

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ADCO PRODUCTS, INC.,)
)
 Plaintiff,)
)
 v.) Civil Action No. 99-359-RRM
)
 CARLISLE SYNTEC INCORPORATED,)
)
 Defendant.)

OPINION

Richard K. Herrmann, Esquire and Mary B. Matterer, Esquire, Blank Rome Comisky & McCauley LLP, Wilmington, Delaware; Robert G. Krupka, Esquire, Kirkland & Ellis, Los Angeles, California; Sarah O. Slover, Esquire, Clifford E. Wilkins, Jr., Esquire, and Maxine Y. Graham, Esquire, Kirkland & Ellis, New York, New York; counsel for plaintiff.

Richard D. Kirk, Esquire, Morris, James, Hitchens & Williams LLP, Wilmington, Delaware; R. Terrance Rader, Esquire and James F. Kamp, Esquire, Rader, Fishman & Grauer PLLC, Bloomfield Hills, Michigan; counsel for defendant.

Wilmington, Delaware
August 11, 2000

McKELVIE, District Judge

This is a patent case. Plaintiff Adco Products, Inc. is a Delaware corporation with its principal place of business in Raleigh, North Carolina. Adco owns United States Patent No. 5,242,727 (the '727 patent). Defendant Carlisle Syntec Incorporated is a Delaware corporation with its principal place of business in Carlisle, Pennsylvania.

On June 9, 1999, Adco filed the complaint in this action, which it amended on June 11, 1999. Adco alleges that Carlisle has infringed, induced infringement of, or contributorily infringed the '727 patent. Adco seeks injunctive relief, and an award of actual damages, punitive damages, costs, and fees.

On July 6, 1999, Carlisle answered the complaint, denying infringement, asserting the affirmative defenses that the '727 is invalid and that Adco is estopped from asserting its claims, and counterclaiming for a judgment of invalidity. On July 20, 2000, pursuant to Fed. R. Civ. P. 15(b), the court granted Carlisle's motion for leave to amend its pleadings to assert the affirmative defense and counterclaim that the '727 patent is unenforceable due to inequitable conduct.

This case is scheduled for a fourteen day jury trial beginning September 11, 2000.

On April 14, 2000, Carlisle moved for summary judgment of noninfringement, invalidity, unenforceability, and no willful infringement of the '727 patent. The issues raised by Carlisle's motions include whether the priority date of the dispute should be governed by a continuation-in-part application filed by Adco; whether Adco's sales of

products to Carlisle trigger the “on-sale bar”; whether a chemical constituent of Carlisle’s accused products falls within the scope of the patent; and whether Adco intentionally misled the Patent and Trademark Office during the prosecution of the ’727 patent by withholding information about its prior commercial products.

On July 20, 2000, the court held a trial in accordance with Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), to construe disputed claims of the ’727 patent. On the same day, the court heard oral argument on Carlisle’s summary judgment motions. This is the court’s construction of those disputed claims and its decision on the pending motions.

I. FACTUAL AND PROCEDURAL BACKGROUND

The court draws the following facts from the ’727 patent, its prosecution history, and the affidavits and documents submitted by the parties.

A. The Technology at Issue

1. Adhesives for EPDM roofing installations

The patent at issue relates to adhesives used for creating watertight seams between sheets of rubbery roofing material. Carlisle manufactures and sells roofing systems which include large rubber roofing membranes made from a material known as ethylene-propylene-nonconjugated diene terpolymer (EPDM). The membranes must be overlapped and spliced together with adhesives to form a continuous, water-tight sheet.

EPDM membranes are wound into rolls after they are manufactured. Tension during the winding process may cause the EPDM to expand slightly. The membranes are commonly unrolled onto a roof with a 5-inch overlap between adjacent membranes. After installation, the EPDM shrinks somewhat and recover to its original size. Environmental conditions may cause the membranes to further contract. If the adhesive material used to join adjacent EPDM membranes is not sufficiently strong, the shrinkage of the membranes may pull the seams apart.

Adhesives contain strands of molecules that are chemically linked together in what are called polymer chains. These polymer chains provide strength and flexibility to the adhesive. Adhesives may be either “uncured” or “cured” at the time of installation. The term “uncured” refers to the absence of chemical bonds between the polymer chains.

The term “cure,” also known as “cross-linking” or “vulcanization,” refers to the formation of bonds between unsaturated hydrocarbon molecules in opposing polymer chains. These bonds physically link the polymer chains together, forming a stable, three-dimensional polymer network. One of several ways to cure an uncured adhesive is to expose it to high temperatures. In general, as the adhesive cures, it becomes stronger.

In the mid-1980s, several different kinds of adhesive materials were used to seam EPDM membranes. One technique, as disclosed in U.S. Patent No. 4,472,119

issued to Donald Close on February 28, 1986, involves dissolving an uncured liquid adhesive in a solvent, and applying the adhesive in liquid form to the membranes.

Uncured liquid adhesives have adequate strength properties once cured. However, the curing process for these liquid adhesives often takes several days. It has been found that environmental conditions, and particularly temperature swings, can cause the EPDM membranes to shrink and pull apart before the adhesive fully cures.

Another method for seaming EPDM membranes involves the use of an unvulcanized tape. The unvulcanized tape is introduced into the overlapped portion of the membranes, and a “vulcanizing press” is passed over the overlapped portions to heat the tape, apply pressure, and induce vulcanization. This method has been found to be undesirable because it requires the use of a vulcanizing press and is a relatively slow process.

2. The chemical composition of the adhesives at issue

Brian Briddell and Michael Hubbard were employed by Adco in the mid-1980s and early 1990s. The challenge they faced was to design an adhesive material that could seam EPDM membranes quickly, with the requisite strength to prevent shrinkage of the membranes and concomitant rupture of seams. Briddell and Hubbard used three primary ingredients in the various adhesive compositions they developed: (1) rubbery polymer components; (2) tackifiers; and (3) an accelerator/cure package.

The rubbery polymer components consist of materials such as EPDM and halogenated butyl rubber. In some of Adco's formulations, the rubbery polymer components also include "rubbery polymer diluents" such as polyisobutylene, that serve to dilute the rubbery polymer and reduce its viscosity, making the rubber more flexible.

Tackifiers are compounds that give the adhesive composition its softness and high initial adhesivity, or "grab." The accelerator/cure package contains chemical compounds such as sulfur that induce the curing reaction and that promote rapid curing.

3. Adco's commercial products

In the mid-1980s, Hubbard set out to develop a cured adhesive tape for EPDM roofing installations that would provide sufficient initial tackiness and long-term strength. Hubbard found that curing the product prior to installation increased the strength of the tape; however, this had the adverse effect of reducing the tackiness of the material, which frustrated, in particular, cold weather installations. In approximately 1985, Hubbard developed a formulation designated SP-303, which had a blend of two rubbery polymer components (EPDM and halogenated butyl rubber), a compatible tackifier (polybutene), and an accelerator/cure package. He employed a ratio of rubbery polymer to tackifier of approximately 0.3. Adco began selling its SP-303 formulation to Carlisle in approximately 1985.

