

United States District Court,
D. Delaware.

MANNINGTON MILLS, INC. and Mannington Mills of Delaware, Inc,
Plaintiffs.

v.

ARMSTRONG WORLD INDUSTRIES, INC,
Defendant.

Domco Tarkett, Inc,
Plaintiff.

v.

Mannington Mills, Inc. and Mannington Mills of Delaware, Inc,
Defendants.

Nos. CIV.A. 00-876 MPT, CIV.A. 01-388 MPT

Sept. 10, 2002.

Owner of patents for floor covering products sued competitor for infringement. In separate action, third party sought declaration that patents were invalid. Construing claims, the District Court, Thyng, United States Magistrate Judge, held that: (1) "wear layer" could include top coat layer, and was above but not necessarily in contact with design layer; (2) "chemically embossed portion" referred to areas of vinyl surface depressed after curing was completed as result of application of reactive chemical compound; and (3) "mechanically embossed portion" referred to those raised areas of surface covering, i.e., areas that were not chemically embossed, that were mechanically imprinted with surface texture to produce desired effect.

Claims construed.

5,961,903, 6,114,008. Construed.

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AMENDED MEMORANDUM OPINION

THYNGE, United States Magistrate Judge.

Presently before the court is the consolidated *Markman* patent claim construction hearing in *Mannington Mills, Inc. and Mannington Mills of Delaware, Inc. v. Armstrong World Industries, Inc.* (C.A.00-876) and the companion case of *Domco Tarkett Inc. v. Mannington Mills, Inc. and Mannington Mills of Delaware, Inc.* (C.A.01-388) pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed.Cir.1995) (*en banc*), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). As is customary in this jurisdiction, the parties presented argument during the consolidated *Markman* hearing with regard to case dispositive pretrial summary judgment motions, however, these motions are not addressed in this memorandum opinion.

On September 28, 2000, plaintiffs, Mannington Mills, Inc. and Manning Mills of Delaware, Inc. ("Mannington"), initiated this patent infringement action by filing a complaint against defendant, Armstrong World Industries, Inc. ("Armstrong"), alleging willful infringement of U.S. Patent No. 6,114,008 (" '008"). C.A. 00-876, D.I. 1. The proceedings were temporarily stayed by operation of Chapter 11 bankruptcy protection after Armstrong filed a declaration of bankruptcy. The Chapter 11 automatic stayed was subsequently lifted and Armstrong, thereafter, counterclaimed seeking a declaratory judgment of invalidity and/or unenforceability of the '008 patent. C.A. 00-876, D.I. 7. In a related case, *Domco Tarkett Inc. v. Mannington Mills, Inc. and Mannington Mills of Delaware, Inc.* (C.A.01-388), Domco Tarkett Inc. ("Domco") filed a declaratory judgment action seeking a declaration of invalidity and/or unenforceability of Mannington's 5,961,903 (" '903") patent and its '008 patent. C.A. 01-388, D.I. 1. Argument as to contested claim language in the '903 and '008 patents and pretrial case dispositive summary judgment motions was subsequently consolidated into a single *Markman* hearing scheduled for August 8, 2002. C.A. 00-876, D.I. 189; C.A. 01-388, D.I. 84. This is the court's *Markman* opinion with respect to the '903 and '008 patents.

THE PATENTS

This case involves two related patents owned by Mannington, the '903 and '008 patents. The '903 patent is a process patent directed to a method of making surface coverings having natural appearances. The '008 patent is a product patent directed to surface coverings having a natural appearance. The '903 patent was filed with the Patent and Trademark Office ("PTO") on December 23, 1997. It was issued on October 5, 1999. The '008 patent stems from a division of the application leading to the '903 patent. It has a filing date of May 20, 1999 and a priority date as early as December 23, 1997. 35 U.S.C. s. 121. The '008 patent issued on September 5, 2000.

CONTESTED CLAIMS WITH DISPUTED TERMS/PHRASES BOLDED

I. U.S. Patent No. 5,961,903 (" '903"): Method of Making a Surface Covering Having a Natural Appearance

Claim 1:

A method of making a surface covering having a natural wood, stone, marble, granite, or brick appearance, comprising:

(a) providing a surface covering comprising a backing layer; a foamable layer on said backing layer; and a design layer having a design selected from the group consisting of a wood, stone, marble, granite, and brick pattern printed thereon and located on said foamable layer; wherein a portion of said design includes joint or grout lines printed with at least one retarder composition;

(b) providing a **wear layer on top** of said design layer and curing said wear layer, thereby expanding said foamable layer to form a foam layer and **chemically embossing the portion** of said design layer where said printed joint or grout lines are located;

(c) subjecting said surface covering of (b) to sufficient cooling to reduce the temperature of the cured wear layer to **approximately ambient temperature**;

(d) subjecting the cured and cooled wear layer of said surface covering of (c) to a **sufficient temperature to soften** said cured and cooled wear layer;

(e) **mechanically embossing a surface texture** selected from the group consisting of a natural wood, stone, marble, granite, and brick onto said softened wear layer; and

(f) setting said mechanically embossed surface texture in said wear layer.

