United States District Court,
S.D. California.

FEDERAL-MOGUL CORPORATION, a Michigan corporation,
Plaintiff.
v.
TURN-KEY TECH, a California limited liability company; Jens Ole Sorensen,
Defendant.

Civil No. 00cv0642-L(NLS)

Sept. 28, 2001.

Jon A. Birmingham, Richard W. Schumacher, Timothy P. Maloney, Fitch Even Tabin and Flannery, Chicago, IL, Steven C. Schroer, Fitch Even Tabin and Flannery, Boulder, CO, Thomas F. Lebens, Law Office of Thomas F. Lebens, San Diego, CA, for Plaintiff.

Boris Zelkind, Knobbe Martens Olson & Bear, San Diego, CA, Gena M. Chapman, John M. Weyrauch, Kinney and Lange, Minneapolis, MN, for Defendant.

ORDER CONSTRUING CLAIMS

M. JAMES LORENZ**, District Judge.**

This matter came on for a claim construction hearing pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir .1995), *aff'd,* 517 U.S. 370 (1996).

BACKGROUND

Turn-Key is a San Diego research and development company that develops prototype molds and manufacturing processes for injection molded plastic products. Turn-Key owns all exclusive rights to U.S. Patent No. 5,045,268 entitled, "Cross-Lamination Injection Molding" ("the '268 patent"). That patent was issued to Jens Ole Sorensen on September 3, 1991. The '268 patent concerns injection molding, which is a manufacturing process used to make plastic products by injecting fluid plastic into a mold cavity and allowing it to solidify into the general shape of the mold cavity to produce the plastic part. A mold cavity is the space formed by and between two mold parts into which the plastic is injected to form a particular shape. The walls of the cavity provide the contours to shape or mold the plastic into a solidified form. Injection molding processes have certain basic functions: (1) plasticizing (or melting) the plastic material (*e.g.,* plastic pellets) into a fluid; (2) forcing a controlled volume or "shot" of the fluid plastic to be injected at high pressure into a mold cavity created by the closed mold so that the plastic can be shaped by the walls of the mold cavity when solidified; (3) maintaining the injected plastic under pressure for a specified time; (4) solidifying the plastic in the mold until the molded part is sufficiently rigid to be ejected; (5) opening the mold, ejecting the molded part, and closing the mold so it is ready to start the next cycle with the next shot.

Turn-Key's '268 patent discloses an injection molding process that uses "flow-channels" to form multi-layered products with "cross-laminated" sections at desired locations. According to Turn-Key, this process allows a product designer to selectively strengthen specific areas of a product that are subject to potential or actual structural failure with minimal tooling and process design or redesign costs. The ability to selectively strengthen a part allows the user to make lighter parts, achieve faster production times, and reduce production costs.

The claim construction hearing concerns two actions in this Court in which Turn-Key is asserting infringement of its '268 patent. In *Turn-Key-Tech v. Nissan North America, et al.,* 99cv0321-L(NLS), Turn-Key is suing Nissan North America, Inc., Nissan Motor Manufacturing Corp., U.S.A., Nissan Motor Co., Ichikoh Industries, Ltd., and North American Lighting, Inc. ("NAL"). Turn-Key alleges Nissan makes and/or imports into the United States Nissan Sentra tail light lens assemblies and/or Nissan Sentra automobiles incorporating the tail light lens that infringe on Turn-Key's patent. Turn-Key further alleges that NAL was authorized, instructed, or hired by Ichikoh or Nissan to carry out some portion of the manufacture of the infringing Nissan Sentra lens assemblies. Ichikoh has been dismissed from the case pursuant to a settlement between it and Turn-Key. The second action is a declaratory relief action filed by Federal-Mogul against Turn-Key Tech and Jens Ole Sorensen, and is entitled, *Federal-Mogul Corp. v.. Turn-Key Tech,* case number 00cv0642-L(NLS). Federal-Mogul originally filed that action in the Eastern District of Michigan, and it was subsequently transferred to this district. Since purchasing Cooper Industries' automotive lighting operations in 1998, Federal-Mogul has manufactured front side light lens assemblies for Daimler-Chrysler that Turn-Key alleges infringe the '268 patent. FN1

FN1. Turn-Key filed a patent infringement action in this Court against Daimler-Chrysler, Federal-Mogul, and Cooper Industries relating to these same lens assemblies, entitled *Turn-Key Tech v. Daimler-Chrysler et al,* case number 99cv1132. By order dated January 30, 2001, this Court dismissed that action and ordered Turn-Key to present its claims by way of a counterclaim in *Federal-Mogul v. Turn-Key Tech,* 00cv0642.

Although Federal-Mogul is the plaintiff in the declaratory relief action 00cv0642-L(NLS), the Court will, consistent with the parties' briefs, refer to Federal-Mogul and the Defendants in the patent infringement actions collectively as "Defendants."

DISCUSSION

I. ***Legal Standards for Claim Construction***

There is patent infringement if any one of a patent's claims FN2 covers the alleged infringer's product or process. SmithKline Diagnostics, Inc. v. Helena Labs. Corp., 859 F.2d 878, 889 (Fed.Cir.1988). Before determining whether a patent covers an alleged infringing device, it is necessary to conduct a claim construction hearing; *i.e.,* to determine what the terms of the claim mean. *See id.* Under *Markman,* the court as a matter of law must construe the claims of the patent at issue. Markman, 52 F.3d at 979. The Court initially construes the claims by looking at "intrinsic evidence": (1) the patent claims; (2) the specification; and (3) the prosecution history, which together form the public record of the patent. *Id.;* Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed.Cir.1996).

FN2. A patent's claims "set the metes and bounds of the patent owner's exclusive rights." Federal Judicial Center, *Patent Law and Practice* 11 (2d ed.1995). The specification is the detailed description of the

invention and must be sufficiently clear to enable a person skilled in the art to make and use the invention. *Id*. at 10-11. The specification includes any drawings of the invention, and precedes the patent's claims. *See id*.

Accordingly, the Court first considers the words of the claims themselves, "both asserted and nonasserted, to define the scope of the patented invention." Vitronics, 90 F.3d at 1582; Markman, 52 F.3d at 979. "The actual words of the claim are the controlling focus." Digital Biometrics v. Identix, Inc., 149 F.3d 1335, 1344 (Fed.Cir.1998); Thermalloy, Inc. v. Aavid Eng'g, Inc., 121 F.3d 691, 693 (Fed.Cir.1997). The claim's words are generally given their customary and ordinary meaning as they would be understood and interpreted by a person in that field of invention. Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed.Cir.1998); Hoechst Celanese Corp. v. BP Chems., Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996); Vitronics, 90 F.3d at 1582. Where a claim term does not have a specialized meaning to persons skilled in the art, the ordinary meaning of the words controls, unless the evidence indicates that the inventor used the term differently. Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed.Cir.1999). A patentee is free to be his own lexicographer and ascribe certain meaning to those claim terms. Vitronics, 90 F.3d at 1582. However, any special meaning must be clearly defined in the specification or the prosecution history. Id. at 1583.

The Court next reads the claims "in view of the specification, of which they are part." Markman, 52 F.3d at 979. The specification is the "single best guide to the meaning of a disputed term." Vitronics, 90 F.3d at 1582. However, the claims, not the specification, define the invention so "not everything expressed in the specification must be read into all the claims." Sjolund v. Musland, 847 F.2d 1573, 1581-82 (Fed.Cir.1988) (*quoting* Raytheon Co. v. Roper Corp., 724 F.2d 951, 957 (Fed.Cir.1983)).