In the late 1980s, Hubbard and Briddell developed an adhesive designated SP-501 to improve the tack level of the tape. SP-501 uses polyisobutylene as a rubbery polymer diluent as a component of the rubbery polymer. In the Spring and Summer of 1989, Adco employed in its SP-501 formulation a ratio of rubbery polymer to tackifier of approximately 0.4. On April 19, 1989, Briddell sent a memorandum to J.G. Premo, one of the in-house attorneys at Adco's parent company, Nalco Chemical Co., regarding the filing of a patent application for a new roofing tape. Approximately two weeks later, Briddell sent a recipe for the SP-501 formulation to Anthony Cupoli, another in-house patent attorney, and included therewith product data on the SP-303 tape.

On April 20, 1989, Carlisle invited Adco to make an offer to sell it the SP-501 tape. At some point in the parties' discussions, Carlisle requested assurances from Adco that the SP-501 tape did not infringe a number of patents, including U.S. Patent No. 4,558,637 issued on March 5, 1984 to Jessie Chiu and assigned to Rockor, Inc.

Beginning in June 1989, Briddell, Cupoli, Premo and other Adco personnel exchanged a series of communications regarding potential infringement by Adco of the Rockor patents. After the commencement of this litigation, Briddell acknowledged during his deposition that Adco's decision to seek patent protection for its adhesive tapes may have arisen, at least in part, in response to its customers' concerns that the SP-501 tape may have infringed the Rockor patents.

In late summer 1989, Firestone Tire & Rubber Company expressed an interest in purchasing adhesive tapes from Adco, but found that Adco's tapes lacked sufficient strength. Briddell and Hubbard began a series of experiments to introduce increased amounts of rubbery polymer in the tapes. The formulation sheets produced by Adco show that in October 1989, Adco developed adhesives employing ratios of rubbery polymer to tackifier ranging between 0.60 and 1.18. Briddell acknowledged during his deposition that during the time period from October to December 1989, he and Hubbard developed plastics in the laboratory with rubbery polymer to tackifier ratios exceeding 1.0. Adco's formulation sheets show that the compounds tested during October 1989 employed an EPDM rubber, a halogenated butyl rubber, a polyisobutylene rubber, a polybutene tackifier, a curing agent, and an accelerator.

On December 18, 1989, Briddell sent William Schneider, a Carlisle executive, a letter acknowledging Schneider's former request for assurances of Adco's noninfringement of the Rockor patents. The letter stated that Adco's counsel reviewed the Rockor patents, and concluded that Adco's SP-501 formulation does not infringe the patents' claims.

On January 18, 1990, Adco manufactured a batch of tape designated SP-505. Adco acknowledges that its SP-505 product is a commercial embodiment of the patent in suit. Hubbard testified in his deposition that Adco prepares master batch documents when it conducts trial runs of new materials. Referring to a similar master batch sheet

for a production of SP-505 dated the following week, Hubbard stated that “this could be a run of material that was going to be trialed in the field.” A master batch sheet dated January 23, 1990 is designated “Special.” Hubbard stated that “with the designation Special it makes me think it was probably for trial.”

On January 22, 1990, Adco prepared an invoice of a sale of its adhesive products to Carlisle. The invoice states that the products were ordered on December 21, 1989 and shipped on January 19, 1990. The Adco invoice lists two part numbers purchased by Carlisle: ET-560-5 and ET-560-5S. An Adco Master Item List dated July 26, 1990 states that these two item numbers correspond to the SP-505 formula. After the start of the present litigation, Briddell testified that Adco assigns item numbers to products “at the initial manufacturing point when they’re introduced and usually as a result of a purchase order.” He also stated that “[t]he part number was created when the product was manufactured.” When asked if the part numbers of the invoice were identical to the entries on the Master Item List, Briddell responded: “Yes. But we, typically, would not have changed the part number. If we, for example, went to the 505 tape at some interim period, we would not have changed the part number, I don’t believe.” Briddell further testified that the part number describes the “entire product,” including information on the width of the tape, its length, and whether the tape is laminated. When asked by plaintiff’s counsel whether he could tell, based solely on the

invoice whether the product ordered by Carlisle was made with the 505 adhesive tape, Briddell answered: “No.”

An Adco document dated April 26, 1990 states: “Commercial sales just starting now SP-505.”

B. Prosecution History of the '727 Patent

1. The initial application

On January 4, 1991, Timothy Hagan, a patent attorney, filed a patent application on behalf of Briddell and Hubbard in the U.S. Patent and Trademark Office (“PTO”). The claims of the application are directed to an adhesive tape comprising a cured rubbery polymer, a tackifier, and an accelerator/cure package. One component of the rubbery polymer is polyisobutylene. The claimed invention contains “substantially equal amounts by weight” of rubbery polymer and tackifier. The claims and written description of the invention specify that the rubbery polymer is comprised of a blend of EPDM, a halogenated butyl rubber, and polyisobutylene. The written description of the invention states that the accelerator/cure package may use “any of several well-known curing systems including sulfur and sulfur-containing systems.” The written description further states that a commercial product sold by Exxon Chemical Co., Parapol 2500, may be used as a tackifier. The applicants cited eight patents to the PTO as prior art.

2. First office action

On March 1, 1991, the examiner rejected claims 1-7, and withdrew claim 8 from consideration. The examiner rejected several of the claims under 35 U.S.C. § 102 as being anticipated by the Close patent, under 35 U.S.C. § 103 as being obvious in light of Close and U.S. Patent No. 4,601,935, issued to Frederic Metcalf on May 6, 1985, and under 35 U.S.C. § 103 as being obvious in light of Close and Chiu. The examiner found that these prior art patents disclosed compositions for seaming EPDM roofing materials that are insubstantially different from the claimed invention. The examiner specified that Close teaches the use of a halogenated butyl rubber.

3. Hubbard declaration and proposed amendment

On June 6, 1991, Hubbard submitted a declaration to the PTO, in which he distinguished the claimed invention from that disclosed by Close. He stated that Close discloses an uncured liquid composition that is roof-cured over a period of time, whereas the claimed invention is an adhesive tape that is fully vulcanized before use. In a proposed amendment filed with the declaration, the inventors sought to amend their claims by inserting language in several of the claims referring to a composition that is “postcured after formulation but before use and after formulation.” The applicants emphasized that none of the prior art references cited by the examiner teach a cured adhesive composition.

4. Final rejection

On August 21, 1991, the PTO issued a final rejection of the pending claims. The examiner stated that the “postcured” limitation proposed by the applicants does not distinguish the claimed invention from the prior art because it is a method limitation, and applicants are claiming a composition of matter. The examiner also noted that applicants had not specified the “degree of postcure.”