II. U.S. Patent No. 6,114,008 (" '008"): Surface Covering Having a Natural Appearance and Methods to Make a Surface Covering Having a Natural Appearance

Claim 1:

A floor covering having a natural wood, stone, marble, granite, or brick appearance, comprising:
a backing layer;

a foam layer located on said backing layer and having a **chemically embossed portion**;

a design layer located on said foam layer and having a design selected from the group consisting of natural wood, stone, marble, granite, and brick, wherein said design includes joint or grout lines corresponding to **said chemically embossed portion**; and

a wear layer located on top of said design layer and **mechanically embossed to form a mechanically embossed portion with a surface texture** selected from the group consisting of natural wood, stone, marble, granite, and brick, wherein the surface texture is mechanically embossed in the wear layer when said wear layer is in a **softened state** and wherein **said chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion.**

Claim 9:

A floor covering comprising:
a backing layer;

a foam layer located on said backing layer and having a **chemically embossed portion**;

a design layer located on said foam layer and having a design; and

a wear layer located on said design layer and mechanically embossed to form **a mechanically embossed portion with a surface texture**, wherein said wear layer is applied to said foam layer prior to curing and foaming, wherein the surface texture is mechanically embossed in the wear layer when said wear layer is in a **softened state** and wherein **said chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion.**

Claim 11:

A floor covering, comprising:
a backing layer;

a foam layer located on said backing layer and having a **chemically embossed portion**;

a design layer; and

a cured wear layer having a **mechanically embossed portion with a surface texture located on** said design layer, wherein said design layer and said wear layer are applied to said foam layer prior to curing and foaming, and wherein a **chemically embossed portion of said foam layer has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion.**

PRINCIPLES OF PATENT CLAIM CONSTRUCTION

I. General Tenets

[1] [2] [3] Patent claim construction is a matter of law for the court. *Markman*, 52 F.3d at 979. A court begins its analysis of a patent claim by first looking to the language the inventors employed in their claims to define the scope of their invention. *See Johnson Worldwide Assoc., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed.Cir.1999). This language is given an ordinary and accustomed meaning as understood by those of ordinary skill in the art. *Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc.*, 222 F.3d 951, 955 (Fed.Cir.2000) (citing *Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1578 (Fed.Cir.1996); and *Markman*, 52 F.3d at 980); *Schering Corp. v. Amgen Inc.*, 222 F.3d 1347, 1353 (Fed.Cir.2000) (citing *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572 (Fed.Cir.1996)). The remainder of the intrinsic record, the patent specification and prosecution history, is next examined to resolve ambiguities existing after considering the claim language itself and to determine whether the inventors intended to use the claim language differently from that commonly understood in the art. *Markman*, 52 F.3d at 979, 980; *see, e.g., Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 705 (Fed.Cir.1997); *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996).

[4] [5] If the claim language and intrinsic record are clear, the *Markman* analysis ceases without consideration of the extrinsic record. *Interactive Gift Express, Inc. v. CompuServe Inc.*, 231 F.3d 859, 866 (Fed.Cir.2000); *Hockerson-Halberstadt*, 222 F.3d at 955 (citing *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed.Cir.1998)). If the intrinsic record is unclear or ambiguous as to the meaning of a claim term or phrase, however, the extrinsic record may shed light on the meaning because those skilled in the art may readily understand what is meant even though the court lacks such an understanding from a bare reading of the intrinsic record due to its lack of familiarity with the science underlying the technological issues in the case. *Vitronics Corp.*, 90 F.3d at 1583. When the extrinsic record can provide a meaning eluding the court's grasp, a court should adopt such a construction if that construction is cognizant with the overall intrinsic record before it. *Id.* A court should take care, however, to resist the temptation to adopt a meaning asserted by one of the parties involved in the case because such an "after-the-fact" recitation of the claim language is precisely the type of undertaking that *Markman* has left for the courts. *North American Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1577 (Fed.Cir.1993), *cert. denied*, 511 U.S. 1069, 114 S.Ct. 1645, 128 L.Ed.2d 365 (1994) ("after-the-fact testimony is of little weight compared to the clear import of the patent disclosure itself") (citing *Senmed, Inc. v. Richard-Allan Medical Indus. Inc.*, 888 F.2d, 815, 819 n. 8, (Fed.Cir.1989)); *see also Bell & Howell DMP Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed.Cir.1997) ("[T]estimony of an attorney 'amounts to no more than legal opinion-it is precisely the process of construction that the court must undertake.'") (quoting *Markman*, 52 F.3d at 983).

II. Product-By-Process Claims

Since the '008 patent claims are written in terms of product-by-process language, pervading resolution of this case is the divergence between the Federal Circuit's decisions in *Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 1583 (Fed.Cir.1991), and *Atlantic Thermoplastics Co. v. Faytex Corp.*, 970 F.2d 834 (Fed.Cir.1992). In *Scripps Clinic & Res. Found.*, a three judge panel of the Federal Circuit held

that "[s]ince claims must be construed the same way for validity and for infringement, the correct reading of product-by-process claims is that they are not limited to product prepared by the process set forth in the claims." 927 F.2d at 1583. Shortly thereafter in *Atlantic Thermoplastics Co.*, this issue was readdressed by a different three judge panel of the same court with an opposite and controversial outcome referred to by Judge Rich as "mutiny ... heresy ... [and] illegal." *Atlantic Thermoplastics Co. v. Faytex Corp.*, 974 F.2d 1279, 1281 (Fed.Cir.1992) (denying hearing in banc) (Rich, J., dissenting).

[6] [7] Regardless, however, Mannington relies on *Atlantic Thermoplastics Co.* for the proposition that this court must give credence to process limitations in a product claim during a *Markman* analysis and when determining validity and infringement. D.I. 366 at 6. This court, however, will not perpetuate such an absurd result resting ostensibly on a claim drafting convention initiated to accommodate a small category of patentable inventions lacking adequate structural description. *Id.* at 1282 ("This class of claim usually appears when the invention is a chemical or biological product of such structural complexity that the product be defined in independent structural terms. The premise of such claims has been called the Rule of Necessity"). It is malefic to grant patent protection to an item old in art simply because it was cast anew in terms of process language. The process of making the old art item may deserve patenting as a new, novel, and nonobvious process. The old product, however, being readily in the public domain is undeserving of such meritorious protection. Product-by-process claim language is nothing more than patent prosecution parlance. It imparts no patentability to the product resulting from the process just as an inventor's lexicography imparts no patentability to a product claimed using the inventor's own definitions. Product-by-process claims, therefore, do not warrant special treatment by a court when performing a *Markman* analysis or when determining patent validity or infringement.