Finally, the Court reviews the prosecution history of the patent if it is admitted into evidence. Vitronics, 90 F.3d at 1582; *Markman,* 52 F.2d at 979. The history includes the complete record of proceedings before the U.S. Patent and Trademark Office ("PTO"). Vitronics, 90 F.3d at 1582. Further, the prosecution history includes any express representations the applicant made regarding the scope of the claims and prior art cited in the file history. Id. at 1582-83. The prosecution history "cannot 'enlarge, diminish, or vary' the limitations in the claims." Markman, 52 F.3d at 980 (*quoting* Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227 (1880)).

In its discretion, the court may receive extrinsic evidence to assist the court in reaching a correct conclusion as to the meaning of the claims' language. Markman, 52 F.3d at 980. Such extrinsic evidence includes expert and inventor testimony, dictionaries, articles, and learned treatises. *Id.;* Vitronics, 90 F.3d at 1584. This evidence may show the state of the art at the time of the invention, and expert testimony may demonstrate how those skilled in the art at the time of the invention would have interpreted the claims. Markman, 52 F.3d at 979, 980.

Although the court may be enlightened by extrinsic evidence it finds helpful, such evidence cannot vary or contradict the claim language and the court must remember that claim construction is still based on the patent and prosecution history. Id. at 981; Vitronics, 90 F.3d at 1584. Further, if analysis of intrinsic evidence alone resolves any ambiguity of a disputed term, it is improper to rely on extrinsic evidence. Vitronics, 90 F.3d at 1583. Opinion testimony on claim construction "should be treated with the utmost caution," for it is simply legal opinion on the process of construction the court must undertake. Id. at 1585. These principles regarding extrinsic evidence maintain the integrity of the public record on which

competitors rely to design around the claimed invention. Id. at 1584. Although dictionaries are considered extrinsic evidence, the court is free to consult them at any time for claim construction "so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents." Id. at 1584 n. 6. Dictionaries are preferred over opinion testimony because they are objective and available to the public. Id. at 1585.

The Federal Circuit has further noted that " 'experts' should also not be heard to inject a new meaning into terms that is inconsistent with what the inventor set forth in his or her patent and communicated, first to the patent examiner and ultimately to the public." Bell & Howell Document Mgmt. v. Altek Sys., 132 F.3d 701, 706 (Fed.Cir.1997). The reason is that "[p]atents should be interpreted on the basis of their intrinsic record, not on the testimony of such after-the-fact 'experts' that played no part in the creation and prosecution of the patent." *Id*. Therefore, expert testimony that is inconsistent with the unambiguous intrinsic evidence is given no weight. *Id*.

II. ***Construction of the Disputed Claims.***

The independent claims of the '268 patent are 1 and 21. Claims 2 through 20 and 22 through 38 are dependent claims that include all of the limitations of claim 1 or claim 21 in addition to other limitations. Claim 1 reads FN3:

FN3. The Court notes that by separate order, it has found the Certificate of Correction valid, so all citations to the patent reflect the corrections contained in the Certificate of Correction.

A method of injection molding a plastic product, with a cross-laminated section that includes a first plastic layer and a second plastic layer, in a mold system comprising a first mold cavity with a first-layer-defining-mold-cavity section and a second mold cavity with a second-layer-defining mold-cavity-section with a second-cavity-section-wall, the method comprising the steps of:
(a) injecting a quantity of first plastic into the first mold cavity so that the first plastic flows in the first-layer-defining-mold-cavity-section in a first predetermined general direction,

(b) solidifying at least partly the flowed first plastic in the first-layer-defining-mold-cavity-section to thereby form said first plastic layer having a first-direction-flow-record,

(c) adjusting the mold system to thereby provide the second mold cavity with the second-cavity-section-wall including said first plastic layer,

(d) injecting a quantity of second plastic into the second mold cavity so that the second plastic flows in the second-layer-defining-mold-cavity-section in a second predetermined general direction, whereby the second plastic in the second-layer-defining-mold-cavity-section fuses with said first plastic layer,

(e) solidifying the flowed second plastic in the second-layer-defining-mold-cavity-section to thereby form said second plastic layer, so that the second plastic layer has a second-direction-flow-record which is positively different from said first-direction-flow-record, to thereby form said plastic product with said cross-laminated section that includes both the first plastic layer and the second plastic layer, and

(f) adjusting the mold system to thereby eject the product, wherein the first mold cavity comprises a first-

cavity-flow-channel which is located adjacent the first-layer-defining-mold-cavity-section, with a flow channel being defined as a portion of a mold cavity which is significantly thicker and wider than the adjacent mold cavity thickness for the purpose of directing the flow of injected plastic and wherein step (a) comprises the step of:

(g) directing the first plastic into the first-layer-defining-mold-cavity-section via the first-cavity-flow-channel, so that the first plastic flows in the first-cavity-flow-channel in a direction which is positively different from said first predetermined general direction.

('268 Patent, col. 8, lines 11-61.)
Claim 21 provides:

A method of injection molding a plastic product, with a cross-laminated section that includes a first plastic layer and a second plastic layer, in a mold system comprising a first mold cavity with a first-layer-defining-mold-cavity-section and a second mold cavity with a second-layer-defining-mold-cavity section with a second-cavity-section-wall, the method comprising the steps of:

(a) injecting a quantity of first plastic into the first mold cavity so that the first plastic flows in the first-layer-defining-mold-cavity-section in a first predetermined general direction,

(b) solidifying at least partly the flowed first plastic in the first-layer-defining-mold-cavity-section to thereby form said first plastic layer having a first-direction-flow-record,

(c) adjusting the mold system to thereby provide the second mold cavity with the second-cavity-section-wall including said first plastic layer,

(d) injecting a quantity of second plastic into the second mold cavity so that the second plastic flows in the second-layer-defining-mold-cavity-section in a second predetermined general direction, whereby the second plastic in the second-layer-defining-mold-cavity-section fuses with said first plastic layer

(e) solidifying the flowed second plastic in the second-layer-defining-mold-cavity-section to thereby form said second plastic layer, so that the second plastic layer has a second direction-flow-record which is positively different from said first-direction-flow-record, to thereby form said plastic product with said cross-laminated section that includes both the first plastic layer and the second plastic layer, and

(f) adjusting the mold system to thereby eject the product, wherein the second mold cavity comprises a second-cavity-flow-channel which is located adjacent said second-layer-defining-mold-cavity-section, with a flow channel being defined as a portion of a mold cavity which is significantly thicker and wider than the adjacent mold cavity thickness for the purpose of directing the flow of injected plastic, and wherein step (d) comprises the step of:

(g) directing second plastic in the second-layer-defining-mold-cavity-section via the second-cavity-flow-channel, so that the second plastic flows in the second-cavity-flow-channel in a direction which is positively different from said second predetermined general direction.

('268 Patent, col. 10, line 53, col. 11, line 35.)

The parties dispute the meaning of the terms "flow channel," "cross-laminated section," "positively different," first and second "layer-defining-mold-cavity-sections," "predetermined general direction," first- and second-direction "flow-record." The Court now turns to the construction of each of these terms.

A. "Predetermined General Direction."

The term "predetermined general direction" is used in steps (a), (d), and (g) of claims 1 and 21. Step (a) recites:

(a) injecting a quantity of first plastic into the first mold cavity so that the first plastic flows in the first-layer-defining-mold-cavity-section in a first predetermined general direction.

('268 Patent, col. 8, lines 19-22, col. 10, lines 61-64.) Step (d) of these claims state:

(d) injecting a quantity of second plastic into the second mold cavity so that the second plastic flows in the second-layer-defining-mold-cavity-section in a second predetermined general direction, whereby the second plastic in the second layer-defining-mold-cavity-section fuses with said first plastic layer.

