

**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF INDIANA  
HAMMOND DIVISION**

BASF CORP.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	2:07 CV 222 PPS
	)	
ARISTO, INC. and VICTOR ROSYNSKY,	)	
	)	
Defendants.	)	

**OPINION AND ORDER**

Plaintiff BASF Corp. brought suit against Aristo, Inc. and Victor Rosynsky (together “Aristo”) alleging that Aristo infringed U.S. Patent No. 5,866,210 (the “‘210” patent). Pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-81 (Fed. Cir. 1995), I held a hearing and my construction of the ‘210 patent claims is set forth below.

**I. THE PATENT**

The ‘210 patent describes a method of coating substrates such as those used in catalytic converters. Catalytic converters are typically found in automobile and truck engines, and their purpose is to reduce or remove harmful emissions from engine exhaust. The type of catalytic converter relevant here is principally composed of a core – or substrate – which sits inside a metal housing. The substrate is a single unit (a monolithic substrate) that has a number of honeycomb-like channels running parallel to each other within the metal frame. Through various methods, the inner walls of these channels are coated with a catalyst slurry made of precious metals. As engine exhaust flows through the substrate’s channels, the precious metals coating the channels’ inner walls cause a chemical reaction that converts the harmful engine

emissions into more benign substances. But because the precious metals are expensive, care must be taken to sufficiently coat the channels without wasting the catalytic slurry.

The '210 patent teaches a method of coating the channels of the substrate through a process called vacuum infusion coating. Through this process, one end of the substrate is partially immersed in a dip pan of catalytic slurry. The dip pan, the size and depth of which may vary, is loaded with an amount of slurry exceeding the amount of coating necessary to coat the walls of the substrate to a desired level. A vacuum is applied to the other end of the substrate, which draws the slurry of precious metals up the channels of the substrate to coat the inner walls of the substrate's channels. The vacuum continues to suck air through the channels as the substrate is removed from the pan, and then the coating dries to the channel walls. The '210 patent teaches that each of the channels of the substrate are coated to the same length, creating a "uniform coating profile." And as the specification explains, "the typical coating operation requires the immersion of one end of the substrate into the coating media followed by drying and then the insertion of the opposed end of the substrate into the coating media followed by drying and curing." [DE 145-1 at 218, 5:62-66.]

The '210 patent attempts to improve on the prior art, specifically, U.S. Patent No. 4,609,563 (the "'563" patent), which '210 incorporates by reference. [*Id.* at 217, 3:62-65.] The '563 patent teaches a method of vacuum coating in which a substrate is lowered into a precisely controlled amount of slurry to a predetermined depth. The dip pan has predetermined dimensions and is shaped to closely conform to the shape of the substrate to be coated. A vacuum is then placed on the opposite end of the substrate and, like '210, the slurry is drawn up the channels of the substrate. The preferred embodiment calls for then flipping the substrate to

coat the other end of the substrate. But, according to the '210 specification, the '563 method creates a non-uniform coating profile in the channels, *i.e.*, the coating does not cover the same length of each channel. As a result, under the '563 method, when the substrate is flipped and the other end of the substrate is coated, there is an area of overlap, which is not desirable because it wastes valuable coating material. [*Id.* at 218, 6:49-50.] According to the '210 specification, because the '210 patent creates a uniform coating profile by more precisely controlling the coating length, it creates much smaller (if any) area of overlap, and thus, less waste of expensive coating media. In this, BASF claims that the '210 patent is more effective and efficient than the prior art.

## **II. PROSECUTION HISTORY**

After BASF filed its patent application with the United States Patent and Trademark Office (the "USPTO"), the USPTO rejected all of the claims as being unpatentable based on the '563 patent. The patent Examiner explained that '563 teaches a method of coating a monolithic substrate by immersing one end of the substrate in a pan of catalyst slurry and applying a vacuum to the other end of the substrate so as to draw the slurry up the channels of the substrate. According to the Examiner, the only difference between '563 and '210 is that '563 calls for using only so much slurry as is needed to coat the substrate, while '210 teaches putting more than the exact amount of coating material in the bath. The Examiner found that it would have been obvious to operate '563 with more than the exact amount of coating material because the results would be the same. The Examiner noted that if BASF could provide experimental results showing that the two methods are not equivalent, the rejection would be withdrawn.

BASF responded by arguing that the process described in the '210 and '563 patents

indeed produce different results. BASF explained that the '210 patent requires more coating media in the dip pan than is necessary to coat the channels of the substrate to the desired level. So when the vacuum is applied to the substrate, the coating is drawn up through the channels the same distance. This creates a uniform line of coating across the channels. Or, as BASF explained, this results in “the leading edge of the coating media in each channel [to] be in approximately the same location (i.e. substantially linear).” [DE 145-2 at 280 (emphasis in original).]

The '563 patent, however, requires only so much of the coating media in the dip pan as is sufficient to coat the channels, such that there will be no coating below the channels when the coating process is complete. So, according to BASF, the travel path of the slurry will differ; the coating in the interior channels will be drawn up a farther distance than the outer channels. “This is because the coating media which is drawn into the outer channels must curve around the edge of the substrate (a longer travel path to reach the channels).” [*Id.* at 281.] Consequently, the '563 patent “will take on a curvilinear or crescent shape (See Figure 4A []) rather than a substantially linear profile.” [*Id.* (emphasis in original).] BASF argued that this curvilinear profile – and the large overlap that goes along with it – distinguishes '563 from '210, and so the Examiner’s statement that the two patents would produce the same results is incorrect.

