Court construe the disputed claim language as follows:

A. In claim 16 of the '541 patent and claim 20 of the '582 patent, "high browning flavorless aqueous composition" should be construed to mean "a virtually flavorless water containing composition or product capable of imparting a brown color to foodstuffs, considering smell as well as taste of the product (the product applied to the meat must have virtually no flavor)." "Derived from a vapor of a pyrolyzed material" is unambiguous and requires no further construction.

B. In claim 1 of the '537 patent, "a high browning liquid smoke composition comprising," and in dependant claims 2, 3, 4, and 5 "a liquid smoke composition," and in claim 1 of the 770 patent "a high browning liquid composition comprising," and in dependant claims 2 and 3 "a high browning liquid composition of claim 1" should be construed to mean "a high-browning liquid solution made from the condensable liquids of pyrolyzed wood or cellulose."

C. In claims 1, 14, 18, and 21 of the '067 patent, "a high browning, low flavor liquid composition" should be construed to mean "a low-flavor liquid solution with substantially no smoke flavoring ability, considering smell as well as taste." "Derived from a feedstock" is unambiguous and needs no further construction. In claims 1 and 21 of the '067 patent, "without adding undesired sensory properties to the food" is unambiguous and needs no further construction.

VI. *Instructions for Service and Notice of Right to Object/Appeal*

The United States District Clerk shall serve a copy of this Memorandum and Recommendation on each and every party either (1) by certified mail, return receipt requested, or (2) by facsimile if authorization to do so is on file with the Clerk. According to Title 28 U.S.C. s. 636(b)(1) and Federal Rule of Civil Procedure 72(b), any party who desires to object to this report must serve and file written objections to the Memorandum and Recommendation within 10 days after being served with a copy unless this time period is modified by the District Court. A party filing objections must specifically identify those findings, conclusions or recommendations to which objections are being made and the basis for such objections; the District Court need not consider frivolous, conclusive or general objections. Such party shall file the objections with the Clerk of the Court, and serve the objections on all other parties and the Magistrate Judge. A party's failure to file written objections to the proposed findings, conclusions and recommendations contained in this report shall bar the party from a *de novo* determination by the District Court.FN107 Additionally, any failure to file written objections to the proposed findings, conclusions and recommendations contained in this Memorandum and Recommendation within 10 days after being served with a copy shall bar the aggrieved party, except upon grounds of plain error, from attacking on appeal the unobjected-to proposed factual findings and legal conclusions accepted by the district court. FN108

FN107. Thomas v. Arn, 474 U.S. 140, 149-152, 106 S.Ct. 466, 88 L.Ed.2d 435 (1985); Acuna v. Brown & Root, Inc., 200 F.3d 335, 339 (5th Cir.2000).

FN108. Douglass v. United Servs. Auto. Ass'n, 79 F.3d 1415, 1428-29 (5th Cir.1996).

W.D.Tex.,2006.

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