('268 Patent, col. 8, lines 30-36, col. 11, lines 4-10.) In addition, step (g) of Claim 1 recites:

(g) directing the first plastic into the first-layer-defining-mold-cavity-section via the first-cavity-flow-channel, so that the first plastic flows in the first-cavity-flow-channel in a direction which is positively different from said first predetermined general direction.

('268 Patent, col. 8, lines 56-61). Similarly, step (g) of claim 21 discloses:

(g) directing second plastic in the second-layer-defining-mold-cavity-section via the second-cavity-flow-channel, so that the second plastic flows in the second-cavity-flow-channel in a direction which is positively different from said second predetermined general direction.

('268 Patent, col. 11, lines 30-35.)

The parties do not appear to dispute that "predetermined direction" in this disputed phrase means that the direction of the plastic is known and set up beforehand by determining the relative dimensions of the mold cavity and flow-channel thickness. Rather, the parties' primary dispute over this phrase is whether the term requires the plastic to flow in a single direction as Defendants contend, or as Turn-Key maintains, in a prevalent direction.

Defendants argue that the patent's use of the article "a" in "a predetermined general direction" means a *single* direction of flow determined in advance of the molding. According to Federal-Mogul, there is nothing in the specification that teaches how one could use a flow-channel to distribute plastic so that it flows in more than one direction in the adjacent thinner region of the mold cavity. Defendants also reference figures 1, 3, and 6 in the patent in support of their argument. Defendants further argue that the prosecution history supports an interpretation of the term as a single direction because the PTO examiner found that cross-lamination as a result of random, multi-directional (radial) flow of plastic in each layer was disclosed in the prior art Wogerer patent. In response to the PTO's rejection, Turn-Key amended claim 1 to specify the flow-channel as functioning for the purpose of directing the flow of injected plastic into the adjacent layer-

defining-mold-cavity-section, and distinguished the multi-direction plastic flow in the thinner regions of the Wogerer mold cavity as not significantly directed by a flow-channel.

Turn-Key responds that Defendants are improperly trying to interject an extraneous limitation into the claim by stating that the term requires a single direction of plastic flow. Turn-Key argues that its interpretation is supported by the ordinary meaning of the term. The ordinary meaning of "general," according to Turn-Key, does not require a "single" flow direction, only a prevalent flow direction.

Here, the parties agree that "predetermined general direction" does not have a specialized meaning for persons skilled in the art of plastic injection molding. Further, the claim itself has not defined this term. Accordingly, the ordinary meaning of the word "general" controls. Karlin, 177 F.3d at 971. Webster's defines "general" as: (1) "of or pertaining to all persons or things belonging to a group or category;" (2) "of, pertaining to, or true of such persons or things in the main, with possible exceptions; common to most; prevalent; usual;" (3) "not limited to one class, field, product, service, etc.;" (4) "considering or dealing with overall characteristics, universal aspects, or important elements, esp. without considering all details or specific aspects;" (5) "not specific or definite." *Webster's Unabridged Dictionary* 795 (Random House 2d ed.1998). The ordinary meaning of "general" indicates it is not equivalent to the word "single" as "general" allows for variations, and in the context of the '268 patent, connotes a predominant or prevalent direction.

The prosecution history further supports this interpretation. As Defendants point out, the patent examiner rejected some of the claims in part as having been anticipated by Wogerer. The patent examiner stated that claims 1-4, 15, 16, and 21 were unpatentable as being anticipated by Wogerer because:

The sections of the cavity extending horizontally from the gate for nozzles 1 and 2, as shown in the figures of W[o]gerer, are equivalent to first-cavity-flow-channel and second-cavity-flow-channel. The section of the cavity (where pin 5 extends) is equivalent to the first-layer-defining-mold-cavity (figure 1) and the second-layer-defining-mold-cavity (figure 2). Part 3 (fixed mold) is a shared gate means.

(Kaler (01/26/01) Decl. Exh. 3 at 64-65.) The examiner also found that claims 5-13, 18, 19, 20, and 22-25 were unpatentable over Wogerer in part because "[t]he direction of flow of the two plastics being at right angles would have been obvious in W[o]gerer because the flow of the first injection would have been in all directions and the flow of the second injection would have been in all directions, and a portion of each multi-direction flow would cross the other multi-direction flow at right angles." (Kaler (01/26/01) Decl. Exh. 3 at 66.)

Sorensen responded in relevant part that:

Wogerer does not describe an injection molding system in which injected plastic is directed by flow channels, as recited in amended Claim 1 and new Claim 28 (which respectively correspond to original Claims 2 and 3). The definition of "flow channel" added to these claims by this amendment precludes the Examiner's interpretation of Wogerer's cavity as including sections that are equivalent to flow channels. If the flow channels are not significantly thicker and wider than the adjacent mold cavity thickness, *they do not significantly direct the flow of the injected plastic*.

(Kaler (01/26/01) Decl. Exh. 3 at 121) (emphasis added). The patent examiner subsequently allowed the claims, as amended. (Kaler (01/26/01) Decl. Exh. 3 at 130.) This exchange does not suggest that for the claims to be patentable, the plastic had to flow in a single direction out of the gate. Rather, the significance

of the invention was the use of flow channels that enable the user to "significantly direct" the flow of plastic, as opposed to allow plastic to flow radially, as it would naturally do and as disclosed in Wogerer. That the direction of the plastic is "significantly directed" does not require that it flow in a single direction, but rather requires the plastic to flow in a predominant or prevalent direction, allowing for possible exceptions.

Further, unless the patent's language indicates the inventor intended to use the singular meaning, the general rule of construction in the Federal Circuit is that the article "a" means at least one. *See* KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed.Cir.2000) ("Unless the claim is specific as to the number of elements, the article 'a' receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article."); Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed.Cir.1997), *amended on reh'g,* 131 F.3d 1009 (Fed.Cir.1997) (finding that in the patent-in-suit the article "a" suggested a single chamber, but noted that "patent claim parlance also recognizes that an article can carry the meaning of 'one or more.' "). As written, the patent's use of the article "a" does not require the plastic to flow to a single direction. Moreover, in this case, construing the article "a" to require the plastic flow in a single direction would contradict the patent's use of the word "general" to describe this plastic flow. Rather, the use of the article "a" requires only that the plastic flow in one predominant or prevalent direction. Finally, the figures Defendants cite show the preferred embodiments of the claims. "The general rule, of course, is that the claims of a patent are not limited to the preferred embodiment, unless by their own language." Karlin, 177 F.3d at 973; *accord* Dow Chemical Co. v. United States, 226 F.3d 1334, 1341-42 (Fed.Cir.2000), *cert. denied,* 529 U.S. 1066 (2000); Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 978 (Fed.Cir.1999); *see* Northern Telecom Ltd. v. Samsung Electronics Co., 215 F.3d 1281, 1293 (Fed.Cir.2000) ("But preferred embodiments, without more, do not limit claim terms."). Here, Defendants have not cited, nor has the Court found, that Sorensen intended the claims to be limited to the preferred embodiments. To the contrary, the specification expressly allows for other embodiments. ('268 Patent, col. 7, lines 56-68 ("While the above description contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as exemplification of the preferred embodiments thereof. Many other variations are possible.")).