The Examiner agreed with BASF in part. First, the Examiner found that “the curvilinear profile suggested by the applicant would not be obtained by ['563's] method because the channels are completely coated as indicated above.” [DE 145-3 at 290-91.] And even if the profile was obtained, it did not materially affect the final product because '563 took this into

consideration by teaching a precisely controlled amount of slurry in the dip pan.<sup>1</sup> But the Examiner agreed with BASF “that a curvilinear profile would not produce equivalent results if there would [sic] not sufficient material to cover the channels. If that were to occur, a curvilinear profile would result in an uneven coating.” [*Id.* at 291.] The Examiner noted, however, that BASF’s claims as they were written did not address this scenario.

BASF responded by amending ‘210 “to limit the claimed method to one in which the vacuum is applied to the partially immersed substrate at an intensity and a time sufficient to draw the coating media upwardly from the bath into each of the channels for a desired distance which is less than the length of the channels.” [*Id.* at 296 (emphasis in original).] In explaining its reasoning, BASF stated that it is often more efficient to coat the substrate “with multiple catalytic materials and/or with catalytic materials that cover less than the entire surface” of the channels. [*Id.* at 296.] But in these circumstances, ‘563 is ineffective. BASF explained that, while the ‘563 patent will provide a uniform coating profile when it is desirable to coat the entire length of the channels, when coating less than the entire length of the channels is required ‘563 produces a curvilinear profile. And, because of the excess coating in the interior channels, the curvilinear profile will mean more slurry will be needed to coat all of the channels to a minimum length.

Also, BASF noted that the ‘563 patent wastes slurry when “multiple catalyst compositions” are applied to a substrate. For example, when a first coating is applied, a

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<sup>1</sup> I am unclear what exactly the Examiner meant by this statement, though it appears that he was reinforcing his point that a uniform coating profile did not improve on the prior art when the substrates are fully coated. I feel compelled to note that the Examiner’s statements throughout the prosecution history were not a model of clarity.

curvilinear profile will result. When the substrate is inverted and the opposite end is coated, there will be a large area of undesirable overlap and thus, wasted coating. But when the ‘210 patent coats less than the length of the channels, “a linear profile is obtained for each catalytic composition applied to a monolithic substrate,” and so “two different compositions may be lined up together without significant overlap.” [*Id.* at 299.] As a result, ‘563 and ‘210 will not produce equivalent results when less than the entire length of the channels are coated.

The Examiner accepted BASF’s amendment, stating that “if a partially coated substrate was desired (i.e. a coating surface which is less than the length of the channels), the applicant demonstrates that a curvilinear profile is obtained if all of the slurry is drawn up (see Figure 4A). Applicant’s showing that an excess material will produce a linear profile is deemed unexpected.” [*Id.* at 323.] In addition, the Examiner added language stating that the dip pan must contain coating media “in excess of the amount” necessary to coat the channels, while removing language stating that the amount of slurry in the dip pan must coat to the desired level “without reducing the level of the coating media within the vessel to below the level of the immersed substrate.” [*Id.* at 308.]

### **III. LEGAL STANDARD GOVERNING CLAIM CONSTRUCTION**

As a matter of law, the Court must construe the claims of the patent for the jury. *Markman*, 52 F.3d at 979. The process of claim construction gives “proper meaning to the claim language.” *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed. Cir. 1997). Claim construction is crucial because it “defines the scope of the protected invention.” *Id.*

In interpreting a disputed claim, the court must first look at the intrinsic evidence of record – the patent itself, including the claims, the specification, and, if in evidence, the

prosecution history. *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The process begins with the words of the claims. *Teleflex, Inc. v. Ficosa North American Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002). “It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005); *Teleflex*, 299 F.3d at 1324 (“The claim language defines the bounds of claim scope.”). *Id.* “The language of the claim frames and ultimately resolves all issues of claim interpretation.” *Abtox*, 122 F.3d at 1023. Absent an express intent otherwise, claim terms should be given “the ordinary and customary meaning . . . that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips*, 415 F.3d at 1313.

But because the claims don’t stand alone, they “must be read in view of the specification, of which they are a part.” *Id.* at 1315. The specification includes the drawings and the written description of the invention. *Playtex Products, Inc. v. Procter & Gamble, Co.*, 400 F.3d 901, 909 (Fed. Cir. 2005). “[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315. It can resolve ambiguities between the ordinary and customary meaning of words if the words used in the claim are not sufficiently clear to allow the scope of the claim to be determined from words alone. *Teleflex*, 299 F.3d at 1325. Yet there’s a difference “between using the specification to interpret the meaning of a claim,” which is permissible, and “importing limitations from the specification into the claim,” which is not. *Phillips*, 415 F.3d at 1323. “[T]he general principle is that limitations from the specification are not to be read into the claims.” *Sjolund v. Musland*, 847 F.2d 1573, 1582 (Fed. Cir. 1988).