Articulating the debate about the effect of process language in product claims in terms of whether the claim at issue is a product-by-process claim or a "pure product" claim such that the process language should be discarded, as Armstrong contends, however, metamorphoses the rationale for allowance of artfully drafted product-by-process claims and distorts the issue as to whether a court need consider process limitations during a *Markman* analysis, and the effect of such language during a determination of patent invalidity or infringement. *See* *Biacore, AB v. Thermo Bioanalysis Corp.*, 79 F.Supp.2d 422, 456 (D.Del.1999), *aff'd*, 2002 WL 418166 (Fed.Cir. Mar.15, 2002) ("Product-by-process claims are characterized as being devoid of significant structural description of the final article, instead relying, at least in part, on a description of 'the process used to obtain [the claimed invention]' to define it. *Mentor Corp. v. Coloplast, Inc.*, 998 F.2d 992, 997 (Fed.Cir.1993). By contrast, in product claims the article is defined in terms of structural characteristics only."). A patentable product claimed in terms of the process by which it is made (a product-by-process claim) is not a hybrid classification of standard patentable subject matter. As provided in 35 U.S.C. s. 101, patentable subject matter includes the following: "[A]ny new and useful [and nonobvious] process, machine, manufacture, or composition of matter, or any new and useful [and nonobvious] improvement thereof...." Claims drafted using product-by-process language must, necessarily, comprise subject matter falling within one of these categories, and should be treated accordingly. There is no well grounded reason, therefore, for a court to disregard any claim language during a *Markman* analysis. All claim language is relevant and informative to the inquiry undertaken by the court in this respect and defines the invention (product) claimed. No heed should be made as to whether the claim is a "pure product" or a product-by-process claim for at some point process steps cease leaving the end product as the inventor's genius. As to validity and infringement, therefore, this court will follow *Scripps Clinic & Res. Found.* as the controlling and better law. 927 F.2d 1565, 1583 (Fed.Cir.1991).

THE COURT'S PATENT CLAIM CONSTRUCTION

I. "a wear layer on top," "a wear layer located on top," and "a wear layer located on"

[8] The parties dispute the meaning of "a wear layer on top" of claim 1 of the '903 patent, "a wear layer

located on top" of claim 1 of the '008 patent, and "a wear layer located on" of claim 9 of the '008 patent.

Mannington asserts that a "wear layer" is "a portion of a cushioned sheet vinyl floor covering that protects the pattern and design of the floor covering." D.I. 326 at 9. Manning further argues that the "wear layer" does not, necessarily, include a "top coat." Id. at 10. In contrast, Armstrong argues that "a wear layer is 'the portion of a resilient floor covering that contains or protects the pattern and design, exclusive of temporary finishes or maintenance coatings.'" D.I. 324 at 21. Moreover, Armstrong contends that the "wear layer" includes a top coat as the "uppermost layer" of the surface covering and when present, this "top coat" forms an "integral component of the 'wear layer'." Id. at 21. Domco argues that "the wear layer is not necessarily in direct contact with the design layer, but necessarily above the design layer." D.I. 142 at 16.

This court construes "wear layer" consistent with that disclosed in the '903 and '008 specifications and understood in the art to mean one or more layers of PVC or like material that can include a top coat layer of non-PVC polyurethane or like material and, when present, the top coat layer is considered part of the composite layer loosely called a "wear layer" in the vinyl surface covering industry. '903 8:28-30; '008 8:39-47 (describing a "top coat" layer as a "wear layer top coat"); 1995 *ASTM*, F1303-95 s.s. 3.1.1, 4.1.1, and 4.1.2 (wear layer "[g]rades shall be classified by the total wear layer thickness (sum of PVC and non-PVC wear layers)"). As used by the inventors in the '903 and '008 patent and provided for in the specifications, however, the "wear layer top coat" when comprising part of the surface covering of the embodiment of the '903 and '008 inventions being practiced is "adhered to the embossed wear layer," therefore, the "wear layer top coat" as used in these patents is not mechanically embossed when present. '903 8:29-30; '008 8:40-41.

The phrases "a wear layer on top," "a wear layer located on top," and "a wear layer located on" are construed in accord with their ordinary meaning to mean that a "wear layer" is applied over top of or above the design layer. This claim language is broad enough to permit intervening layers between the design and the "wear layer."

II. "approximately ambient temperature"

[9] The phrase "approximately ambient temperature" is used in claim 1 of the '903 patent to describe the temperature the wear layer is cooled to after being cured in the preceding step of the claimed process. '903 at 11:29-12:3. The parties dispute the meaning of this phrase.

Mannington argues that the phrase "means approaching the surrounding temperature." D.I. 326 at 23. In support of this construction, Mannington asserts that the '903 specification refers to "cooling to ambient temperature prior to softening for mechanical embossing." Id. at 24. Therefore, contends Mannington, a "skilled artisan would understand 'ambient temperature' to mean the temperature surrounding or encircling the product ... as it moves from step (b) to step (d) [in claim 1 of the '903 patent]." Id. at 23-24. Furthermore, asserts Mannington, since "approximately" modifies "ambient temperature" "a person of ordinary skill in the art would further understand that 'approximately ambient temperature' need only be a temperature below the temperature of step (d) where the wear layer is subsequently softened (i.e., by reheating) prior to mechanically embossing." Id. at 24. Moreover, argues Mannington, the prosecution history of the '903 patent distinguishes prior art that teaches mechanical embossing without cooling first, thus, supporting its proposed construction. Id.

Armstrong makes no argument as to this phrase since the '903 patent is not asserted against it. Domco, however, argues that the phrase means "the range of temperatures in an area of a shop or factory where resilient surface covering manufacturing workers are ordinarily present; in other words, the range of temperatures in the environment in which such workers ordinarily perform their assigned duties." D.I. 142 at 16.