Thus, the term "predetermined general direction" is defined as the prevalent direction of the flow of plastic throughout the entirety of each of the layer-defining-sections of the mold cavities that is decided in advance and made to result from controlling the relative dimensions between the flow channel thickness and the thickness of the adjacent layer-defining mold cavities. The "first predetermined general direction" is the predetermined general direction of the flow of plastic in the first-layer-defining-mold-cavity-section, and the "second predetermined general direction" is the predetermined general direction of the flow of plastic in the second-layer-defining-mold-cavity-section.

B. "Flow Channel."

Steps (f) and (g) of claims 1 and 21 refer to and define a "flow channel." Specifically, claim 1 reads:

(f) adjusting the mold system to thereby eject the product, wherein the first mold cavity comprises a first-cavity-flow-channel which is located adjacent the first-layer-defining-mold-cavity-section, *with a flow channel being defined as a portion of a mold cavity which is significantly thicker and wider than the adjacent mold cavity thickness for the purpose of directing the flow of injected plastic* and wherein step (a) comprises the step of:

(g) directing the first plastic into the first-layer-defining-mold-cavity-section *via the first-cavity-flow-*

channel, so that the first plastic flows in the first-cavity-flow channel in a direction which is positively different from said first predetermined general direction.

('268 Patent, col. 8, lines 46-62) (emphasis added). Similarly, claim 21 provides:

(f) adjusting the mold system to thereby eject the product, wherein the second mold cavity comprises a second-cavity-flow-channel which is located adjacent said second-layer-defining-mold-cavity-section, *with a flow channel being defined as a portion of a mold cavity which is significantly thicker and wider than the adjacent mold cavity thickness for the purpose of directing the flow of injected plastic,* and wherein step (d) comprises the step of:

(g) directing second plastic in the second-layer-defining-mold-cavity-section *via the second-cavity-flow-channel, so that the second plastic flows in the second-cavity-flow-channel in a direction which is positively different from said second predetermined general direction.*

('268 Patent, col. 11, lines 20-35) (emphasis added.)

The specification also discusses flow channels in the preferred embodiments, stating that:

The first mold cavity 1 comprises a first-cavity-flow channel 6 which is located adjacent the first-layer-defining-mold-cavity-section 2, the second-layer-defining mold-cavity-section 4 with thickness C is at least as thick as the first-cavity-flow-channel 6 minus the first-layer-defining-mold-cavity-section 2 with resulting thickness F, whereby it is possible to mold the product without a ribbed surface.

('268 Patent, col. 3, lines 47-53.)

When injecting the quantity of first plastic into the first mold cavity 1 so that first plastic flows in the first-layer-defining-mold-cavity section 2 in a first predetermined general direction, as indicated by the first arrow 12, the first plastic is directed into the first-layer-defining-mold-cavity-section 2 via the first-cavity-flow-channel 6. so that the first plastic flows in the first-cavity-flow-channel 6 in a direction, which is indicated by a third arrow 13, which is positively different from the first predetermined general direction, which was indicated by the first arrow 12. The angle between the flow directions depend mostly on relative cavity thicknesses within the first mold cavity.

('268 Patent, col. 4, lines 28-40.)

Turn-Key contends the explicit claim language states a flow channel is a "portion of a mold cavity which is significantly thicker and wider than the adjacent mold cavity thickness for the purpose of directing the flow of injected plastic." NAL and Nissan in turn argue this term means "an elongated groove that directs the flow of injected plastic in only one direction along the length of the groove." Federal-Mogul similarly contends that "flow channel" means "an elongated groove with a defined bottom and defined sidewalls which directs all injected plastic to flow in one direction along its length and then uniformly distributes the plastic into an adjacent thinner region of the mold cavity. Both the height of the sidewalls, and also the width of the bottom, are significantly greater than the thickness of the adjacent area of the mold cavity."

The patent's discussion of the term "flow channel" requires that it have both structure and function. The parties agree on this point. However, they disagree on what the structure is, and whether there are functional

limitations beyond the requirement that the flow channel direct the flow of plastic.

1. Structure.

a. "Significantly Thicker and Wider."

The patent requires that the flow channel be "significantly thicker and wider" than the adjacent mold cavity thickness so that it can direct the flow of plastic. One of the disputes over the structure of the flow channel is how to measure the thickness of the flow-channel. Defendants contend that the patent requires that the flow channel's thickness be defined by the thickness depicted by arrow F in figure 1, arrow H in figure 4, and arrow L in figure 5. Thus, under Defendants' construction, the thickness of the flow channel would not include the thickness of the adjacent layer-defining-mold-cavity-section. Turn-Key responds that the thickness of a flow channel does include the thickness of the adjacent layer-defining-mold-cavity-section. By separate order, mis Court has denied Defendants' motion for summary judgment that the certificate of correction improperly broadened the claims of the '268 patent. In so holding, the Court has determined that the thickness of the flow channel includes the thickness of the adjacent layer-defining-mold-cavity-section.

b. The Shape of the Flow Channel.

The parties also dispute the shape of the flow channel. Defendants contend that "flow channel" is a term of art that means an elongated groove. NAL and Nissan cite the declaration of Dr. David O. Kazmer in support. Federal-Mogul argues that during the patent prosecution, Sorensen did not dispute the examiner's assertion that certain prior art disclosed the use of channels in a mold cavity, and that in his Information Disclosure Statement, Sorensen represented that flow channels as defined in the claims are also described in the Hexel prior art patent and in two of his own patents. (Fed. Mog. Exh. D at 183-84.) Federal-Mogul then contends that all of this prior art disclose elongated, grooved channels.

Turn-Key in turn responds that the patent does not limit the term "flow channel" to a specific shape, such as a groove, or a particular length, such as elongated. Turn-Key objects to Defendants' use of the word "groove" in describing a flow channel, arguing the term is not used in the patent's claims, specification, or prosecution history. Turn-Key further contends that the term "flow channel" in the field of injection molding means a "flow path," not a groove with sidewalls.

Regarding the term "flow channel," Sorensen chose to be his own lexicographer and define the term in the independent claims. The claims themselves do not require that the flow channels be elongated grooves. When representing to the patent examiner that the amendments to the patent would include a definition of flow channel, Defendants correctly point out that Sorensen referred to certain prior art, including two of his own patents as "including flow channels as defined in" the amendments adding the definition of flow channel. (Fed. Mog. Exhs. D at 183-84.) Defendants' argument is conclusory because they do not point out where, specifically, this prior art defines "flow channel" as an "elongated groove." A review of this prior art reveals it does not specifically so define flow channel.

First, Sorensen referenced United States Patent Number 3,944,124, issued to Gunter Hexel ("Hexel Patent") as describing injection molding a non-laminated product with a mold having flow channels as defined in his amendments to the claims. Id. In that patent, Hexel claimed:

A pot and adapted to contain a yoghourt product subject to refrigeration comprising a molded plastic cup shaped body having an integral bottom and a continuous conical wall terminating in an open edge, said wall

being of a thin material having a plurality of integral circumferentially spaced-apart strip-like reinforcing zones extending between the bottom and said edge and having at least in part a directional component intersecting said edge and the bottom edge, each of said reinforcing zones having lateral edges which smoothly taper in a continuous transition to the flat remaining areas of the wall and having a width substantially smaller than that of the intervening flat walls whereby the define thin wall sections which are elastic and resistant to breakage and circumferentially spaced-apart reinforcing zones which provide container stiffness, said flat wall having a thickness of 0.3 mm and said reinforcing zones having a thickness of 0.7 mm, said bottom being formed with corresponding radial zones which merge with said reinforcing zones.