5. Continuation-in-part application

On November 15, 1991, the applicants filed a continuation-in-part (“CIP”) application. The written description of the CIP application differs from the parent application by disclosing that, in place of the previously-disclosed halogenated butyl rubber, the rubbery polymer may alternatively comprise a halogenated copolymer of p-methylstyrene and isobutylene. The application explains that “[t]he halogenated p-methylstyrene/isobutylene copolymer combines the low permeability properties of a butyl rubber with the environmental and aging properties of an EPDM rubber.” The claims distinguish between rubber polymers containing halogenated butyl rubbers and rubber polymers containing halogenated copolymers of p-methylstyrene and isobutylene. Claim 5 of the CIP application is directed to a rubber polymer comprising a blend of EPDM, a halogenated butyl rubber, and polyisobutylene. Claim 6 is directed to a rubber polymer comprising a blend of EPDM, a halogenated copolymer of p-methylstyrene and isobutylene, and polyisobutylene. Claim 9 is directed to a rubber

polymer comprising a blend of EPDM, a halogenated butyl rubber or a halogenated copolymer of p-methylstyrene and isobutylene, and polyisobutylene.

In his deposition, Hagan acknowledged that the portion of the CIP application directed to a halogenated copolymer of p-methylstyrene and isobutylene constitutes “additional disclosure material,” and that this copolymer is an “alternative rubbery polymer component” to the halogenated butyl rubber.

The applicants filed an information disclosure statement with the CIP application, citing the same eight prior art patents that had been disclosed in the parent application.

6. Notice of Abandonment

On March 24, 1992, the examiner issued a notice of abandonment of the parent application for failure to respond to the examiner’s letter dated August 21, 1991.

7. Office Action

On October 27, 1992, the examiner rejected all the claims of the CIP application. The examiner stated that the only limitation claimed by the applicants not specifically taught by Close is that the composition is cured sufficiently to support a static load of at least 300 grams at 70°C, and that this property is inherent to Close. The examiner reiterated his prior objection that Close discloses the use of a halogenated butyl rubber.

8. Amendment

On January 25, 1993, the applicants submitted proposed amendments to the claims. The applicants introduced into claim 9 the language that the invention is postcured after formulation but before use “by heating to achieve essentially full crosslinking of the components.” The applicants proposed adding a twelfth claim which is essentially identical to claim 9, except that it is directed to a rubbery polymer comprising EPDM, a halogenated copolymer of p-methylstyrene and isobutylene, and polyisobutylene. The applicants stated, moreover, that:

[N]owhere in Close is there a teaching of the use of a rubbery polymer blend in which the blend includes a halogenated copolymer of p-methylstyrene and isobutylene. Total silence in Close cannot form the basis for a conclusion of obviousness. New claim 12 is also specific to the presence of this particular halogenated copolymer in the blend of rubbery polymers.

9. Notice of Allowability

On April 28, 1993, the examiner issued a notice of allowability for the pending claims, without comment.

10. Issuance

On September 7, 1993, the PTO issued the '727 patent to Briddell and Hubbard.

Claim 9 of the patent, in full, recites:

9. A roofing membrane adhesive tape comprising a layer of a cured adhesive composition in the form of a strip on a release liner, said adhesive composition comprising substantially equal amounts by weight of a) a rubbery polymer comprising a blend of an ethylene-propylene-diene

terpolymer, a halogenated butyl rubber or a halogenated copolymer of p-methylstyrene and isobutylene, and polyisobutylene and b) a compatible tackifier, said composition further comprising an accelerator/cure package for said rubbery polymer, said composition having been postcured after formulation but before use by heating to achieve essentially full crosslinking of the components and having a peel strength of at least 715 grams/cm at room temperature, at least 300 grams/cm at 70°C, and supports a static load of at least 300 grams at 70°C.

Claim 10 depends from claim 9, and recites:

10. The composition of claim 9 further including a minor portion of carbon black.

C. Carlisle's Accused Product

In the early 1990s, Carlisle determined that it needed a more steady supply of adhesive tape, due in part to a fire at another producer's plant. In 1993, the research and development staff at Carlisle designed a tape formulation. On June 16, 1994, Carlisle's General Counsel, John Clifton, obtained an opinion from outside counsel that Carlisle's proposed tape does not infringe the '727 patent and other relevant patents. After obtaining this opinion, Carlisle approved the expenditure of several million dollars to build a new tape line, which became operational in 1997. Carlisle conducted pilot runs of the new facility and sent tape samples to outside counsel, which reiterated its previous conclusion that the tape does not infringe the '727 patent.

Carlisle's tape, which is named SecurTape, contains a rubbery polymer that includes among its ingredients EPDM and halogenated butyl rubber. SecurTape

contains Parapol 2500, which may act as a rubbery polymer diluent, and which may act as a tackifier. SecurTape uses a peroxide agent to promote curing of the tape.

In a number of Carlisle's internal memoranda and formulation sheets, Carlisle employees have referred to Parapol 2500 as a polyisobutylene. Carlisle has submitted the affidavit of Gary Hamed, a Professor of Polymer Science at the University of Akron. Hamed states that Parapol 2500 is a polybutene manufactured by three different monomers: isobutylene, 1-butene, and 2-butene. He states that Parapol 2500 is not a polyisobutylene, because polyisobutylene is made by polymerization of a single monomer, isobutylene. Adco has submitted product literature from Exxon Chemical Co., the producer of Parapol 2500, which states that "Parapol polybutenes are viscous polymers made from isobutylene and butene monomers."

Adco argues that Carlisle's SecurTape product infringes claims 9 and 10 of the '727 patent.

D. Carlisle's Motions for Summary Judgment

On April 14, 2000, Carlisle moved for summary judgment of noninfringement, invalidity, unenforceability, and no willful infringement of the '727 patent. Following is a summary of the issues raised by the parties with respect to Carlisle's summary judgment motions.

1. Noninfringement

The parties dispute the following issues raised in Carlisle's motion for summary judgment of noninfringement: 1) whether Carlisle's use of Parapol 2500 constitutes the use of "polyisobutylene," as is required in the rubbery polymer component of the claimed invention; 2) whether the Parapol 2500 used by Carlisle should be categorized as a "rubbery polymer" or a "tackifier," or if it may be allocated between the two categories, for the purposes of the claim limitation "substantially equal amounts by weight [of a rubbery polymer and a compatible tackifier];" and 3) whether the peroxide agent used by Carlisle constitutes an "accelerator/cure package."

2. Invalidity

The following issues have been raised by the parties with respect to Carlisle's motion for summary judgment of invalidity: 1) whether Adco's SP-303 and SP-501 formulations anticipate or render obvious the claimed invention; 2) whether Adco's sale of adhesive products to Carlisle on December 21, 1989 invalidates the asserted claims under the "on-sale bar"; and 3) whether the claims in the CIP application directed to a halogenated copolymer of p-methylstyrene and isobutylene constitutes new matter that was undisclosed in the parent application, as would prevent Adco from using the priority date of the parent application.