The clear import of the expression "ambient temperature" to those skilled in the art of vinyl surface coverings, as well as, to those with a modest scientific background, is room or, as the case may be, factory temperature. This court therefore construes "approximately ambient temperature" as used in claim 1 of the '903 patent to mean that the surface covering is cooled after being cured in step (c) of claim 1 of the '903 patent to a temperature approximately equal to factory or room temperature. *Hawley's Condensed Chemical Dictionary* 48, 973 (13th ed. 1997) (Stating that ambient temperature refers to a temperature in the room between 68-77F.). Any other interpretation menaces the English language. Moreover, the inventors provide no disclosure in the written description to support a contrary interpretation consistent with their arguments now before the court.

III. "sufficient temperature to soften," "softened wear layer," and "a softened state"

[10] The phrase "sufficient temperature to soften" is used in claim 1 of the '903 patent to describe the temperature at which the wear layer is reheated to prior to being mechanically embossed. '903 12:4-6. Claim 1 of the '903 patent employs the phrase "softened wear layer" and claims 1 and 9 of the '008 patent employ the phrase "a softened state" to describe the state in which the wear layer is in when it is mechanically embossed. This claim language is in dispute and discussed here because it is related.

Mannington argues that the claim language "a sufficient temperature to soften" "means an exposure to a heating source capable of causing the cured wear layer to achieve a sufficient degree of softening to allow it to be mechanically embossed." D.I. 326 at 24-25. Again, Armstrong makes no argument with respect to this phrase since it is found only in the '903 patent. Domco, on the other hand, argues that the phrase "mean[s] that the material of the wear layer is moldable [as a result of heating], *i.e.* the material would be displaced to take on the pattern and shape of the texture to be imprinted, during a mechanical embossing step." D.I. 142 at 18.

Mannington argues that both "softened wear layer" and "a softened state" should be construed to "mean that the wear layer is in a cured and softened condition ... **before** the wear layer is mechanically embossed." D.I. 326 at 25 (emphasis in original). In support, Mannington makes a contextual argument to assert that "those skilled in the art would understand the claims to require the cured wear layer to be in a 'softened state' **prior to**, rather than during, mechanical embossing." *Id.* at 26 (emphasis in original). Armstrong argues that the process limitation "a softened state" should not be construed and, in the alternative, asserts that "softened state" means the wear layer is at a temperature range from 240 (deg.) F to 470 (deg.) F. D.I. 324 at 25. Domco argues that "softened wear layer" and "softened state" mean that "the material of the wear layer is moldable, *i.e.*, the material would be displaced to take on the pattern and shape of the texture to be imprinted, during a mechanical embossing step." FN1 D.I. 142 at 18.

FN1. In its *Markman* brief, Domco groups the phrase "a sufficient temperature to soften" in claim 1 of the '903 patent and the phrase "a softened state" in claims 1 and 9 of the '008 patent into the same passage and makes the same argument as to each expression.

Clearly, the parties' arguments as to the proper construction of the phrase "a sufficient temperature to soften" are similar. This court, therefore, construes the phrase consistent with these arguments to mean that the vinyl surface covering is softened by heating such that it is receptive of embossment by mechanical means. The more poignant question, however, is temporal and relates to the proper construction of the phrases "softened wear layer" and "a softened state." In other words, do these phrases as found in the contested claims mean that the surface covering reaches a softened state as a result of heating prior to reaching the mechanical embossing tool, or are these phrases put forth in the claims such that heating to a softened state can occur nearly simultaneously with mechanical embossing? To answer this question, one must look to the context in which the phrases are used in the claims and then to the remainder of the

intrinsic evidence to determine whether the inventors limited the construction of these phrases in any manner.

The expression "softened wear layer" is used generally in claims 1 of the '903 patent to describe the state the cooled and cured surface covering is in when a "mechanically emboss[ed] ... surface texture selected from the group consisting of a natural wood, stone, marble, granite, and brick [is embossed] onto said softened wear layer...." As this language reads in the claim, it is not restricted temporally. That is, as the phrase is used in the claim, the surface covering must be in a softened state at least at a finite point in time prior to being imprinted with a surface texture by mechanical means. The '903 specification does not change this reading of the claim and, in fact, supports this understanding by providing that "[t]he wear layer is ... subjected to a sufficient temperature for a sufficient time in order to soften the wear layer to a sufficient degree to allow it to be mechanically embossed." '903 at 5:63-66. As it appears in claim 1 of the '903 patent and as this court so construes, therefore, the phrase "softened wear layer" means that the claimed surface covering is in a softened condition FN2 after being cured and cooled no later than a finite point in time prior to being imprinted with a surface texture by mechanical means.

FN2. Claim 1 of the '903 patent specifies that the surface covering is placed in a softened condition because it is subject to "a sufficient temperature to soften...." '903 at 12:5-6. It follows, therefore, that as used in claim 1 of the '903 patent the surface covering is softened by the application of heat and not by some other mechanism.

Claims 1 and 9 of the '008 patent make use of the similar phrase "a softened state," however, absent from the claims is definitive reference to the surface covering being both cured and cooled prior to being softened by the application of heat and then mechanically embossed. Claim 9, though, uses the word "curing" to clarify that the wear layer is applied to the foam layer before it is cured, but use of this word carries no other significance in the claim. '008 12: 13-22. This being so, this broad phrase must be construed to mean that the surface covering is in a soft condition such that it is receptive to imprinting by mechanical means. This court will not conjecture as to whether the inventors intended to draft claims 1 and 9 of the '008 patent such that imprinting by mechanical means occurred after the surface covering was cured and cooled. Had the inventors intended to write their claims accordingly, they could have easily done so. Having failed, however, to specify that the surface covering was cured and cooled before mechanical imprinting, this court will not read a cured and cooled limitation into the phrase "a softened state" as found in claims 1 and 9 of the '008 patent.