(Fed. Mog. Exh. D at 376, Hexel Patent, col. 6, lines 1-20.) The claim's recitation of a "reinforcing zone" is equivalent to a flow-channel in the '268 Patent. However, the plain language of the claim in the Hexel patent does not require the reinforcing zone to be an elongated groove. Id. Further, the specification states that "[t]he exact form of the reinforced wall zones can be obtained in numerous ways." (Fed. Mog. Exh. D at 374, Hexel Patent, col. 1, lines 62-63.) Thus, the specification allows for the reinforcement zones to be something other than "elongated grooves" because they may be in strips that do not run the length of the wall, and they may also curve and criss-cross each other. (Fed. Mog. Exh. D at 374, Hexel Patent, col. 1, line 62-col. 2, line 10.)

Sorensen also referenced two of his own patents. One patent he referenced is United States Patent Number 4,935,184 ("the '184 patent"). That patent "provides a method and apparatus for injecting molding hollow, thin-walled plastic products, having a closed end and an open end with laminated walls terminating in a rim at the open end, where relative movement between the common mold part and the complementary mold parts is impeded during injection of the plastic materials." (Fed. Mog. Exh. D at 397, '184 Patent, col. 2, lines 26-32.) In the preferred embodiments, the plastic is injected into the mold cavity through a gate and a runner. (*See, e.g.,* Fed. Mog. Exh. D at 398, ' 184 Patent, col. 4, lines 56-59.) It appears that these "runners" described in the preferred embodiments are the equivalent of the '268 patent's flow channels. Defendants have not shown, nor has the Court found, where in the ' 184 patent Sorensen requires that the runners (or any other structure equivalent to a flow channel) be an elongated groove.

Finally, Sorensen cited his United States Patent Number 4,959,005 ("the ' 005 patent") as including flow channels as defined in his amendments to the ' 268 Patent. The '005 patent "generally pertains to injection molding of plastic products and is particularly directed to an improvement in a self-aligning mold for injection molding of hollow plastic products." (Fed. Mog. Exh. D at 408, '005 Patent, col. 1, lines 6-9.) Claim 1 of the patent recites the use of flow channels

for directing injected plastic material from the base-forming portion of the mold cavity toward the rim-forming portion of the mold cavity, with the mold cavity thickness at the flow channels being generally thicker than the prevailing mold cavity thickness between the flow channels, and with at least certain particular said flow channels having a mold cavity thickness that is significantly thicker than double said prevailing mold cavity thickness between said flow channels when the first and second mold parts are aligned and assembled.

(Fed. Mog. Exh. D at 412, '005 Patent, col. 9, lines 45-56.) Other claims in the '005 patent also discuss the use of flow channels for directing the flow of plastic and state that those flow channels are thicker than the prevailing mold cavity thickness. Again, Defendants have not shown where in the claims or specification, the patent defines a flow channel as an "elongated groove."

Accordingly, a review of the claims in the '268 patent and its specification precludes imposing the structural requirement of an "elongated groove" in the definition of flow channel.

2. Function.

The parties do not dispute that the flow channel's function is to direct the flow of plastic. Indeed, step (g) requires the first-cavity-flow-channel to direct the flow of the plastic into the first-layer-defining-mold-cavity-section so the plastic flows in a direction which is positively different from the first predetermined general direction. ('268 Patent, col. 8, lines 56-61.) Claim 21 recites an analogous step to that disclosed in claim 1. ('268 Patent, col. 11, lines 30-35.)

The Defendants contend this language and the specification require that the plastic flowing in the flow channel must be in one direction. Turn-Key in contrast argues that the patent does not require that the plastic have a single flow direction in the flow channel. Rather, Turn-Key maintains that the plastic have a general direction of flow.

The parties' dispute over whether a single or general direction is claimed centers on the patent's use of the article "a" when stating that the plastic flows in the flow channel in "a direction." According to Defendants, the use of the article "a" requires use of its normal singular meaning unless the patent specification indicates the inventors intended otherwise. Turn-Key disagrees, citing Federal Circuit law that the indefinite article "a" generally means "one or more."

As recently as last year, the Federal Circuit reiterated that the term "a" generally means at least one. KCJ, 223 F.3d at 1356; Abtox, 122 F.3d at 1023. Only where the claims and specification indicate the inventor intended the term "a" to have its normal singular meaning, does the court impose the singular meaning. KCJ, 223 F.3d at 1356; *see, e.g.,* Abtox, 122 F.3d at 1023 (finding that in the patent-in-suit the article "a" suggested a single chamber, but noted that "patent claim parlance also recognizes that an article can carry the meaning of 'one or more.' "). Here, when the patent is read as a whole, the use of the article "a" connotes a singular meaning. The purpose of the flow channel is to act as a path, or passageway and direct the flow of plastic into the adjacent layer-defining-mold-cavity-section so that the plastic flows in that adjacent mold cavity section in a prevalent direction. It is significant that in contrast to the description of the direction of the plastic flow in the adjacent layer-defining-mold-cavity-section- *i.e.,* where plastic flows in a predetermined general direction-the patent does not use the word "general" to describe the direction of the plastic flow in the flow channel. As discussed above, the phrase "general direction" requires only a predominant or prevalent direction. Given the purpose of the flow channel and the omission of the word "general," the article "a" suggests a single direction.

3. Construction of the Term.

The term "flow channel" is properly construed as having both structure and function. Having considered the parties' arguments, the intrinsic evidence, and rules of construction, the term is defined as: A portion of the mold cavity that is significantly thicker and wider than the adjacent mold cavity, the thickness of which includes the width of the adjacent mold cavity. The relative thickness and width of this portion of the mold cavity in comparison to the adjacent mold cavity allows it to redirect the plastic flow as it goes into the thinner, adjacent mold cavity. The plastic flowing in the flow channel flows in a single direction.

C. "First-Direction-Flow-Record" and "Second-Direction-Flow-Record."

The term "flow-record" appears in steps (b) and (e) of Claims 1 and 21. Step (b) states:

(b) solidifying at least partly the flowed first plastic in the first-layer-defining-mold-cavity-section to thereby form said first plastic layer having a first-direction-flow-record.

('268 Patent, col. 8, lines 23-26, col. 10, lines 65-68.) In step (e), the claims recite:

(e) solidifying the flowed second plastic in the second-layer-defining-mold-cavity-section to thereby form said second plastic layer, so that the second plastic layer has a second-direction-flow-record which is positively different from said first-direction-flow-record, to thereby form said plastic product with said cross-laminated section that includes both the first plastic layer and the second plastic layer.

('268 Patent, col. 8, lines 37-45, col. 11, lines 11-19.)

Turn-Key contends that the "first-direction-flow-record" means the "general flow direction of the first plastic in the first-layer-defining-mold-cavity-section that forms the plastic layer of the cross-laminated section when at least partly solidified," and that "second direction flow record" means the "general flow direction of the second plastic in the second-layer-defining-mold-cavity-section that forms the plastic layer of the cross-laminated section when at least partly solidified ."

NAL and Nissan contend that the first-direction flow-record is in the same direction as the first predetermined general direction, and the second-direction-flow record is in the same direction as the second predetermined general direction. These Defendants argue the flow record is formed in at least partly solidified plastic, so once the plastic is at least partly solidified, it must have a flow record that is in the same direction as the direction in which the plastic flowed inside the mold. Federal-Mogul in turn contends the terms means a pattern of one direction of plastic flow that is observable in the solidified layers of the molded product.