Finally, the court must look to the patent's prosecution history, which "consists of the complete record of the proceedings before the [USPTO] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "The prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.* A patentee may modify the "meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." *Purdue Pharma L.P. v. Endo Pharms., Inc.*, 438 F.3d 1123, 1136 (Fed. Cir. 2006).

Nonetheless, if intrinsic evidence does not resolve the ambiguity in a disputed claim term, the court may then look to extrinsic evidence, such as expert testimony, dictionaries, and treatises. *Vitronics*, 90 F.3d at 1584. Extrinsic evidence may help the court better understand "the way in which one of skill in the art might use the claim terms." *AquaTex Indus., Inc. v. Techniche Solutions*, 419 F.3d 1374, 1380 (Fed. Cir. 2005). But extrinsic evidence may not be used to "contradict any definition found in or ascertained by a reading of the patent documents." *Phillips*, 415 F.3d at 1322-23. Moreover, as the Federal Circuit explained in *Phillips*: "Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* at 1316.

#### **IV. CONSTRUCTION OF THE '210 PATENT**

The '210 patent contains eleven claims: one independent claim (claim 1) and ten dependent claims (claims 2-11). The following claim terms are in dispute, with the disputed



portions underlined:

**CLAIM 1:**

Method for coating a substrate having a plurality of channels with a coating media comprising:

a) partially immersing the substrate into a vessel containing a bath of the coating media, said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level;

b) applying a vacuum to the partially immersed substrate at an intensity and a time sufficient to draw the coating media upwardly from the bath into each of the channels for a distance which is less than the length of the channels to form a uniform coating profile therein; and

c) removing the substrate from the bath.

**CLAIM 5:**

The method of claim 1 further comprising replenishing the bath with an amount of the coating media which was used to coat the substrate while the substrate is being coated.

**CLAIM 11:**

A coated monolithic substrate having a uniform coating profile produced in accordance with the method of claim 1.

**A. “Uniform coating profile”**

The first disputed claim term is “uniform coating profile,” which is found in claim 1.

Notably, the specification states that ““uniform coating profile as used herein means that each channel of the substrate will be coated over the same length.” [DE 145-1 at 216, 2:39-41.]

Aristo believes this means that the substrate’s channels must be coated to “the *exact same length* to provide a *straight line* at the same height across the width of the substrate.” BASF counters that the term means “the substrate is coated by the slurry to *approximately the same length* and forms a cross-sectional profile that is *more straight than crescent shaped*.” Essentially, the parties dispute how much play, if any, is in the phrase, “same length.”

I find that both parties’ interpretations miss the mark. First, the intrinsic evidence does

not support Aristo’s overly precise reading of the claim term. Citing to Figures 3A and 3B, the specification states that the ‘210 patent “provides a uniform coating profile 28 by which each channel is coated to the *approximate same length*.” [Id. at 218, 6:30-33 (emphasis added); see Figures 3A and 3B.]<sup>2</sup> And Figure 3B, a cross-sectional drawing of a coated substrate with ‘210’s uniform coating profile, [id. at 217, 3:28-30], plainly shows a slight variation in the length of the coating on the channels. In other words, it shows a line across the channels that is “approximately” straight. This is distinguishable from Figure 3A – which shows an exactly straight line across the channels – because that figure depicts a cross-sectional view of the substrate when it is *immersed* in the coating, not the profile of the channels *after they’ve been coated*, as in Figure 3B.

Further, in the prosecution history, BASF explained to the Examiner that “the leading edge of the coating media in each channel will be in approximately the same location (i.e. substantially linear).” [DE 145-2 at 280-81 (emphasis in original).] This is supported by BASF’s representations to the Examiner in which it contrasted ‘210’s “substantially linear profile” – which contemplates a small area of overlap (see Figure 4B) – with ‘563’s curvilinear profile – which produces a larger, crescent-shaped overlap (see Figure 4A). [DE 145-3 at 298-99.] The possibility of overlap, however small, demonstrates that the inventor of the patent realized that the ‘210 patent would not be able to coat both ends of the channels to *exactly* the same length. [See also DE 145-1 at 218, 6:56-60.] And BASF made that clear to the Examiner prior to the patent’s approval. See *Phillips*, 415 F.3d at 1317 (“[T]he prosecution history can

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<sup>2</sup> Throughout, I cite to Figures 2, 3A, 3B, 4A, and 4B, which are reproduced below in the Appendix to this Opinion.

often inform the meaning of the claim language by demonstrating how the inventor understood the invention”).

Aristo tries to get around this by citing to prior art. But while the prior art, the ‘563 patent and U.S. Patent No. 4,550,034 (the “‘034” patent), refer to “uniform coating,” they do so in a different context. The prior art explains that the vacuum coating process discussed in those inventions uniformly coats the inside of the channels without the need for “external coating removal or internal unplugging” of the channels. [DE 145-4 at 2:53-59 (‘563); DE 145-5 at 3:3-9 (‘034).] So the prior art references to “uniform coating” address how those methods more efficiently managed the thickness of the coating within the channels in comparison to other coating methods, not the uniformity of coating running the length of the channels, as in the ‘210 patent. Because the prior arts’ “uniform coating” and ‘210’s “uniform coating profile” are apples and oranges, the prior art is unhelpful to defining the term as it’s used in the ‘210 patent. Moreover, BASF is free to define the term how it sees fit, notwithstanding the prior art. *Mycogen Plant Science v. Monsanto Co.*, 243 F.3d 1316, 1327 (Fed. Cir. 2001).