IV. "chemically embossing the portion" and "a chemically embossed portion"

[11] The phrase "chemically embossing the portion" appears in claim 1 of the '903 patent and the phrase "a chemically embossed portion" appears in claims 1, 9, and 11 of the '008 patent. The parties dispute the meaning of these two phrases.

Mannington argues that this court should construe "chemically embossing" in claim 1 of the '903 patent to "mean[] employing an inhibitor or retarder composition to alter the decomposition temperature of a blowing agent so as to create a recessed texture in the surface of the cushioned sheet vinyl flooring when the foamable layer is foamed (or blown)." D.I. 326 at 13. Mannington asserts that "chemically embossed" as used in claims 1, 9, and 11 of the '008 patent "means that created by chemical embossing." Id. at 13. Mannington argues that the word "portion" as used in these claims is not a term "uniquely defined by the cushioned sheet vinyl flooring industry;" therefore, the word should be given an ordinary dictionary meaning referring to the part of the vinyl surface covering that is chemically embossed. Id. at 19.

Armstrong makes no argument as to claim 1 of the '903 patent as that patent is not asserted against it.

Armstrong does, however, make arguments as to "a chemically embossed portion" as found in claims 1, 9, and 11 of the '008 patent. In particular, Armstrong argues that this court should not construe the process limitation "chemically embossed" as contained in the '008 patent because the '008 patent claims are "pure product" claims as opposed to product-by-process claims under *Biacore, AB v. Thermo Bioanalysis Corp.*, 79 F.Supp.2d 422, 456 (D.Del.1999), *aff'd*, 2002 WL 418166 (Fed.Cir. Mar.15, 2002).FN3 D.I. 324 at 22.

FN3. In *Biacore*, Judge Robinson "found that the subject claims were 'pure product' claims, notwithstanding the presence of process limitations embedded in the claims." D.I. 324 at 22.

In the event that this court does consider the process limitations in the '008 patent claims, Armstrong argues that the claims should be limited to the preferred embodiments disclosed in the specification. *Id.* at 8. As provided in the art and disclosed in the specification, Armstrong asserts that " 'chemically embossed' is properly interpreted as 'an embossed effect [that] is obtained chemically by the selective expansion of thermoplastic material' " and "is not limited to the use of a chemical inhibitor, but can include chemical embossing using other methods, such as selective deposition of a chemical foaming agent rather than a chemical inhibitor." *Id.* at 24 (emphasis in original). Armstrong further argues that "portion" as used to modify this phrase refers to a " 'depressed area on the sheet resulting from the chemically embossed step.' " *Id.* Moreover, contends Armstrong, "the specification defines the 'embossed portion,' or 'area' which corresponds to the joint or grout lines, as being 'rounded' (an embossed portion) [when referring to the chemically embossed portion]" and that this "portion" is separate and distinct from the mechanically embossed portion. *Id.* at 20-24.

Domco initiates its argument with respect to "chemically embossing the portion" as used in claim 1 of the '903 patent by asserting that "the *design layer* [as opposed to the foam layer] is chemically embossed [based upon a literal reading of the claim language]" (the "design layer argument"). D.I. 142 at 14 (emphasis in original). After presenting this argument, Domco proceeds to refer to a "modified" claim 1 FN4 of the '903 patent to imply that Mannington is rewriting its claim after the fact to say something different. As to this "modified" claim, Domco argues that the "modified" phrase and "a chemically embossed portion" in claims 1, 9, and 11 of the '008 patent "describe those predetermined areas of the product in which foaming of the foamable layer has been retarded." *Id.* at 14 (emphasis in original). Domco asserts, therefore, that "[a] proper interpretation of these terms is that the foam layer of the product is composed of depressed, chemically embossed areas and all of the complementary surface areas are raised (*i.e.*, not chemically embossed)." *Id.*

FN4. Domco is asserting through this line of reasoning that Mannington is writing its claim to read as follows: "[C]hemically embossing the portion of ***the foamable layer below the portion of*** said design layer where said printed joint or grout lines are located." D.I. 142 at 14 (emphasis in original).

[12] In its "modified" claim argument, Domco directs this court's attention to *Becton Dickinson & Co., v. C.R. Bard, Inc.*, 922 F.2d 792, 799 n. 6, 800 (Fed.Cir.1990) where the Federal Circuit commented that "[n]othing in any precedent permits judicial redrafting of claims" to support its contention that Mannington is attempting to "modify" specific language in claim 1 of the '903 patent to avoid the consequences of poor draftsmanship.FN5 This court is not of the opinion, however, as Domco asserts, that the language in claim 1 of the '903 patent referred to in its design argument is so restrictive such that it is susceptible to only one plausible interpretation. In the same breathe, this court acknowledges the dictate expressed by the Federal Circuit in *Becton Dickinson & Co.* and reemphasizes that a court has no power to rewrite claims, such a judicial redrafting is iniquitous.

FN5. The language (claim element) Domco refers to in this line of argument is as follows: "... providing a wear layer on top of said design layer and curing said wear layer, thereby expanding said foamable layer to

form a foam layer and chemically embossing the portion of said design layer where said printed joint or grout lines are located"

The language identified by Domco in claim 1 of the '903 patent does not force this court into such an incongruous "redrafting" situation since it is capable of an alternative interpretation consistent with the specification and understanding within the art. The claim expression "chemically embossing the portion of said design layer where said printed joint or grout lines are located" when read *ex post facto prima impressionis* FN6 arguably connotes Domco's proposed construction. Viewed in context, however, the phrase conveys another meaning: the foam layer corresponding to the grout or joint lines in the design layer do not expand as fully as other portions of the foam layer during curing. This court is of the opinion that this latter meaning is what the inventors embodied by their claim language and that this meaning is understood by and effectively communicated to those skilled in the art of vinyl surface coverings.FN7