Here, the parties do not dispute that "flow record" does not have a specialized meaning for persons skilled in the art of plastic injection molding. Further, the claim itself has not defined this term. Accordingly, the ordinary meanings of the words control. Karlin, 177 F.3d at 971. The Court above has found that the term predetermined general direction is the prevalent direction of the flow of plastic throughout each of the layer-defining-sections of the mold cavities that is decided in advance and made to result from controlling the relative dimensions between the flow channel thickness and the thickness of the adjacent layer-defining mold cavities. The Court agrees with Turn-Key that there is no requirement in the patent that the flow records be observable. Accordingly, the term "flow record" is the pattern of the general direction of the flow of the plastic created by the plastic flowing in a layer-defining-mold-cavity-section in a predetermined general direction, and does not have to be observable. The "first-direction-flow-record" therefore refers to the pattern of the general direction of the flow of plastic flowing in the first layer-defining-mold-cavity section in a predetermined general direction, and the "second-direction-flow-record" refers to the pattern of the general direction of the flow of plastic flowing in the second-layer-defining-mold-cavity-section in a predetermined general direction.

D. "Positively Different."

In claims 1 and 21, the patent uses the term to describe two different directional relationships. First, in step (e), "positively different" is used to describe the difference in direction between the flow records in the first

plastic layer and the second plastic layer: After a quantity of second plastic is injected into the second mold cavity, step (e) of the claims requires the second plastic be solidified "in the second-layer-defining-mold-cavity-section to thereby form said second plastic layer, so that the second plastic layer has a second-direction-flow-record which is *positively different* from said first-direction-flow-record, to thereby form said plastic product with said cross-laminated section that includes both the first plastic layer and the second plastic layer." ('268 Patent, col. 8, lines 37-45, col. 11, lines 11-19) (emphasis added).

Second, positively different describes the direction of the plastic flow out of the flow channel in step (g). In claim 1, step (g) requires the user to "direct[ ] the first plastic into the first-layer-defining-mold-cavity-section via the first-cavity-flow-channel, so that the first plastic flows in the first-cavity-flow channel in a direction which is *positively different* from said first predetermined general direction." ('268 Patent, col. 8, lines 56-61) (emphasis added). Similarly, step (g) of claim 21 teaches to direct the "second plastic into the second-layer-defining-mold-cavity-section via the second-cavity-flow-channel, so that the second plastic flows in the second-cavity-flow-channel in a direction which is *positively different* from said second pre-determined general direction." ('268 Patent, col. 11, lines 30-35.) (emphasis added).

Generally, the same words or phrases appearing in the same claim are to be interpreted consistently. Digital Biometrics, 149 F.3d at 1345. For example, in *Digital Biometrics,* one claim used the word "array" to refer to the data structures containing the "slice data," and also used the term to refer to the data structure containing the "data characteristic of the rolled fingerprint image," *Id*. The Federal Circuit held that "whatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently." *Id*.

Neither steps (e) nor (g) state the angle at which the directional differences must occur. On this basis, Turn-Key contends "positively different" means "incontestably or unquestionably not the same," and therefore covers *any* angle between the flow records and *any* angle between the flow directions of the flow channels and layer-defining-mold-cavity sections in the cross-laminated section(s). In contrast, Defendants contend that "positively different" requires the angle to be 90 (deg.) or substantially 90 (deg.). They argue that because a cross-laminated section requires perpendicular flow records, "positively different" imposes a limitation of 90 (deg.) or substantially 90 (deg.). Defendants further state that all of the disclosed embodiments of the patent show the first- and second-direction-flow records, which define the degree of cross-lamination, at 90 (deg.) or substantially 90 (deg.) to each other. Further, the object of the invention of improving flexure and impact strength implies that positively different means 90 (deg.) or substantially 90 (deg.).

Turn-Key responds that there is no language in the Claim 1 that limits the difference between flow records or plastic flows to only "right angle" differences. Therefore, the claim does not prevent "positively different" from embracing any positive angle, up to and including a right angle. Turn-Key also maintains that its interpretation is supported by the patent's specification that repeatedly states the plastic flow directions can be easily engineered to have *any* positively different angle.

The intrinsic evidence before the Court establishes that the term "positively different" is not limited to a 90 (deg.) or substantially 90 (deg.) angle. First, "the claims of a patent are not limited to the preferred embodiment, unless by their own language." Karlin, 177 F.3d at 973; *accord* Dow Chemical 226 F.3d at 1342; Elkay, 192 F.3d at 978; *see* Northern Telecom, 215 F.3d at 1293 ("But preferred embodiments, without more, do not limit claim terms."). Thus, generally, when a claim element is described in general descriptive words, it is not limited to numbers or numerical ranges appearing in the specification or other

claims. Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed.Cir.1996), *abrogated on other grounds,* Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed.Cir.2000) (en banc). But "when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment." *Id*.

The preferred embodiments of the invention depict the angle difference between the flow records as 90 (deg.). Specifically, Figures 3 and 6 show flow records crossing at right angles. ('268 Patent, Figs. 3, 6.) In addition, Figure 1 shows the plastic leaving the flow channel and entering the layer-defining-mold-cavity section at a 90 (deg.) angle. ('268 Patent, fig. 1.) Here, Defendants suggest the preferred embodiment is the invention itself, and therefore the ' 268 patent limits the term "positively different" to 90 (deg.) or substantially 90 (deg.). But a review of the '268 patent reveals that it is not claiming the preferred embodiments as the invention. Rather, after discussing the three preferred embodiments, the specification explains that the invention is not limited to them:

While the above description contains many specificities, *these should not be construed as limitations on the scope of the invention, but rather as exemplification of the preferred embodiments thereof*. Many other variations are possible. All embodiments have for simplification been shown applied to flat plastic products, *but the invention is equally applicable to products which have non flat surfaces,* particularly hollow cup shaped products.

The shown embodiments also all nave a non ribbed surface, but in many cases a ribbed surface is advantageous, *and the invention applies equally well to products with ribbed surfaces*.

('268 Patent col. 7, lines 56-68) (emphasis added).

Further, in discussing the direction in which the plastic flows from the flow-channel to the adjacent layer-defining-mold-cavity-section, the specification states that "[t]he angle between the flow directions depend mostly on relative cavity thicknesses within the first mold cavity." ('268 patent, col. 4, lines 38-40; col. 6, lines 24-26, *see* col. 6, lines 38-40 (regarding second mold cavity).) In addition, the preferred embodiments do not limit "positively different" to 90 (deg.). Figure 6, for example, shows the plastic flow leaving the flow channel and entering the adjacent layer-defining-mold-cavity-section at a 45 (deg.) angle. ('268 Patent, fig. 6.)

The doctrine of claim differentiation also supports a construction of "positively different" that does not limit it 90 (deg.) or substantially 90 (deg.). This doctrine is not a hard and fast rule of construction, but creates a presumption that each patent claim has a different scope. Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc., 206 F.3d 1440, 1446 (Fed.Cir.2000); Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1366 (Fed .Cir.2000); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed.Cir.1998). " 'There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." ' Comark, 156 F.3d at 1187 (*quoting* Tandon Corp. v. United States Int'l Trade Comm'n, 831 F .2d 1017, 1023 (Fed.Cir.1987)). The claim differentiation doctrine "cannot be used to make a claim broader than what is contained in the written description, [citation], but it prevents the narrowing of broad claims by reading into them the limitations of narrower claims." Clearstream Wastewater, 206 F.3d at 1446.

Here, independent claims 1 and 21 do not state an angle when discussing the directional differences between the plastic flow in the flow channel and the direction of the plastic flow in the adjacent layer-defining-mold-cavity section, nor do they specify the angle at which the first and second flow records cross each other. In dependent claims FN4 5, 10, 23, and 28 however, the patent discloses that the first- and second-direction-flow-records be at approximately a 90 (deg.) angle from each other. Claim 5 recites:

FN4. The difference between independent claims and dependent claims is that:
"An independent claim does not refer to any other claim of the patent and is read separately to determine its scope. A dependent claim refers to at least one other claim in the patent, includes all of the limitations of the claim to which it refers, and specifies a further limitation on that claim."