In the end, Aristo would have me ignore the specifications and the prosecution history that clarify the meaning of “uniform coating profile.” But because the specification and prosecution history consistently and unambiguously state that the ‘210 patent teaches a uniform coating profile by coating the channels of the substrate to approximately the same length, thereby creating a substantially linear profile, I don’t need to look any further to define the term. *See Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1478 (Fed. Cir. 1998) (“The best source for understanding a technical term is the specification from which it arose, informed,

as needed, by the prosecution history.”).<sup>3</sup>

With that said, Aristo’s point that BASF would like to give coverage to not just a straight line, but anything short of a crescent, is well-taken. [DE 160 at 90 (Transcript of *Markman* Hearing).] The second half of BASF’s proposed definition states that the channels “form[] a cross-sectional profile that is more straight than crescent shaped.” As I mentioned above, it is clear that BASF stressed the importance of the uniform coating profile because it was more efficient – meaning it wasted less coating material – than the ‘563 patent’s non-uniform or curvilinear profile. But BASF’s proposed definition overreaches because it fails to address the fact that any variation in coating length between the channels will be slight – indeed, that’s the very advantage of the ‘210 patent. Simply put, the phrases “substantially linear” and “approximately the same length” are not adequately reflected by BASF’s proposed construction, “more straight than crescent-shaped.” In other words, BASF’s definition leaves too much wiggle room.

The definition of uniform coating profile must make clear that the coated channels will create a linear profile, though given real-world practicalities, one that may not be exactly straight. As a result, I define “uniform coating profile” to mean “the substrate is coated by the slurry to approximately the same length across the channels so that the profile deviates only slightly, if at all, across the width of the substrate.” *See Amhil Enters., Ltd. v. Wawa, Inc.*, 81

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<sup>3</sup> In its opening brief, Aristo also cites to its expert who found the term indefinite. [See DE 142 at 24.] But Aristo’s argument and supporting evidence is undeveloped, and Aristo did not provide further support in either its response brief or at the *Markman* hearing. So I find the term sufficiently definite. *See Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010) (“[P]roof of indefiniteness must meet an exacting standard.”) (internal quotations omitted).

F.3d 1554, 1562 (Fed. Cir. 1996) (construing “substantially vertical” faces to mean “well-defined faces that deviate only slightly, if at all, from the vertical”).

**B. “Into each of the channels for a distance which is less than the length of the channels to form a uniform coating profile”**

Next, the parties dispute the meaning of the phrase: “into each of the channels for a distance which is less than the length of the channels to form a uniform coating profile.” According to Aristo, this means: “The coating media does not coat the entire length of the channels, but rather forms a uniform coating profile somewhere along the length of the channel between the two ends of the substrate, and that any one coating media composition applied to the substrate is limited to less than the entire length of the channels of that substrate.” BASF argues that the phrase is not ambiguous and should be given its ordinary meaning. In essence, the parties dispute whether BASF limited the scope of the ‘210 patent to mean that any coating material may only partially coat a substrate. Or, put another way, Aristo argues that no single coating media may fully coat a substrate through a two step process.

To begin with, the specification clearly contemplates this two step coating process: “It will be understood that the typical coating operation requires the immersion of one end of the substrate into the coating media followed by drying and then the insertion of the opposed end of the substrate into the coating media followed by drying and curing.” [DE 145-1 at 218, 5:62-66.] In fact, the advantage of the uniform coating profile – indeed, the crowning achievement of the ‘210 patent – is that less catalyst may be used in “successive catalyst coatings” and “the thickness of the coating can be more precisely controlled, particularly in multicoating applications.” [*Id.* at 216, 2:41-51.]

So the issue is whether BASF disclaimed this feature in the prosecution of the patent by

limiting its scope in response to the Examiner's initial denial of the patent. "Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." *Purdue Pharma*, 438 F.3d at 1136. For example, a patentee may limit its claims by "explicitly characteriz[ing] an aspect of his invention in a specific manner to overcome prior art." *Id.* Claims should not be construed "one way in order to obtain their allowance and in a different way against accused infringers." *Chimie v. PPG Indus.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005).

Here, to determine what BASF gave up, it's important to understand the back-and-forth between BASF and the Examiner. Initially, the Examiner rejected the '210 patent because he believed that loading the dip pan with excess coating as in '210 would produce the same results as filling the pan with the exact amount of coating as in '563, though he invited BASF to prove him wrong. BASF responded by attempting to do just that, explaining that the excess coating created a uniform coating profile by coating the substrate the same distance in each channel, whereas, the lack of excess in '563 meant that the travel path of the coating will differ for each channel because the coating in the outer channels must curve around the edge of the substrate. According to BASF, this creates a "curvilinear or crescent shape (See Figure 4A of the present application) rather than a substantially linear profile." [DE 145-2 at 281 (emphasis in original).]