With respect to this final argument, Adco argues that Carlisle has admitted that halogenated butyl rubbers and halogenated copolymers of p-methylstyrene and

isobutylene are equivalent materials, and thus that the parent application's disclosure of halogenated butyl rubbers supports the claims in the CIP application directed to halogenated copolymers of p-methylstyrene and isobutylene. Adco relies in part on the deposition testimony of Hamed, Carlisle's expert. In that deposition testimony, Adco addressed Hamed's contention that Adco's SP-501 formulation anticipates or renders obvious claim 6 of the '727 patent. Hamed acknowledged that SP-501 does not contain a halogenated copolymer of p-methylstyrene and isobutylene, but argued that the halogenated butyl rubber contained in SP-501 is a "similar material," and is "interchangeable" with the copolymer.

3. Unenforceability

The parties dispute whether Adco committed inequitable conduct by failing to disclose the SP-303 and SP-501 formulations to the PTO during the prosecution of the '727 patent.

4. Willful infringement

The parties dispute whether Carlisle is entitled to summary judgment of no willful infringement in light of its efforts to obtain an opinion of outside counsel prior to construction of its facilities for manufacturing adhesive tape.

E. Disputed Claims of the '727 Patent

On July 20, 2000, the court held a Markman trial to construe disputed claims of the '727 patent. The parties present four primary issues for disposition. First, the

parties dispute the proper construction of the phrase “substantially equal amounts of a) a rubbery polymer . . . and b) a compatible tackifier.” Adco argues that the ordinary meaning of this phrase should control, or that it should be construed to mean “largely, but not wholly equal amounts” of rubbery polymer and tackifier. Carlisle seeks to have the phrase construed to mean “almost equal with a variation of only a few percent (i.e., 1-5%).”

Second, the parties dispute the meaning of the claim term “a rubbery polymer comprising a blend of . . . and polyisobutylene.” Adco argues that the ordinary meaning of this term should apply, or that it should be construed to mean: “a rubbery polymer, wherein the blend is made up of (but is not limited to) the various constituent ingredients listed in the claim, and including either high molecular weight solid polyisobutylene, low molecular weight liquid polyisobutylene, or both.” Carlisle argues that the term “polyisobutylene” should mean “a high molecular weight rubber.”

Third, the parties dispute the meaning of the term “a compatible tackifier.” Adco argues that the plain meaning of this term should control, or that it should be construed to mean “a material that gives the composition its softness and high initial adhesivity and is compatible with the other constituents in the adhesive composition.” Carlisle argues that it should be construed to mean “an ingredient for providing high initial adhesivity that is not a polymer diluent.”

Fourth, the parties dispute the meaning of the term “an accelerator/cure package for said rubbery polymer. Adco argues that the plain meaning of this phrase should control, or that it should be construed to mean “a package that includes a compound to cross-link the polymer chains of the rubbery polymer, and for reducing the time needed to complete such cross-linking.” Carlisle argues that it should be construed to mean “a sulfur containing vulcanization type curative which is just for the rubbery polymer blend and not the tackifier component.”

The positions of the parties are summarized in the following table:

Claim Language	Adco’s Proposed Claim Language	Carlisle’s Proposed Claim Language
“substantially equal amounts”	(1) plain language should apply, or (2) “largely, but not wholly equal amounts”	“almost equal with a variation of only a few percent (i.e., 1-5%)”
“a rubbery polymer comprising a blend of ... and polyisobutylene”	(1) plain language, or (2) “a rubbery polymer, wherein the blend is made up of (but is not limited to) the various constituent ingredients listed in the claim, and including either high molecular weight solid polyisobutylene, low molecular weight liquid polyisobutylene, or both”	“rubbery polymer” and “polyisobutylene” means “a high molecular weight rubber.”

“a compatible tackifier”	(1) plain language or (2) a material that gives the composition its softness and high initial adhesivity and is compatible with the other constituents in the adhesive composition	“an ingredient for providing high initial adhesivity that is not a polymer diluent”
“an accelerator/cure package for said rubbery polymer.”	(1) plain language or (2) “a package that includes a compound to cross-link the polymer chains of the rubbery polymer, and for reducing the time needed to complete such cross-linking.”	“a sulfur containing vulcanization type curative which is just for the rubbery polymer blend and not the tackifier component.”

II. DISCUSSION

A. Claim Construction

1. Basic principles of claim construction

Claim construction is a matter for the court. Markman, 517 U.S. at 387. The court will base the jury instructions in this case on the construction of the claims adopted herein. It is the province of the jury to determine whether the claims, as construed by the court, are valid and infringed. Id.

Claims are construed from the vantage point of a person of ordinary skill in the art at the time of the invention. Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed. Cir. 1995). To define the scope of the invention, the court first looks to the words of the claims themselves. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d

1576, 1582 (Fed. Cir. 1996). These words are to be given their ordinary meaning unless inconsistent with the specification and prosecution history. See Desper Products, Inc. v. Qsound Labs, Inc., 157 F.3d 1325, 1336 (Fed. Cir. 1998); Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

The court must then review the specification, of which the claims are a part. See Vitronics, 90 F.3d at 1582; Markman, 52 F.3d at 979. Claims should be interpreted consistently with the specification, which provides content for the proper construction of the claims because it explains the nature of the patentee's invention. See Renishaw, 158 F.3d at 1250. As the Federal Circuit explained in Renishaw,

Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction. A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent.

Id. (citation omitted)

The prosecution history should also be considered. The public has a right to rely on statements made by the patent applicant or his attorney during prosecution that define the scope of the claims. See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997).

The Federal Circuit has repeatedly cautioned against limiting the scope of a claim to the preferred embodiment or specific examples disclosed in the specification.

See, e.g., Ekchian, 104 F.3d at 1303; Intervet America, Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050, 1053 (Fed. Cir. 1989) (“[L]imitations appearing in the specification will not be read into claims, and . . . interpreting what is meant by a word in a claim ‘is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.’”) (citation omitted).

2. “substantially equal amounts”

Carlisle argues that the claim term “substantially equal amounts [of rubbery polymer and tackifier]” should be construed to mean “almost equal with a variation of only a few percent (i.e., 1-5%).” Carlisle argues that without a numerical limit on the relative proportions of rubbery polymer and tackifier, the claim would be indefinite, and therefore invalid.

Adco argues that the plain meaning of this term should control, or that it should be construed to mean “largely, but not wholly equal amounts.” Adco argues that Carlisle has no support for its proposed numerical limitation, and that it would be improper to read such a limitation into the claims.