FN6. after the event on first impression

FN7. In ambiguo sermone non utrumque dicimus sed id duntaxat quod volumus (When the language we use is ambiguous, we do not use it in a doubtful sense, but in the sense in which we mean it.). Note that although this Latin expression uses the word "ambiguous" there is no implication therefrom that the inventors claim language is "ambiguous" in contravention of 35 U.S.C. s. 112. Instead, the expression is noted because it captures, succinctly, that all language taken out of context is vulnerable to ambiguities. The inventors of the '903 invention provided contextual support for the meaning of the words used in their claims:

"In the present invention, for purpose of creating the foamable layer, which is chemically embossed, a substrate comprising an expandable resinous layer containing a foaming or blowing agent is provided. A printed design is provided over at least a portion of the expandable resinous layer. At least a portion of this printed design comprises a retarding composition. As will be described in further detail below, once a wear layer is applied on top of the foamable layer, the expandable resinous layer (e.g., the foamable layer) is then subjected to a sufficient temperature for a sufficient time to expand the layer and thereby form an embossed region of the layer proximate the portion of the printed design that contained the foaming or blowing agent modifier or inhibitor."

'903 at 4:60-5:6.

This being said, the issue put to this court with respect to "chemically embossing the portion" and "a chemically embossed portion" is whether chemical embossing is accomplished by "employing an inhibitor or retarder composition," as Mannington argues, or whether chemical embossing may also include the "selective deposition of a chemical foaming agent [the foam layer]," as Armstrong argues. D.I. 326 at 13; D.I. 324 at 24. Moreover, after answering this inquiry, the question must be answered as to what "portion" of the surface covering may be chemically embossed.

The '903 and '008 disclosures clearly teach that chemical embossing is carried out "by applying to the heat-expandable composition [the foam layer] a reactive chemical compound which is referred to in the art as a 'regulator,' 'inhibitor,' or 'retarder,' it is possible to modify the decomposition temperature of the catalyzed foaming or blowing agent in the area of application of the reactive compound." '903 at 4:27-34; '008 at 4:38-44. It is evident from this language that the inventors intended chemical embossing, as Mannington argues, to mean the application of a "regulator," "inhibitor," "retarder," or similar chemical compound to those areas of the vinyl surface covering in which expansion of the foam layer is to be inhibited. This court, therefore, construes "chemically embossing" accordingly.

Having construed "chemically embossing," this court now turns its attention to the phrases "chemically embossing the portion" and "a chemically embossed portion." As used in the '903 and '008 patents, these phrases refer to the depressed areas of the surface covering in which expansion of the foam layer FN8 was retarded to achieve a desired texture. In the preferred embodiments, this texture was consistent with joint or grout lines thus allowing the inventors to achieve a patterned appearance. '903 at 3:42-43; '008 at 3:52-53 ("In the preferred embodiment, the chemically embossed areas are the printed joint or grout lines.").

FN8. There is no support in the '903 or '008 patent records to indicate, as Armstrong argues, that the foam layer disclosed in the written description is anything but a continuous layer. This court, therefore, will not hold, as Armstrong requests, that the "chemical embossing" can also mean the "selective deposition of a chemical **foaming** agent rather than a chemical inhibitor." D.I. 324 at 24 (emphasis in original).

Contrary to Armstrong's assertion that the inventors limited their invention to the preferred embodiment, this court does not construe "chemically embossing the portion" and "a chemically embossed portion" to be limited exclusively to the areas of the surface covering comprising joint or grout lines. Granted, the '903 and '008 written disclosures undisputably teach a preferred surface covering with chemically embossed joint or grout lines, the inventors, though, did not limit themselves in the patents and prosecution histories of the '903 and '008 patents to this single embodiment. This court, therefore, will not so limit the inventors now but, instead, construes the phrases such that "chemically embossing the portion" and "a chemically embossed portion" refers to areas depressed after curing is completed as a result of the application of a "regulator," "inhibitor," "retarder," or similar chemical compound to those areas regardless of how patterned the appearance.

V. "mechanically embossing" and "a mechanically embossed portion"

[13] The parties contest the meaning of "mechanically embossing" as used in claim 1 of the '903 patent and "a mechanically embossed" portion as used in claims 1, 9, and 11 of the '008 patent.

Mannington argues that "mechanically embossing" as used in claim 1 of the '903 patent "means a technique using an etched or engraved roll, etched or engraved plate, or a similar tool that is capable of imparting a sharp, detailed texture to the vinyl surface (relative to chemical embossing)." D.I. 326 at 17. To support this proposed construction, Mannington contrasts the phrase "any embossing technique known to those skilled in the art can be used" as contained in the '903 specification (903 at 6:23-24) with the phrase "the texture created by the chemical embossing technique does not have a well-defined sharpness of real, natural products" and the phrase "[m]echanical embossing, on the other hand, is capable of reproducing ... subtle [sic, subtle], sharp, and shallow textures" to support its positive inference that the use of "mechanically embossing" in claim 1 of the '903 patent would be understood by those skilled in the art to mean sharp and detailed imprinting. Id. at 18. Mannington also asserts that this construction is supported by the prosecution history. Id. at 19. Mannington further argues that "a mechanically embossed portion" as used in claims 1, 9, and 11 of the '008 patent "means that created by mechanical embossing." Id. at 17. Moreover, asserts Mannington, as used in this phrase "portion" has an ordinary and accustomed meaning referring to "[the] 'portion' of the cushioned sheet vinyl flooring that has been mechanically embossed, i.e., has sharp, detailed textures (relative to chemical embossing) imparted by the use of an etched or engraved roll, etched or engraved plate, or similar tool." Id. at 21.

Armstrong confines its argument to "a mechanically embossed portion" as found in claims 1, 9, and 11 of the '008 patent. As to this process limitation, Armstrong reiterates its argument that the court should not construe this language and, in the alternative, Armstrong argues that the phrase as used therein means that the mechanical embossed "portion" is limited to the raised areas. D.I. 324 at 20. Furthermore, argues Armstrong, "these portions are ... distinct, [referring to] a mechanically embossed portion and a [separate]

chemically embossed portion." Id.