The Examiner agreed in part. First, he found that "the curvilinear profile suggested by the applicant would not be obtained by ['563's] method because the channels are completely coated as indicated above." [DE 145-3 at 290-91.] But the Examiner agreed with BASF "that a curvilinear profile would not produce equivalent results if there would not [be] sufficient material to cover the channels. If that were to occur, a curvilinear profile would result in any

uneven coating.” [Id. at 291.] As a result, BASF limited the ‘210 method to one in which the substrate is covered “for a distance which is less than the length of the channels to form a uniform coating profile therein.” [Id. at 294 (emphasis in original).] The Examiner accepted the amendment stating: “if a partially coated substrate was desired (i.e. a coating surface which is less than the length of the channels), the applicant demonstrates that a curvilinear profile is obtained if all of the slurry is drawn up (see Figure 4A). Applicant’s showing that an excess material will produce a linear profile is deemed unexpected.” [Id. at 323.]

Based on this, it’s clear that BASF amended its claim to comport with the Examiner’s finding that (1) the ‘563 patent would only create a curvilinear profile if the channels were partially coated and thus (2) the uniform coating profile created by a partially coated substrate under the ‘210 patent’s method improves on the prior art. But the question is, what does it mean to partially coat a substrate – that each *coating process* can only partially coat the substrate (thus allowing for a fully coated substrate in two steps) or that the *finished product* must be coated less than the length of the channels with any single coating material (precluding the same material from fully coating a substrate in two steps)?

Aristo argues the latter. First, Aristo claims that the ‘563 patent teaches a process in which both ends of the substrate are fully coated with the same coating material in two steps. This matters because the Examiner found that a curvilinear profile would not be obtained where a substrate is fully coated. So, according to Aristo, because the ‘563 patent teaches fully coating a substrate with the same coating material in two steps, and the Examiner found that a fully coated substrate would not create a curvilinear profile, BASF must have limited the ‘210 patent so that any one coating material only partially coats a substrate. In other words, BASF

disclaimed the situation in which a substrate is fully coated with the same coating material in two steps – *e.g.*, one end of the substrate is coated, the substrate is flipped, and the other end is coated with the same slurry – because in that situation ‘210 does not improve on the prior art.

I disagree. First, the ‘563 patent is not limited to a two step process. Claim 1 of the ‘563 patent broadly describes a method of coating a substrate by immersing one end into the dip pan and pulling the slurry through the channels without specifying whether the substrate must be fully or partially coated. So, by itself, claim 1 only specifically contemplates a one step process. [See DE 145-4 at 15:66-16:18; *see also id.* at 16:54-17:7 (claim 4).] It’s claim 2 of the ‘563 patent that covers the “process as set forth in claim 1 comprising the additional steps of” flipping the substrate to coat the other end. [Id. at 16:19-44.] This is the preferred embodiment of the patent. [See *id.* at 5:7-39.] But because claim 2 is dependent on claim 1, it’s presumed that claim 1 does not contain this limitation. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (“[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.”). So while it’s not the preferred usage, the ‘563 patent contemplates a scenario in which a substrate may be fully coated in one step. *See Rhine v. Casio, Inc.*, 183 F.3d 1342, 1346 (Fed. Cir. 1999) (“[P]articular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.”). And, in fact, so does the ‘210 patent. [See DE 145-1 at 218, 6:62-7:6 (claim 1); *id.* at 216, 2:59-3:11 (in section titled “Summary of the Invention”).]

This is important given the Examiner’s reading of the two patents. Recall that the Examiner found where there’s “not sufficient material to cover the channels,” ‘210 improved on



‘563 because the excess slurry created a uniform (rather than curvilinear) coating profile across the partially coated substrate. [DE 145-3 at 291.] But the Examiner stated this would not be case – ‘563 would not produce a curvilinear profile – where “the channels are completely coated *as indicated above.*” [Id. at 290-91 (emphasis added).] And “above,” the Examiner described the method in claim 1 of ‘563 in which a substrate is coated by dipping one end of the substrate in a bath of slurry while employing a vacuum on the second end, without requiring that the substrate be flipped to coat the second end. In other words, contrary to Aristo’s position, the Examiner found that the ‘563 patent would not create a curvilinear profile where the substrate is fully coated *in one coating step*, but would create a curvilinear profile when the coating process only partially coats the substrate.

This makes sense. If either ‘210 or ‘563 fully coated a substrate in one step by sucking the slurry through the channels across the entire length of the substrate, there would be no profile at all – curvilinear or otherwise. This is because the substrate would be fully coated and the coating process complete. So, as the Examiner found, the excess coating in ‘210 would make no difference – *i.e.*, the ‘210 patent would not improve on the prior art – because the results would be the same. And, in fact, the Examiner rejected the ‘210 patent because it did not address this scenario.

But where each end of a substrate is partially coated, whether or not the channels are uniformly coated is important. This is made clear by Figures 4A and 4B to the specification. Figure 4B shows a substrate that is fully coated by partially coating both ends through a two step process under ‘210. This method produces very little overlap because each step coated the channels with a uniform coating profile. Figure 4A, however, shows that when both ends of the

substrate are partially coated under '563, the curvilinear profiles on each end come together to create a larger, eye-shaped area of overlap. And the Examiner was well aware of this distinction – he cited Figure 4A in explaining why the linear profile in '210 improved on the curvilinear profile where a substrate is partially coated. [DE 145-3 at 323.]