When a claim term is expressed in general descriptive words, it is generally improper to limit the term to a numerical range. See Renishaw, 158 F.3d at 1249; see also Johnson Worldwide Associates, Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999) (“[A] court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed

meaning of claim terms.”). In this case, Carlisle proposes limiting the term “substantially equal” to a numerical range of “almost equal with a variation of only a few percent (i.e., 1-5%).” The court identifies no support in the specification for imposition of this numerical limit on the claim language. The claim term “substantially equal amounts” is sufficiently clear that no additional construction is necessary.

3. “a rubbery polymer comprising a blend of ... and polyisobutylene”

Carlisle argues that the term “polyisobutylene” should be construed to mean “high molecular weight polyisobutylene.” Adco contends that the ordinary meaning of the claim language should apply, or that the phrase should be construed to mean “a rubbery polymer, wherein the blend is made up of (but is not limited to) the various constituent ingredients listed in the claim, and including either high molecular weight solid polyisobutylene, low molecular weight liquid polyisobutylene, or both.”

The patent specification expressly discloses that the polyisobutylene component of the claimed invention may comprise low molecular weight polyisobutylene compounds. Col. 5, lines 1-9. Thus, the court finds that the claim term should not be restricted to high molecular weight polyisobutylene, as advocated by Carlisle. The court finds that the claim term is sufficiently clear that no additional construction is necessary.

4. “a compatible tackifier”

Carlisle argues that the rubbery polymer components of the claimed invention (including the polymer diluent) must be distinct from the tackifier, and thus that the term “compatible tackifier” should be construed to mean “an ingredient for providing high initial adhesivity that is not a polymer diluent.” Adco argues that the plain meaning of the term should apply, or that the term should be construed to mean “a material that gives the composition its softness and high initial adhesivity and is compatible with the other constituents in the adhesive composition.”

The court finds no support in the patent to limit the claim term “a compatible tackifier” to compounds that are not also polymer diluents. The court finds that it would be improper to read additional limitation into the term “compatible tackifier.” Because the meaning of the term “tackifier” may be outside the understanding of some prospective jurors, the court finds that it is appropriate to include a definition of the term “tackifier” in the materials to be submitted to the jury. The court finds that the term should be defined, as suggested by Adco, as “a substance that gives the composition its softness and high initial adhesivity and is compatible with the other constituents in the adhesive composition.”

5. “an accelerator/cure package for said rubbery polymer”

Carlisle proposes that the term “an accelerator/cure package for said rubbery polymer” should be construed to mean “a sulfur containing vulcanization type curative

which is just for the rubbery polymer blend and not the tackifier component.” Adco argues that the plain meaning of the term should apply, or that it should be construed to mean “a package that includes a compound to cross-link the polymer chains of the rubbery polymer, and for reducing the time needed to complete such cross-linking.”

The patent specification states that the rubbery composition “may be cured using any of several well-known curing systems including sulfur and sulfur-containing systems.” The specification does not limit the claimed invention to sulfur-based curing systems. Accordingly, the court finds that it would be improper to limit the claim language to sulfur-based systems. Because the meaning of this term is likely outside the understanding of the prospective jurors, the parties should include a definition of this term in the jury materials. The court finds that the definition proposed by Adco is suitable: “a package that includes a compound to cross-link the polymer chains of the rubbery polymer, and for reducing the time needed to complete such cross-linking.”

B. Carlisle’s Motions for Summary Judgment

1. Legal standards for granting summary judgment

The court may grant summary judgment “if the pleadings, depositions, interrogatories, and admissions on file, together with the affidavits, if any, 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). A material factual dispute is

“genuine” if the evidence is such that a reasonable jury could return a verdict for the non-moving party. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986).

2. Carlisle’s motion for summary judgment of noninfringement

Carlisle moves for summary judgment that its SecurTape product does not infringe claims 9 or 10 of the ’727 patent. Carlisle makes three primary arguments in its motion: 1) that its formulation contains no polyisobutylene; 2) that its formulation does not contain substantially equal amounts by weight of rubbery polymer and tackifier; and 3) that its formulation does not contain an accelerator/cure package as required by the ’727 patent. The court will address these arguments in turn.

a. Does Carlisle’s formulation contain polyisobutylene?

Carlisle contends that it cannot infringe the ’727 patent because its formulation does not contain polyisobutylene, as required by the patent. Carlisle contends that it employs Parapol 2500, and that this is a polymer comprised of a blend of butene monomers, not just isobutylene. Carlisle contends that this polymerized blend of butene monomers cannot constitute polyisobutylene.

Adco argues that Parapol 2500 is a polyisobutylene. Adco points to internal Carlisle documents that refer to Parapol 2500 as a polyisobutylene. Adco also argues that Exxon Chemical Co.’s product sheets state that Parapol 2500 is a polyisobutylene.

Parapol 2500 is a commercial product manufactured by Exxon Chemical Co. Adco has submitted Exxon’s product sheets to the court, and these product sheets

unambiguously state that “Parapol polybutenes are viscous polymers made from isobutylene and butene monomers.” Hamed explains in his declaration that there are several different kinds of butene monomers, including isobutylene, 1-butene, and 2-butene. He states that polyisobutylene is a polymer of pure isobutylene, and that a polymer produced from a blend of different butene monomers will not yield polyisobutylene. It appears that Carlisle personnel may have erroneously referred to Parapol 2500 as a polyisobutylene in a number of Carlisle’s documents. These statements, however, do not create a genuine dispute as to the chemical composition of Parapol 2500. The court finds that Parapol 2500 is not a polyisobutylene. The court finds that, because Carlisle does not use polyisobutylene, it does not literally infringe the ’727 patent. Carlisle’s use of Parapol 2500 may infringe the ’727 patent under the doctrine of equivalents. The court will grant Carlisle’s motion for summary judgment that its formulation does not literally infringe the ’727 patent.

b. Does Carlisle’s formulation contain substantially equal amounts of rubbery polymer and tackifier?

Carlisle contends that its formulation does not contain substantially equal amounts of rubbery polymer and tackifier. Carlisle contends that the Parapol 2500 it uses in its formulation must be categorized either as a rubbery polymer or as a tackifier. Carlisle contends that if the Parapol 2500 is categorized as a rubbery polymer, then its formulation contains more than twice as much rubbery polymer as

tackifier. Alternatively, Carlisle contends that if the Parapol 2500 is categorized as a tackifier, then its formulation contains twice as much tackifier as rubbery polymer. Carlisle argues that under either approach, its formulation lacks substantially equal amounts of rubbery polymer and tackifier.

Adco argues that Parapol 2500 is useful both as a component of a rubbery polymer and as a tackifier. Accordingly, Adco argues that the Parapol 2500 used in Carlisle's formulation should be allocated between the categories of rubbery polymer and tackifier. Under this approach, Adco argues that Carlisle uses substantially equal amounts of rubbery polymer and tackifier.