Dow Chemical Co. v. Astro-Valcour, Inc., 47 F.Supp.2d 294, 299 n. 2 (N.D.N.Y.1999) (*quoting* Jeneric/Pentron, Inc. v. Dillon Co., 1999 WL 66537 at (D.Conn. Feb. 3, 1999)).
A method according to claim 1, wherein said second plastic layer is molded with a second-direction-flow-record which is approximately at a right angle to said first-direction-flow-record.
('268 Patent, col. 9, lines 38-41.) Claim 10 similarly states:
A method according to claim 9, wherein said second plastic layer is molded with a second-direction-flow-record which is approximately at a right angle to said first-direction-flow-record.

('268 Patent, col. 9, lines 56-59.) Claim 23 also discloses:
A method according to claim 21, wherein said second plastic layer is molded with a second-direction-flow-record which is approximately at a right angle to said first-direction-flow-record.

('268 Patent, col. 11, lines 65-68.) Claim 28 similarly recites:
A method according to claim 27, wherein said second plastic layer is molded with a second-direction-flow-record which is approximately at a right angle to said first-direction-flow-record.

('268 Patent, col. 12, lines 15-18.)
Accordingly, because the requirement that the flow-records be at right angles is not in claims 1, and 21, there is a presumed difference between the directional differences in claims 1 and 21 in comparison to claims 5, 10, 23, and 28. The limitation that the flow-records be at right angles in claims 5, 10, 23, and 28 cannot be used to narrow the scope of the term "positively different" used in claims 1 and 21. *See* Clearstream Wastewater, 206 F.3d at 1446; D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed.Cir.1985).

Therefore, the term "positively different" must be defined according to the ordinary meaning of the words. "Positively" means: (1) "with certainty; absolutely;" (2) "decidedly; unquestionably, definitely." *Webster's Unabridged Dictionary* 1509 (Random House 2d ed.1998). Different is defined as: (1) "not alike in character or quality; differing; dissimilar;" (2) "not identical; separate or distinct;" (3) "various; several;" (4) "not ordinary; unusual." *Id*. at 552. The term "positively different" is therefore construed to be "unquestionably or definitely distinct or dissimilar." Accordingly, the directional differences encompassed by the term "positively different" include any angular difference between (a) the direction of plastic flowing in the flow channel as compared to the adjacent layer-defining-mold-cavity-section or (b) the direction of the flow record created by the plastic flow in the first-layer-defining-mold-cavity-section as compared to the direction of the flow record created by the plastic flow in the second-layer-defining-mold-cavity-section.

E. "Cross-laminated Section."

The term "cross-laminated" is used in claims 1 and 21, where Sorensen claims "[a] method of injection molding a plastic product, with a *cross-laminated section* that includes a first plastic layer and a second plastic layer, in a mold system comprising a first mold cavity with a first-layer-defining-mold-cavity-section and a second mold cavity with a second-layer-defining-mold-cavity-section with a second-cavity-section-wall." ('268 Patent, col. 8, lines 11-17, col. 10, lines 53-69) (emphasis added). The claims then list steps for injecting plastic into the first mold cavity and allowing it to solidify at least partly, and then injecting a second quantity of plastic into the second mold cavity, and "solidifying the flowed second plastic in the second-layer-defining-mold-cavity-section to thereby form said second plastic layer, so that the second plastic layer has a second-direction-flow-record which is positively different from said first-direction-flow-record, to thereby form said plastic product with said *cross-laminated section* that includes both the first plastic layer and the second plastic layer." ('268 Patent, col. 8, lines 37-45, col. 11, lines 11-19) (emphasis added). The specification contains a similar discussion of cross-laminated sections. ('268 Patent, col. 1, lines 13-19, 38-46 .)

Turn-Key contends this term should be construed as a "laminated" section of an injected molded product having at least two plastic layers-a first plastic layer and a second plastic layer that flowed in positively different general directions prior to solidifying. NAL and Nissan argue that the term means "a section of the molded product where the layers are cross-laminated." Federal-Mogul's proposed construction is "the entire laminated layer of the finished product adjacent to the flow channel."

The parties dispute the size of the cross-laminated section, the angle at which the cross-laminated sections intersect, and whether the term includes the functional limitation of improving flexure and impact strength. The Court will discuss each of these disputes in turn, below.

1. Size.

According to Turn-Key, the patent only requires that a "section" of an injected molded plastic product is required to be cross-laminated, and there is no limitation on size, number, or locations. Defendants, in contrast, contend that the complete cross-laminated section is everything adjacent to the flow channel that is laminated. Thus, under Defendants' definition, wherever there are two or more plastic layers in contiguous sections of the product, they are cross-laminated.FN5

FN5. Federal-Mogul further argues that if the term "cross-laminated" section is interpreted to mean any small region of a two-layer product where plastic flow patterns and overlapping layers are not the same, then the '268 patent would be repeating prior art and would be invalid. The Court finds that Federal-Mogul nas not presented sufficient argument at this time showing how the '268 patent would be invalid. Further, the Court finds the issue of invalidity should be decided after the parties have had additional time to conduct discovery on that issue.

Defendants support their interpretation regarding the size of the cross-laminated section by referring to Figures 3 and 6 of the '268 patent and Sorensen's deposition testimony regarding those figures. According to Defendants, the irregularly shaped areas denominated 17 and 37 in Figure 3 are surrounded by "cross-laminated" areas. Further, Sorensen admitted in his deposition that the cross-lamination effect described in the '268 patent extends outside the irregularly shaped portions 17, 37. Federal-Mogul additionally argues that the specification does not teach how to utilize the invention to achieve cross-lamination in a small,

discrete designated area such as areas 17 or 37 of Figures 3 and 6. Defendants' reliance on Figures 3 and 6 and Sorensen's deposition testimony regarding those figures is not persuasive. The figures Defendants cite reflect the preferred embodiments of the claims. "The general rule, of course, is that the claims of a patent are not limited to the preferred embodiment, unless by their own language." Karlin, 177 F.3d at 973; *accord* Dow, 226 F.3d at 1342; Elkay, 192 F.3d at 978; *see* Northern Telecom, 215 F.3d at 1293 ("But preferred embodiments, without more, do not limit claim terms."). Here, Defendants have not cited, nor has the Court found, that Sorensen intended the claims to be limited to the preferred embodiments. To the contrary, the specification expressly allows for other embodiments. ('268 Patent, col. 7, lines 56-68 ("While the above description contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as exemplification of the preferred embodiments thereof. Many other variations are possible.")). Further, under Federal Circuit precedent, "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 956 (Fed.Cir.2000). Accordingly, the Court finds that these figures and Sorensen's testimony do not require that a product's cross-laminated section cover the entire laminated area adjacent the flow channel. Rather, the patent discloses the cross-laminated section encompasses those portions of the product where the flow records of the first plastic layer and the second plastic layer intersect at a "positively different" angle.

Defendants contend that their interpretation is also the only one that comports with the teachings of the invention, as the patent does not disclose how to achieve cross-lamination to a small, discrete area. Turn-Key concedes that the patent does not disclose how to select and cross-laminate a section of a plastic product so that contiguous sections of the product are not cross-laminated.