So while BASF amended its claim to distinguish '210 from '563, neither BASF nor the Examiner believed BASF was disclaiming a substrate that is fully coated with the same material in a two step process – in fact, in citing Figure 4A, the Examiner found that's the precise situation in which '210 improved on '563. Instead, BASF amended its claims so that each coating step only partially coats a substrate because where a substrate is fully coated in one step the excess coating in '210 does not improve on the prior art.

The problem with Aristo's position is that it fails to adequately explain what the Examiner meant when he told BASF that '563 would not produce a curvilinear profile when a substrate was fully coated, but would when it's partially coated.<sup>4</sup> When I asked Aristo's attorney at the *Markman* hearing about this, first, she stated that the Examiner believed that the curvilinear profile did not matter if the substrate is fully coated in two steps with one coating material. [DE 160 at 116:2-14.] But that can't be right because, as I explained above, if two substrates are coated on both ends in two steps with the same coating material, one under the '210 method and the other under '563, the '563 patent would waste more coating media because of the curvilinear profile. The type of coating media used is of no event. When pushed further, Aristo's attorney explained that the '563 patent actually *did not* create a curvilinear profile. [*Id.*

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<sup>4</sup> Recall that Aristo argues that the '563 patent only teaches a fully coated substrate by partially coating both ends.

at 118:3-119:2.] But that's neither here nor there in determining disclaimer – the Examiner found that '563 would create a curvilinear profile when a substrate is partially coated and BASF amended the '210 patent to address this situation and improve on the prior art. So the only reasonable explanation is that BASF disclaimed a substrate that is fully coated in one step.

Next, Aristo argues that BASF specifically disavowed coverage of a substrate that is fully coated with the same coating media through statements it made to the Examiner in the prosecution history. In support, Aristo cites BASF's explanation that "[t]he present invention is concerned with a method of coating a substrate in which a catalytic material is applied to less than the entire length of the channels." [DE 145-3 at 297.] BASF also told the Examiner that "[q]uite often, it is more efficient to coat the monolithic substrate with multiple catalytic materials and/or with catalytic materials that cover less than the entire surface of the individual channels comprising the substrate." [DE 145-3 at 296; DE 142 at 15.] Aristo believes that these passages show that BASF disclaimed a substrate that is fully coated with the same material in favor of either a finished product that is partially coated or a finished product that is fully coated with different types of coating materials.

Not so. First, BASF did not clearly and unmistakably limit its claims to only cover finished products that are either partially coated or fully coated with different coating materials. Nowhere does BASF specifically limit its claims in this manner. While BASF noted that "quite often" it's more efficient to use "multiple catalytic materials" or "cover less than the entire surface area," it doesn't follow that BASF clearly disavowed any other use of the '210 patent, so long as it coats "less than the length of the channels." *See SanDisk Corp. v. Memorex Prod., Inc.*, 415 F.3d 1278, 1287 (Fed. Cir. 2005) ("There is no 'clear and unmistakable' disclaimer if a

prosecution argument is subject to more than one reasonable interpretation, one of which is consistent with a proffered meaning of the disputed term.”); *Abbott Lab. v. Sandoz, Inc.*, 566 F.3d 1282, 1289 (Fed. Cir. 2009) (“[T]he doctrine of prosecution disclaimer only applies to unambiguous disavowals.”).

In fact, later in the prosecution history, BASF explained that ‘563 was less efficient than ‘210 “when multiple catalytic compositions are applied to a monolithic substrate” because in that situation ‘563 creates a curvilinear profile. [DE 145-3 at 298.] By way of example, BASF then explained the situation in which “a first coating composition” is applied, the substrate is flipped, and the other end is coated with “another coating composition.” [*Id.* at 298-99.] But because the ‘563 patent only teaches coating a substrate with the same coating material, [*see* DE 155 at 6; DE 160 at 47], it appears that “multiple catalytic compositions” means the same coating material applied in multiple steps. In other words, it’s reasonable to read this to mean that BASF considered each application of the same coating material to be separate “compositions.” So I am unable to find that BASF’s statements to the Examiner “have no reasonable interpretation other than to disavow” a substrate that is fully coated with the same material in two steps.<sup>5</sup> *SanDisk*, 415 F.3d at 1287 (finding no clear disclaimer where the patentee’s “reading of this prosecution

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<sup>5</sup> I do note, however, that BASF’s statement to the Examiner that the ‘563 patent “discloses a method of coating a monolithic substrate which achieves best results when the entire length of each of the channels is coated” gives me pause. [DE 145-3 at 297.] As I stated above, the Examiner meant that by coating the “entire length of the channels” under ‘563, the channels were fully coated in one step because, in that case, ‘563 did not create a curvilinear profile. But the ‘563 patent clearly states that the preferred embodiment is a two step process, with each step coating less than the length of the substrate. So BASF’s statement to the Examiner that fully coating a substrate in one step achieves the “best results” is either untrue or unsupported. And, at the very least, it’s suspect. Nonetheless, this is not enough to find a clear and unmistakable disclaimer for the reasons mentioned above.

argument is at least reasonable”).

Given the back-and-forth between BASF and the Examiner in the prosecution history, the only reasonable conclusion is that “into each of the channels for a distance which is less than the length of the channels to form a uniform coating profile” means exactly what it says – that each coating process must partially coat the substrate to form a uniform coating profile across the substrate. Because this is consistent with the term’s normal, ordinary meaning, it needs no further construction.