The court finds that the proper categorization of Parapol 2500 is a matter of fact that is not amenable to disposition on summary judgment. The court will deny Carlisle's motion for summary judgment on this ground.

c. Does Carlisle's formulation contain an accelerator for curing the rubbery polymer as required by the '727 patent?

Carlisle argues that the peroxide agent it employs in its formulation does not constitute an accelerator as required by the '727 patent, and that this peroxide agent has a different reactivity than the sulfur agents disclosed in the patent. Adco argues that the patent covers the use of a broad range of curing systems, including peroxide agents.

The patent specification states that the claimed rubbery composition may be cured by "any of several well-known curing systems." Whether Carlisle's peroxide-

based curing system is covered by the patent is a question of fact for the jury to resolve. Therefore, the court will deny Carlisle's motion for summary judgment on this ground.

3. Carlisle's motion for summary judgment of invalidity

Carlisle raises three primary arguments in its motion for summary judgment of invalidity: 1) that Adco's SP-303 and SP-501 formulations anticipate the claimed invention and render it obvious; 2) that Adco's sale of adhesive tape to Carlisle on December 21, 1989 triggers the on-sale bar even under the earlier priority date; and 3) that the disclosure of new matter in the CIP application prevents Adco from using the priority date from the original application, such that Adco's April 1990 sales of SP-505 render the patent invalid under the on-sale bar. Because the court finds the third issue to be dispositive of the case, the court will discuss it first.

a. What is the priority date of the '727 patent?

The parties dispute whether the priority date of the parent application governs the present dispute. Carlisle argues that the applicants claimed material in the CIP application that was not disclosed in the parent application, and thus that Adco is not entitled to use the priority date from the parent application. In particular, Carlisle argues that the claims of the CIP application directed to a rubbery polymer consisting of a halogenated copolymer of p-methylstyrene and isobutylene were not disclosed in the parent application. Carlisle contends that the CIP application was filed on

November 15, 1991, more than a year after Adco's admitted sales of SP-505 on April 26, 1990, and that these sales invalidate the '727 patent under 35 U.S.C. § 102(b).

Adco contends that the claims of the CIP application are fully supported by the disclosures of the initial application. Adco points to deposition testimony of Carlisle's expert, Hamed, who testified that halogenated copolymers of p-methylstyrene and isobutylene and halogenated butyl rubbers are "similar material[s]" and are "interchangeable." Adco contends that Carlisle has admitted through these statements, and others, that the disclosure of halogenated butyl rubbers in the initial application provides a written description of the claims in the CIP application directed to halogenated copolymers of p-methylstyrene and isobutylene.

Under 35 U.S.C. § 102(b), no one can patent an "invention" that has been "on sale" more than one year before filing a patent application. 35 U.S.C. § 102(b); Pfaff v. Wells Electronics, Inc., 525 U.S. 55, 55 (1999). Section 102 provides, in pertinent part, that:

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

35 U.S.C. § 102(b). In order to consider Carlisle's arguments that the claims of the '727 patent are invalid under § 102(b), the court must determine whether to measure the one-year grace period from the date of the parent application, or from the date of

the CIP application. The parent application was filed on January 4, 1991, and thus its “priority date” is January 4, 1990. The CIP application was filed on November 15, 1991, and thus its priority date is November 15, 1990. It is undisputed that Adco began selling the SP-505 commercial embodiment of the invention at least by April 26, 1990. Because these sales precede the priority date of the CIP application, the asserted claims of the ’727 patent are necessarily invalid under § 102(b) if the priority date of the CIP application governs this dispute.

To determine whether the asserted claims are entitled to the priority date of the parent application, the court must decide whether the applicants’ disclosures in the parent application support the asserted claims of the CIP application. See Suntiger, Inc. v. Scientific Research Funding Group, 189 F.3d 1327, 1334 (Fed. Cir. 1999). Matter disclosed in the parent application is entitled to the benefit of the filing date of the parent application. Waldemar Link, GmbH v. Osteonics Corp., 32 F.3d 556, 558 (Fed. Cir. 1994). Claims containing any matter introduced in the CIP application are accorded the filing date of the CIP application. Id.

For the earlier date to apply, the parent application must provide a written description of the matter claimed in the asserted claims of the CIP application, as required by 35 U.S.C. § 112, ¶ 1. See Suntiger, 189 F.3d at 1334; Tronzo v. Biomet, Inc., 156 F.3d 1154, 1158 (Fed. Cir. 1998) (citing Lockwood v. American Airlines,

Inc., 107 F.3d 1565, 1571 (Fed. Cir. 1997)). The statute expresses the written description requirement as follows:

The 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 most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112, ¶ 1. The issue of whether the written description requirement has been satisfied is a question of fact. See Suntiger, 189 F.3d at 1334; Tronzo, 156 F.3d at 1158.

The Federal Circuit has articulated a number of purposes of the written description requirement. One purpose of the requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification. See Reiffin v. Microsoft Corp., 2000 WL 714425 (Fed. Cir. June 5, 2000). Another purpose, which is directly relevant to the case at bar, is to prevent inventors from obtaining early priority dates for claims to subject matter that was not contemplated at the time the parent application was filed. See Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1561 (Fed. Cir. 1991) (quoting Rengo Co. v. Molins Machinery Co., 657 F.2d 535, 551 (3d Cir. 1981) ("Adequate description of the invention guards against the inventor's overreaching by insisting that he recount his invention in such detail that his

future claims can be determined to be encompassed within his original creation.”)); id. at 1562 (quoting In re Smith and Hubin, 481 F.2d 910, 914 (C.C.P.A. 1973) (“Satisfaction of the description requirement insures that subject matter presented in the form of a claim subsequent to the filing date of the application was sufficiently disclosed at the time of filing so that the prima facie date of invention can fairly be held to be the filing date of the application.”)).

To satisfy the written description requirement, the patent specification must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, the applicant was in possession of the claimed invention. Union Oil Co. v. Atlantic Richfield Co., 208 F.3d 989, 997 (Fed. Cir. 2000); Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991). It is not necessary for an applicant to describe exactly the subject matter claimed, so long as the written description allows persons of ordinary skill in the art to recognize that the applicant invented what is claimed. Union Oil, 208 F.3d at 997. The Federal Circuit and its predecessor court have held in numerous instances that claims may be found to be supported by a specification that lacks an exact description of the claimed invention. In Union Oil, for example, the applicants drafted their claims to a gasoline product in terms of ranges of chemical properties which work in combination with ranges of other chemical properties to produce a gasoline that reduces emissions. See id. at 992, 997. Although the specification did not recite the specific ranges of properties found in the claims, it

taught the effect of varying the properties of automotive gasolines to reduce harmful tailpipe emissions. The Federal Circuit affirmed the trial court's finding that the applicant had sufficiently supported its claims by describing the interrelationships that would give rise to the claimed gasoline product. Id.; see also id. at 1000 (citing In re Wertheim, 541 F.2d 257, 265 (C.C.P.A. 1976) (ruling that written description of broad range of characteristics adequately supported claims to a narrower range); but see id. (citing In re Ruschig, 379 F.2d 990 (ruling that broad disclosure of classes of chemical compounds failed to adequately support claims to specific compounds)).