Domco asserts the same meaning for "mechanically embossing" in claim 1 of the '903 patent and "a mechanically embossed portion" as used in claims 1, 9, and 11 of the '008 patent. As properly construed, Domco argues that "[t]hese claim terms ... mean the portion of the wear layer surface where mechanical embossing imparts any indent mark." D.I. 142 at 20. Furthermore, Domco alleges, that "[a]n indent [mechanical indentation] can have any desired shape or form and the specification explicitly states that '[a]ny surface texture can be embossed onto the wear layer' and 'any embossing technique known to those skilled in the art can be used.'" Id. (quoting '008 3:62-63; 6:22-24). Moreover, Domco argues the prosecution history does not contravene this interpretation. Id.

Domco correctly notes that the inventors disclose in the '903 and '008 patents that mechanical embossing is accomplished by techniques commonly known in the art when the patent was filed. '903 at 6:10-13; '008 at 6:22-24 ("For purposes of the present invention, any embossing technique known to those skilled in the art can be used...."). In contravention of this express language, Mannington is attempting, now, for the purpose of the present litigation, to limit mechanical embossing to the mechanical embossing of sharp, detailed texture as opposed to the more subtle rounded texture produced by chemical embossing. D.I. 326 at 18.

Although some mechanical embossing instruments are probably designed specifically for imprinting sharp and detailed textures, the '903 and '008 patents teach that mechanical embossing can be accomplished by "any embossing technique known to those skilled in the art." '903 at 6:10-13; '008 at 6:22-24. It is a highly speculative proposition to assume that those skilled in the art of vinyl surface coverings only knew of and practiced sharp and detailed mechanical embossing techniques and neglected entirely the countless variations of product textures that could be manufactured with less sharply detailed mechanical embossing instruments. This court, therefore, will not read a sharp and detailed texture limitation into the claims of the '903 and '008 patent were none is expressly present. Having concluded this query, the question remains as to what "portion" of the surface covering may be mechanically embossed consistent with the invention taught and patented by the inventors.

Similar to the analysis undertaken to arrive at the conclusion that the chemically embossed "portion" referred to those areas of the surface covering in which a "regulator," "inhibitor," "retarder," or similar chemical compound was applied to create the desired texture, this court construes the entire phrase "a mechanically embossed portion" to refer to the raised areas of the surface covering (the areas that are not chemically embossed) that are mechanically imprinted with a surface texture to produce the desired effect. This construction is clearly supported by the written description:

In any event, the portion of the foam layer which has been overlaid with the design layer having the retarder composition is not mechanically embossed.

'903 at 6:6-9; '008 at 6:17-20.

In the preferred embodiment of the invention, the chemical embossing of the joint or grout lines is deeper than that of the portions of the surface covering which have only been mechanically embossed. In this way, the surface texture created by the mechanical embossing is limited to the raised areas.

'903 at 2:45-50; '008 at 2:53-58.

Thus the surface covering of the invention, which does not include mechanically embossed surface texture in the joint or grout lines, has the appearance of mechanical embossing in register....

'903 at 2:52-55; '008 at 2:60-63.

[I]n the preferred embodiment of the present invention, the chemical embossing of the joint or grout lines is deeper than that of the portions of the surface covering which have only been mechanically embossed. This process, which does not create the mechanically embossed surface texture in the joint or grout lines, imparts to the surface covering the appearance of mechanical embossing in register.

'903 at 6:45-49; '008 at 6:46-53.

... [T]here is no mechanically embossed surface texture in the chemically embossed areas because the minimum chemical embossing depth of about 0.010 inches is deeper than the maximum depth of the mechanically embossed surface texture of about 0.008 inches.

'903 at 10:3-8; '008 at 10:13-18.

In contrast to the court's construction that chemically embossed portions were not limited to joint or grout lines as provided in the preferred embodiment, it is the opinion of this court that the inventors predicated the patentability of their invention on the mechanical embossing of the raised areas only, therefore, the '903 and '008 patent claims cannot support an invention containing mechanical embossing in the chemically embossed areas. This construction is also consistent with the prosecution history of the patents. FN9

FN9. In response to an Office Action on November 20, 1998 rejecting original claims 9 and 10 of the '903 parent application, the inventors responded by stating that "the realism of applicant' surface covering comes from the fact that the claimed procedure prevents the joint or grout lines ... from being textured by the mechanical embossing step." D.I. 328 at 89-93.

VI. The Relative Depth Language Of The '008 Patent

[14] The parties heavily contest the meaning of "said chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion" as found in claims 1 and 9 of the '008 patent and the slight variation of this phrase as found in claim 11 of the '008 patent ("the relative depth language of the '008 patent").

Mannington argues that as used in claims 1, 9, and 11 the relative depth phrase "means that the maximum chemical emboss depth is greater than the maximum mechanical emboss depth." D.I. 326 at 27. In support, Mannington asserts that those skilled in the art understand that emboss depth:

... refers to the difference between the unembossed surface and the deepest part of the embossed surface. Accordingly, the emboss depth of a chemical embossment is the difference, caused *solely* by the chemical embossing, between the unembossed surface and the deepest part of the embossed surface in the given area. Likewise, the emboss depth of a mechanical embossment is the difference, caused *solely* by the mechanical embossing, between the unembossed surface and the deepest part of the embossed surface in the given area.

Id. at 28 (emphasis in original).