**C. “Said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level”**

The next disputed term is “said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level.” Aristo claims that this means: “The vessel contains a volume of coating above the bottom of the submerged substrate sufficient to coat the channels of the substrate to a desired level plus more than 0.125 inches of coating below the bottom of the submerged substrate, wherein the desired level is the coating level of the finished product and it is less than the entire length of the channels.” BASF defines the phrase to mean: “More slurry than is needed to coat the channels to a desired height, such that the height of slurry over the bottom of the substrate immersed in the coating (dip) pan is high enough during dipping that no air is drawn into the channels.”

In determining who’s right, the parties agree that the specification is instructive. The specification explains that the ‘210 patent is premised on the discovery that the volume of the coating media “lying above the end of the substrate immersed in the dip pan must be sufficient to coat the channels of the substrate.” [DE 145-1 at 217, 3:48-50.] It is this volume – not the dimensions of the dip pan or depth of the substrate’s immersion in the slurry – that’s the

“essential feature” of the ‘210 patent. [*Id.* at 217, 3:51-53.] (This is indicated by Line L in Figure 2, which demarcates the bottom of the immersed substrate.) In addition, “the amount of coating media contained in the dip pan [must] exceed[] the amount of coating media needed to complete the coating operation.” [*Id.* at 217, 4:10-13.]

This means the dip pan must be “loaded with an amount of coating media which exceeds the amount of coating media necessary to coat” the substrate and, out of that pool of slurry, the volume above the end of the substrate (Line L) must be sufficient “to coat the channels of the substrate to the desired length.” [*Id.* at 217, 4:38-47.] So the coating below the immersed substrate is excess. To make sure there’s sufficient slurry in the dip pan, the substrate may either be “immersed in a bath of coating media to a depth sufficient to insure an adequate volume of the coating media or the coating media may be continuously supplied during the coating operation to maintain the desired volume.” [*Id.* at 217, 4:47-52.] According to the specification, the excess slurry is what allows the ‘210 patent to uniformly coat the channels to the desired length, preventing the waste of expensive slurry. [*See id.* at 217, 4:24-28.]

The parties’ proposed definitions differ in three respects. First, the parties dispute when the essential volume – or the volume of slurry above the bottom of the substrate sufficient to coat the substrate to the desired level – must be loaded in the dip pan. Aristo argues that the essential volume must be loaded in the dip pan at the start of the coating process. In support, it cites language in the specification stating that “the volume of coating media 22 lying above a line L level with the end 24 of the substrate immersed therein must be sufficient to coat the channels of the substrate 20 to the desired length.” [DE 155 at 11-12.] Aristo claims that because “[t]his ‘essential’ volume can never be less than the amount needed to coat the channels to the desired

level,” [*id.* at 12], the volume of slurry must be in the dip pan at the beginning of the process. BASF counters that Aristo’s proposed limitation is contrary to the claim language and the specification.

I agree with BASF. First, neither the claim nor the specification state *when* the “essential volume” has to be in the dip pan. The claim states that the ‘210 patent is a method of coating a substrate by “partially immersing the substrate into a vessel containing a bath of the coating media, said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level.” [DE 145-1 at 218, 6:62-67.] But this language does not contain a temporal requirement stating *when* the slurry must be loaded in the dip pan. While it could be argued that the language after “said vessel” requires a full dip pan (*i.e.*, essential volume plus excess) when the substrate is immersed, this is far from certain. The awkward claim language creates ambiguity as to timing.<sup>6</sup>

So I turn to the specification. *Phillips*, 415 F.3d at 1315 (“[C]laims must be read in view of the specification, of which they are a part.”). The specification states that the dip pan must be loaded with an amount of slurry that exceeds the amount needed to coat the channels, and the volume of coating above the bottom of the substrate must be sufficient to coat the channels. But just because the essential volume above the immersed substrate must be sufficient to coat the channels to the desired level, it does not follow that it must be loaded in the dip pan before the coating process begins.

To the contrary, the specification provides two methods for filling the dip pan – loading

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<sup>6</sup> Importantly, this language was added by the Examiner during the prosecution history. I address the significance of this below.

the essential volume in the dip pan at the outset “to insure adequate volume” *or* continuously supplying slurry to the dip pan during the coating operation “to maintain the desired volume.” [DE 45-1 at 217, 4:47-52 (emphasis added).] While the first method requires the essential volume in the dip pan when the coating process begins, the second method is clearly an alternative. This suggests that under the second method the essential volume need not be in the dip pan at the start, but can be loaded into the dip pan during the coating process.

An analysis of the specification language supports this. The first method insures an “adequate volume” by immersing the substrate in a dip pan containing enough volume to finish the coating process at the beginning of the coating step. *See Webster’s Collegiate Dictionary* 14 (10th ed. 1998) (defining “adequate” as “sufficient for a specific requirement”). The second method uses different language – it calls for filling the dip pan during the coating process to maintain the “desired volume.” So unlike the adequate volume, the “desired volume” is not necessarily enough to complete the coating process by itself. The desired volume is simply the amount of slurry the operator desires to put into the dip pan, and that volume must be maintained by replenishing the dip pan during the coating process.<sup>7</sup> In other words, while starting with the essential volume “insures” the volume will be in the dip pan, the slurry can also be supplied during coating to maintain the volume of slurry above the immersed substrate.