The question before the court is whether the claims of the CIP application directed to a halogenated copolymer of p-methylstyrene and isobutylene are supported by the specification of the parent application, which discloses the use of halogenated butyl rubber. The initial application makes no mention of using a halogenated copolymer of p-methylstyrene and isobutylene. The examiner rejected the applicants' initial claims to a rubbery polymer containing halogenated butyl rubber, stating that this composition had been disclosed in the Close patent. When the applicants filed their CIP application, they included in the specification the statement that the rubbery polymer could contain "a halogenated butyl rubber or a halogenated copolymer of p-methylstyrene and isobutylene." The specification distinguishes the copolymer from the butyl rubber, and explains the improved characteristics of the copolymer as follows:

The halogenated p-methylstyrene/isobutylene copolymer combines the low permeability properties of a butyl rubber with the environmental and aging properties of an EPDM rubber.

Hagan, the prosecuting attorney, acknowledged in his deposition that the inclusion of the copolymer in CIP application constituted “additional disclosure material,” and stated that the copolymer is “an alternative to the halogenated butyl rubber component.”

The claim language of the CIP application indicates that the applicants treated the rubbery polymer containing the copolymer as a distinct invention. Claims 5 and 6 of the CIP application are indistinguishable, except that the former is directed to a composition containing a halogenated butyl rubber, and the latter is directed to a composition containing a halogenated copolymer of p-methylstyrene and isobutylene. Claim 9 of the CIP application recites that the rubbery polymer may contain “halogenated butyl rubber or a halogenated copolymer of p-methylstyrene and isobutylene.” Claim 12, which was added in a subsequent amendment, distinguishes itself from claim 9 by limiting the halogenated component of the rubbery polymer to a halogenated copolymer of p-methylstyrene and isobutylene.

The examiner rejected the CIP application, reiterating his prior statement that Close had already disclosed the use of halogenated butyl rubbers in adhesive tapes. The applicants distinguished their claimed invention from that disclosed by Close, stating that “nowhere in Close is there a teaching of the use of a rubbery polymer blend

in which the blend includes a halogenated copolymer of p-methylstyrene and isobutylene.” The applicants further distinguished the claimed invention from Close by noting that claim 12 is specific to the use of the copolymer.

In light of the applicants’ numerous statements to the PTO that the rubber polymer containing the copolymer is distinct from the rubber materials initially claimed, it appears that the claims directed to the copolymer are not supported by the statements in the parent application that discuss the use of a halogenated butyl rubber. Adco urges that the caselaw and Carlisle’s admissions require a finding that the early priority date applies. Adco relies on In re Bowen, 492 F.2d 859 (C.C.P.A. 1974) and Milliken Research Corp. v. Dan River, 641 F. Supp. 4 (W.D. Va. 1982). Bowen concerns the C.C.P.A.’s review of the PTO’s rejection of claims directed to a “polymerizable material.” See Bowen, 492 F.2d at 864. The specification referred to a “polymerizable mass . . . added . . . as an aqueous solution of monomeric material, such as hexamethylene-diamine adipate.” Id. The C.C.P.A. found that this language in the specification “clearly corresponds to the language of the claims,” and reversed the PTO’s patentability rejection. Id. In Milliken, the district court found that a parent application’s disclosure of specific types of yarn was sufficient to support genus-type claims in a CIP application. Milliken, 641 F. Supp. at 13. This court finds that the facts of Bowen and Milliken are distinguishable from the present dispute, as neither of

them involved statements to the examiner that the purportedly new subject matter was distinct from the subject matter originally disclosed.

Adco further argues that Carlisle admitted that halogenated butyl rubbers are equivalent to halogenated copolymers of p-methylstyrene and isobutylene, and thus that the initial disclosure provides written support of the later claims. Adco points to Hamed's deposition testimony that halogenated butyl rubber and halogenated copolymers of p-methylstyrene and isobutylene are "similar material[s]" and are "interchangeable." Adco insists that, in light of these statements, there is an issue of fact as to whether the disclosures made in the parent application provide a written description of the later claims.

Section 112 requires the applicant to describe the claimed invention with reasonable clarity such that persons of ordinary skill in the art may recognize that the applicant was in possession of the claimed invention. Union Oil, 208 F.3d at 997; Vas-Cath, 935 F.2d at 1563. The court finds no authority for interpreting this provision as requiring only that the applicant must provide a written description of structures "similar to" or "interchangeable with" the claimed invention. Thus, even if the court were to give full credit to Hamed's statements, which were made in the context of issues distinct from those presently at bar, it is unclear that these statements would constitute an adequate basis for finding that the parent application supports the asserted claims. Moreover, the court finds that Hamed's statements are entitled to far less

weight than the statements made by the applicants to the PTO in the CIP application and throughout the prosecution of the '727 patent. Those statements unambiguously maintain that the halogenated copolymer of p-methylstyrene and isobutylene offers superior physical properties, and that the use of the copolymer serves to distinguish the claimed invention from the prior art.

The court concludes that no reasonable jury could find that the specification of the parent application provides a written description of the claims of the '727 patent directed to the use of a halogenated copolymer of p-methylstyrene and isobutylene. Because claims 9 and 10 of the '727 patent are directed to a rubber containing this copolymer, the court finds that November 15, 1990 is the priority date that governs this dispute. Adco admits that it sold the commercial product as early as April 26, 1990. Because these sales were made before the priority date of the asserted claims, the court finds that claims 9 and 10 of the '727 patent are invalid under 35 U.S.C. § 102(b). The court will grant Carlisle's motion for summary judgment of invalidity.

- b. Do Adco's December 21, 1989 sales of adhesive tape to Carlisle render the patent invalid under the priority date of the parent application?

The parties dispute whether Adco's sale of adhesive tape to Carlisle on December 21, 1989 would render the asserted claims invalid under 35 U.S.C. § 102(b) if the date of the parent application were to apply. Carlisle argues that, even under the date of the parent application, Adco's sale of adhesive tape to Carlisle on December 21,

1989 constitutes a sale of the claimed invention more than a year prior to the date of the parent application. Adco argues that there is a genuine issue of fact as to whether the tape it sold to Carlisle on that date was an embodiment of the claimed invention.

The parties do not dispute that Adco conducted laboratory tests in the Fall of 1989 to increase the polymer level of its adhesive tapes. Briddell acknowledged that Adco achieved ratios of polymer to tackifier of approximately 1.0 between October and December 1989. There appears to be no dispute that the materials developed in the laboratory during this time period had all the attributes of the invention of claim 9.