The purpose of the invention is to allow for the selection of a location of a plastic part for cross-lamination. A review of the patent shows that while the claims do not purport to limit cross-lamination to a specific area in the mold cavities, there is nothing in the claims that requires the entire mold cavities' sections to be cross-laminated. Rather, the cross-laminated section is created by the intersection, at "positively different" angles, of the plastic flow records created in the first- and second-layer-defining-mold-cavities.

Further, Defendants' concern that any portion of the plastic product where there is cross-lamination, no matter how small, is claimed by the patent is unfounded, as cross-lamination must result from the intended design of the mold cavity. Specifically, the cross-lamination must result from the claimed steps of injecting and at least partially solidifying a first plastic into the first mold cavity so that the first plastic flows in a first predetermined general direction, and then injecting and at least partially solidifying a second plastic into the second mold cavity so that the second plastic flows in a second predetermined general direction. (*See* '268 Patent, col. 8, lines 11-62, col. 10, line 53-col. 11, line 35.) The patent does not cover cross-lamination that may occur in portions of the mold cavity where plastic is not directed by flow channels and where multiple layers of plastic flowing radially serendipitously intersect at "positively different" angles.

2. Angle at Which the Cross-Laminated Sections Intersect.

The parties also dispute whether the flow records of the cross-laminated sections must cross at a right angle or approximately a right angle. Defendants contend that the patent requires the flow records to be perpendicular to each other. Turn-Key responds that nothing in the claim supports an additional limitation of a right angle.

The claims require the cross-laminated sections to be comprised of first and second plastic layers whose flow records are in "positively different" directions. ('268 Patent, col. 8, lines 37-45, col. 11, lines 11-19.) Figures 3, 6, and 9 of the patent depict a cross-laminated section, and show the flow of plastic crossing each other at right angles, ('268 Patent, figs. 3, 6, 9.) These figures are the preferred embodiment of the patent's claims. ('268 Patent, col. 3, lines 39-40, col. 5, lines 19-20, col. 6, lines 64-65.) Therefore, they cannot limit the claims. *See* Dow Chemical, 226 F.3d at 1342; Northern Telecom, 215 F.3d at 1293; Elkay, 192 F.3d at 978; Karlin, 177 F.3d at 973.

Second, as discussed above, the Court has found that the term "positively different" is not limited to a 90 (deg.) or approximately 90 (deg.) angle. Rather, the directional relationship connoted by the term "positively different" is "unquestionably or definitely distinct or dissimilar." The flow records comprising the cross-laminated sections need only be "unquestionably or definitely distinct or dissimilar" in direction from each other.

3. Functional Limitation.

NAL and Nissan argue that the cross-laminated sections are to improve the flexure and impact strength of the resulting product, and seek to impose this functional limitation in their construction of the term. Turn-Key responds that "cross-laminated" does not require any definition in terms of the advantage obtained by a cross-laminated section, and therefore NAL and Nissan's proposed limitation should be rejected. The Court agrees.

The specification states that the invention "generally pertains to injection molding of plastic products and is particularly directed to a method and a system for producing cross-laminated products with greatly improved flexure and impact strength." ('268 Patent, col. 1, lines 6-9.) This language, however, is not contained in the patent claims themselves. Further, just as it is improper to import limitations of preferred embodiments in a claim, unclaimed advantages described in a specification cannot be read into the claims. Dow Chemical, 47 F.Supp.2d at 299; *c.f.* Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc ., 98 F.3d 1563, 1574 (Fed.Cir.1996) ("Although patent claims are not ordinarily limited to the inventor's purpose, when that purpose is included in the claims it serves as a limitation of the claimed invention and should be met either literally or equivalently in order to satisfy the criteria of infringement.") Accordingly, it would be improper to add the advantages of cross-lamination as a limitation to the claims. *See* Applied Materials, 98 F.3d at 1574; Dow, 47 F.Supp.2d at 299.

4. Construction of the Term.

Accordingly, "cross-laminated section" is defined as: A portion of the mold cavity where there is a first plastic layer and a second plastic layer that have flow records that intersect at a "positively different" angle. This portion of the mold cavity is not limited in size or location.

F. First and Second "Layer-Defining-Mold-Cavity-Sections."

The claims use the terms first and second "layer-defining-mold-cavity-section" repeatedly. The parties dispute whether this section is the entire thinner section adjacent to the flow channel. Defendants argue that the first-layer-defining-mold-cavity-section is the entire portion of the first mold cavity adjacent one side of the flow channel into which the plastic flows from the flow channel to create the first plastic layer. They contend the specification shows that "first-layer-defining-mold-cavity-section" is the entire section of the mold cavity adjacent to the flow-channel which receives plastic from the flow-channel. Federal-Mogul

further argues that the irregularly-shaped insets labeled 17 and 27 in Figures 3 and 6 merely illustrate the uniform patterns of flow in the entire "first-layer-defining-mold-cavity-section" adjacent to the flow-channel, and that the flow patterns within and outside of insets 17 and 37 are the same. Similarly, they argue the second-layer-defining-mold-cavity section is the entire region into which the second quantity of plastic is injected, bounded on one side by the first plastic layer. NAL and Nissan also contend that the first and second-layer-defining-mold-cavity-sections are coextensive with the cross-laminated sections.

Turn-Key responds that Defendants improperly limit "first-layer-defining-mold-cavity-section" to encompass the *entire* portion of the first mold cavity adjacent one side of a first-cavity-flow-channel. According to Turn-Key, the claim language shows that the first-layer-defining-mold-cavity-section is just a *section* of a first-mold-cavity that defines the first layer of the cross-laminated section. Turn-Key also contends that the layer-defining-mold-cavity-section is not coextensive with the cross-laminated section.

As an initial matter, the Court agrees with Turn-Key that the first and second layer-defining-mold-cavity-sections are not coextensive with the cross-laminated sections. A cross-laminated section, as defined above, is a portion of the mold cavity where there is a first plastic layer and a second plastic layer that have flow records that intersect at a "positively different" angle. This definition does not require the cross-laminated section to be coextensive with the first and second plastic layers. Indeed, it is possible that there are portions of the first plastic layer that are not covered by the second plastic layer, and it is also possible that the plastic flows from the first and second plastic layers do not intersect at positively different directions and therefore, while constituting two plastic layers, are not by definition "cross-laminated."

The word "entire" is not in the claim or in the specification. But the claims and specification state that plastic is injected into a mold cavity so that the plastic flows from a flow channel "in" the layer-defining-mold-cavity-section. (*See, e.g.,* '268 Patent preamble, col. 1, lines 22-23, col. 1, lines 32-34, col. 2, lines 3-4, col 2, lines 15-18, col 8, lines 19-22, col. 8, lines 30-34.) "In" is a term that indicates "inclusion within space, a place, or limits." *Webster's Unabridged Dictionary* 964 (Random House 2d ed.1998). The use of the term "in" therefore connotes that the plastic flows throughout the entirety of the layer-defining-mold-cavity-section adjacent to the flow channel. The patent also does not explain how the plastic would not flow into the entirety of the layer-defining-mold-cavity-section, nor does it teach how to prevent such flow. Accordingly, the Court agrees with Defendants that the term "layer-defining-mold-cavity-section" is construed as the entire section in which plastic flows in the mold cavity adjacent the flow channel. The "first-layer-defining-mold-cavity-section" is the entire section adjacent the flow channel into which the first plastic flows, and the "second-layer-defining-mold-cavity-section" is the entire section adjacent the flow channel into which the second plastic flows.

CONCLUSION

For the foregoing reasons, the disputed claims are interpreted as set forth in this order.

IT IS SO ORDERED.

S.D.Cal.,2001.
Federal-Mogul Corp. v. Turn-Key Tech