Moreover, argues Mannington, citing *Tate Access Floors, Inc. v. Interface Architectural Resources, Inc.*, 279 F.3d 1357, 1370, (Fed.Cir.2002), "a" and "an" as used in patent law and the contested phrases mean one or more of a specified item. *Id.* at 29. Thus, when the claim language "chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion" is read with these definitions in mind, it is clear that the inventors intended that only one "portion" of the chemically embossed area be deeper than the deepest mechanically embossed area when measured from the

surface to the bottom of the respective embossed areas. *Id.*

Armstrong argues, on the other hand, that the language "must be interpreted to exclude any product which includes any mechanical embossment deeper than a chemically embossed portion, as measured from the top unembossed surface of the product, whether that chemically embossed portion comprises the joint or grout lines or whether a second chemically embossed portion exists on the 'raised areas.'" D.I. 324 at 26. This construction Armstrong asserts is mandated by the prosecution history.

In particular, Armstrong argues, that Mannington, to distinguish prior art, "include[d] the 'key' limitation: '**... wherein said chemically embossed portion of said foam layer has an embossed depth greater than the embossed depth of any portion of said mechanically embossed portion.**' " D.I. 324 at 26 (emphasis in original). In support of this newly added phrase, Armstrong alleges that Mannington pointed to the specification "which states '**... in any event, the portion of the foam layer which has been overlaid with the design layer having the (chemical) retarder composition is not mechanically embossed. And, the portions or areas of the foam layer beneath the areas or portions of the wear layer that are embossed are generally slightly embossed.**' " *Id.* at 27 (emphasis in original). Moreover asserts Armstrong, Mannington continued with this line of reasoning in an interview conducted with the examiner to distinguish other prior art references. *Id.* Consistently with Armstrong, Domco asserts, in a nutshell, that the phrase should be interpreted such that no mechanical embossing is found in the chemically embossed areas. D.I. 142 at 20-27.

Having construed, *supra*, the phrases "a chemically embossed portion" and "a mechanically embossed portion" as used in the '008 patent much of the mental labor involved in construing the relative depth language of the '008 patent is complete. To reiterate summarily, "a mechanically embossed portion" was construed such that mechanical embossing does not occur in the chemically embossed areas and "a chemically embossed portion" was construed to correspond to those areas where a "regulator," "inhibitor," "retarder," or similar chemical compound was applied to create a recessed textural appearance. This being the case, therefore, the phrase "said chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion" as found in claims 1 and 9 of the '008 patent and the slight variation of this phrase as found in claim 11 of the '008 patent must be construed consistent with the internal logic of the patent and its prosecution history to mean that mechanical embossing does not occur in the chemically embossed areas and that the mechanically emboss depth of those areas mechanically embossed does not exceed the depth of those areas that are chemically embossed when this depth is measured from the unembossed surface plane.

CLAIM CONSTRUCTION SUMMARY TABLE

<i>Contested Word or Phrase</i>	<i>Claim Construction</i>
"a wear layer on top," "a wear layer located on top," and "a wear layer located on"	"Wear layer" means one or more layers of PVC or like material that can include a top coat layer of non-PVC polyurethane or like material and, when present, the top coat layer is considered part of the composite "wear layer" but is not mechanically embossed. The phrases "a wear layer on top," "a wear layer located on top," and "a wear layer located on" mean that a "wear layer" is applied over top of or above the design layer but the language is broad enough to permit intervening layers between the design and the "wear layer."
"approximately ambient temperature"	The phrase means that the disclosed surface covering is cooled after being cured to a temperature approximately equal to factory or room temperature.

<p>"sufficient temperature to soften," "softened wear layer," and "a softened state"</p>	<p>The phrase "sufficient temperature to soften" means that the vinyl surface covering is softened by heating such that it is receptive of embossment by mechanical means. The phrase "softened wear layer" means that the claimed surface covering is in a softened condition after being cured and cooled no later than a finite time point just prior to being imprinted with a surface texture by mechanical means. The phrase "a softened state" means that the surface covering is in a soft condition such that it is receptive to imprinting by mechanical means.</p>
<p>"chemically embossing the portion" and "a chemically embossed portion"</p>	<p>"Chemical embossing" is accomplished by the application of a "regulator," "inhibitor," "retarder," or similar chemical compound to those areas of the vinyl surface covering in which expansion of the foam layer is to be inhibited. The entire phrases "chemically embossing the portion" and "a chemically embossed portion" refer to areas depressed after curing is completed as a result of the application of a "regulator," "inhibitor," "retarder," or similar compound to those areas regardless of how patterned the appearance.</p>
<p>"mechanically embossing" and "a mechanically embossed portion"</p>	<p>"Mechanical embossing" can be accomplished by any common technique known in the art at the time the patent was filed. The phrase "a mechanically embossed portion" refers to those raised areas of the surface covering (the area that is not chemically embossed) that are mechanically imprinted with a surface texture to produce the desired effect. The language does not support mechanical embossing in areas that are chemically embossed.</p>
<p>"said chemically embossed portion has an emboss depth greater than the emboss depth of any portion of said mechanically embossed portion" as found in claims 1 and 9 of the '008 patent and the slight variation of this phrase as found in claim 11 of the '008 patent ("the relative depth language of the '008 patent").</p>	<p>Means that mechanical embossing does not occur in the chemically embossed areas and that the mechanically emboss depth of the those areas mechanically embossed does not exceed the depth of those areas that are chemically embossed when this depth is measured from the unembossed surface plane.</p>

CONCLUSION

In the endless prod through the intricacies of the technology involved in a patent infringement case, it is easy to lose sight of the purpose of the *Markman* hearing and allow the technological issues in the case to overshadow the fact that claim construction is a linguistics exercise designed to discern the bargain upon which patentability was justified. Primarily for this reason, a harmonic tone must be achieved between what is professed at the time of the bargain and what is displayed to the court after the fact. In this regard, strict adherence to the intrinsic record is the surest hedge against malfeasance for it, in all its objectively clarifying detail, elaborates upon what was revealed to the public with veracity by the inventor in exchange for the right to exclude others from making, using, or selling that "thing" discovered by ingenuity and labor.

The court will issue an appropriate order accompanying this memorandum opinion.

D.Del.,2002.

Mannington Mills, Inc. v. Armstrong World Industries, Inc.

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