An Adco invoice shows that Carlisle placed an order to purchase adhesive tape from Adco on December 21, 1989, and that the tape was shipped on January 19, 1990. The part numbers appearing on the invoice correspond to the part numbers of a July 1990 Master Item List that specify the use of the SP-505 formulation. Moreover, the shipping date appearing on the invoice indicates that Adco shipped the tape product one day after it produced a batch of SP-505 polymer, as evidenced by a master batch sheet dated January 18, 1990.

A number of disputed facts draw into question whether Adco made an offer to sell Carlisle the patented SP-505 product on December 21, 1989. The Master Item List provided to the court is dated July 26, 1990, and does not necessarily reflect the part numbers and formulas being used at the time of the sale in question. Briddell testified that the same part numbers appearing on the invoice might have been used to describe

products containing the SP-501 formulation. Hubbard also testified that the batches of SP-505 polymer produced by Adco in January 1990 may have been for field testing, not for sale. The designation “Special” on the January 23, 1990 batch sheet, as noted by Hubbard, suggests that Adco was conducting field testing at that time.

The court finds that genuine issues of material fact preclude a grant of summary judgment on this ground. The court will deny Carlisle’s motion for summary judgment that Adco’s December 21, 1990 sale of adhesive tape renders the asserted claims invalid under the date of the parent application.

c. Do Adco’s SP-303 and SP-501 formulations anticipate the claimed invention or render it obvious?

The parties dispute whether Adco’s SP-303 and SP-501 formulations anticipate the claimed invention under 35 U.S.C. § 102, or render it obvious under 35 U.S.C. § 103. Carlisle argues that the SP-501 formulation contains the same ingredients as the claimed invention, and that the lesser amount of polymer in the SP-501 product is insubstantially different from the level of polymer used in the SP-505 formulation. Carlisle argues, moreover that the SP-303 formulation only lacks polyisobutylene, and is equivalent to the SP-501 and SP-505 formulations in all material respects.

Adco argues that neither the SP-303 nor the SP-501 formulations have substantially equal amounts by weight of rubbery polymer and tackifier, and thus that they do not anticipate the claimed invention nor render it obvious.

It appears that the SP-303 formulation had a rubbery polymer to tackifier ratio of approximately 0.3, and that the SP-501 product, at least during the Summer of 1989, had a rubbery polymer to tackifier ratio of approximately 0.4. It is not clear whether Adco sold SP-501 products containing higher levels of polymer. The court finds that there is a question of fact as to whether the adhesive tapes sold by Adco had sufficient levels of polymer to anticipate the claimed invention, or to render it obvious. The court will deny Carlisle's motion for summary judgment of invalidity on this ground.

4. Carlisle's motion for summary judgment of inequitable conduct

Carlisle argues that it is entitled to summary judgment that the asserted claims are unenforceable due to inequitable conduct. Carlisle contends that the SP-303 and SP-501 formulations are material prior art that Adco intentionally withheld from the PTO. Adco argues that the low polymer content of these products renders them immaterial, and that these adhesives are cumulative of the Chiu patent.

The first step in determining whether Adco engaged in inequitable conduct is to determine whether the allegedly withheld references are material. See Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed. Cir. 1995). The SP-303 and SP-501 tapes are cured roofing adhesives. The components of the SP-501 formulation appear to be the same as in the claimed invention, and the SP-303 formulation appears to lack only polyisobutylene. The primary difference between these two formulations and the claimed invention is the level of polymer. As noted above, the SP-303 and SP-501

products had polymer to tackifier ratios of approximately 0.3 and 0.4, respectively. The claimed invention has substantially equal amounts of polymer and tackifier. The applicants disclosed eight patents to the PTO. The Chiu patent teaches the use of a roofing adhesive containing a cured butyl rubber, and it appears that the remaining references disclose uncured adhesives. The applicants distinguished the claimed invention from the prior art on the grounds that the claimed rubber is a cured rubber that is “postcured after formulation” and that is heated to “achieve essentially full cross-linking of the components.”

As noted by the applicants during prosecution, the point of novelty of the claimed invention is that it discloses the use of a cured adhesive. The SP-303 and SP-501 formulations are cured adhesives whose chemical compositions are closely related to that of the claimed invention. In light of the similarities between Adco’s SP-303 and SP-501 adhesives and the claimed invention, it appears that these prior formulations may have been material to the prosecution of the ’727 patent. A question of fact remains as to whether the SP-303 and SP-501 formulations are cumulative of the Chiu patent.

The court must also consider whether the applicants acted with an intent to deceive the PTO. See id. On May 8, 1989, Briddell sent the formulation data for the SP-303 and SP-501 adhesives to the attorneys responsible for prosecuting the ’727 patent. The applicants were aware of these formulations when they represented to the

PTO that the claimed invention was patentable over the prior art by nature of being pre-cured.

The documents, depositions, and affidavits submitted by the parties suggest that Carlisle has raised a substantial question about the enforceability of the '727 patent. Nevertheless, the court is reluctant to resolve this issue in the context of a motion for summary judgment. The merits of Carlisle's claim turn on questions of the applicants' intent, which the court will be more comfortable addressing after having had the opportunity to see and hear the witnesses, and to assess their credibility. Accordingly, the court will deny Carlisle's motion for summary judgment of unenforceability.

5. Carlisle's motion for summary judgement of no willful infringement

Carlisle argues that it is entitled to summary judgment that it has not willfully infringed the claims of the '727 patent. In light of the court's determination that the asserted claims are invalid under 35 U.S.C. § 102(b), it appears that this motion is moot. The court will deny the motion without prejudice.

III. CONCLUSION

The court has construed the disputed terms of claim 9 of the '727 patent. The court finds that the term "substantially equal amounts" does not need additional interpretation. The court finds that the term "a rubbery polymer comprising a blend of

. . . and polyisobutylene” does not need additional interpretation. The court finds that the term “a compatible tackifier” should be given its ordinary meaning, and that a suitable definition for this term is “a substance that gives the composition its softness and high initial adhesivity and is compatible with the other constituents in the adhesive composition.” The court finds that the term “an accelerator/cure package for said rubbery polymer” should be given its ordinary meaning, and that a suitable definition for this term is “a package that includes a compound to cross-link the polymer chains of the rubbery polymer, and for reducing the time needed to complete such cross-linking.”

The court will grant Carlisle’s motion for summary judgment of no literal infringement on the ground that its accused product does not contain polyisobutylene. The court will grant Carlisle’s motion for summary judgment of invalidity on the ground that the date of the CIP application governs the present dispute, and that Adco’s admitted sales of its SP-505 formulation in April 1990 precede the filing of the CIP application by more than one year. The court will deny Carlisle’s motions for summary judgment of unenforceability and for summary judgment of no willful infringement.

The court will issue an Order consistent with this Opinion.