Indeed, what’s important is that the coating media is “drawn upwardly by employing excess coating media in the dip pan and maintaining the volume of the coating media above the immersed end of the substrate at a desired level in a consistent and even manner through the

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<sup>7</sup> Of course, the “desired volume” must meet the other requirements of the patent, *e.g.*, it must be less than is needed to fully coat the substrate.



channels.” [DE 145-1 at 218, 5:27-32; *see also id.* at 218, 5:7-9 (“The substrate is typically immersed into the coating media to a depth sufficient to insure a *suitable volume* of the coating media above the immersed end of the substrate.”) (emphasis added); *id.* at 218, 5:21-24 (“sufficient volume of the coating media above the immersed end of the substrate” is what creates a “uniform coating profile”).] This means that the dip pan must always have excess coating below the immersed substrate plus enough coating above the substrate to maintain an even and consistent flow up the channels. So the total volume of slurry need not be in the dip pan, so long as there’s enough to create a uniform coating profile. And then, *at some point during the coating step*, the “essential volume” must be loaded into the dip pan – either all at once in the beginning or throughout the coating process by replenishing. Thus, if the second method is used, the total volume of slurry above the immersed substrate does not need to be in the dip pan at the start of the coating process.

And, contrary to Aristo’s position at the *Markman* hearing, nothing in the prosecution history changes this result. Recall that the Examiner initially rejected the patent because the only difference he saw between ‘210 and ‘563 was that ‘563 calls for using only so much slurry as is needed to coat the substrate, while ‘210 teaches putting excess coating in the dip pan. The Examiner believed this distinction was obvious and denied the patent because the results would be the same. At that point the proposed claim read:

**Original claim 1:**

a) partially immersing the substrate into a vessel containing a bath of the coating media, said vessel containing an amount of coating media sufficient to coat the substrate to a desired level without reducing the level of the coating media within the vessel to below the level of the immersed substrate.

[DE 145-2 at 252 (deleted language underlined).] But the Examiner noted that if BASF could

show that the two methods would produce different results, he would withdraw the rejection.

This began the back-and-forth between BASF and the Examiner in which BASF explained that the difference between the two patents was critical – the excess coating in the dip pan allowed the ‘210 patent to more precisely control the coating process and thus waste less slurry. And the Examiner was convinced, so long as BASF limited its claims to only cover substrates coated “for a distance which is less than the length of the channels.” The Examiner found that in this situation, BASF’s “showing that an excess material will produce a linear profile is deemed unexpected.” [DE 145-3 at 323.] In addition, the Examiner amended BASF’s claim to state:

**Amended claim 1:**

a) partially immersing the substrate into a vessel containing a bath of the coating media, said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level.

[DE 145-3 at 322 (inserted language underlined).] So the Examiner dropped “without reducing the level of the coating media within the vessel to below the level of the immersed substrate” and added “in excess of the amount.”

Aristo seems to suggest (though it is not entirely clear) that the Examiner’s amendment and rationale for granting the ‘210 patent dictate that the essential volume must be in the dip pan at the start of the process. [DE 160 at 82-83.] I disagree. First, as I noted above, the claim language does not clearly demonstrate when the dip pan must be loaded with the essential volume. In any event, the rationale the Examiner gave for amending the claims and allowing the patent was his finding that excess coating in the dip pan accounts for the difference between the two patents. But changing the claim language to emphasize the excess coating requirement has

nothing to do with *when* the essential volume must be loaded into the dip pan. The issues are unrelated. So the Examiner's amendment does not demonstrate that BASF clearly and unmistakably disavowed the right to start with less than the essential volume and fill the dip pan during the coating process. *See Purdue Pharma*, 438 F.3d at 1136 (“[A] patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution.”); *see also Schwing GmbH v. Putzmeister Aktiengesellschaft*, 305 F.3d 1318, 1324 (Fed. Cir. 2002) (“Although prosecution history can be a useful tool for interpreting claim terms, it cannot be used to limit the scope of a claim unless the applicant took a position before the PTO that would lead a competitor to believe that the applicant had disavowed coverage of the relevant subject matter.”); *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1355 (Fed. Cir. 1998) (“When determining whether prosecution history estoppel applies to limit the doctrine of equivalents, a court must examine the reason why an applicant amended a claim.”).

Next, the parties dispute how much excess must be loaded into the dip pan. Aristo argues that there must be at least 0.125 inches of excess coating below the bottom of the immersed substrate. It reasoned that because the '034 patent required a “‘gap’ of ‘about 0.020 to about 0.125 inches,’” the “excess” required by the '210 patent must be more than 0.125 inches to “avoid[] ensnaring prior art” and thus invalidating the patent. [DE 142 at 20 (quoting *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 24 (Fed. Cir. 2000)); DE 160 at 85.]

But Aristo's proposed limitation is not supported by the clear language in the specification. The specification states that “the distance from the immersed substrate to the bottom of the dip pan and the amount of the coating media *need not be precisely controlled.*” [DE 145-1 at 217, 3:55-58 (emphasis added).] Similarly, it explained that “the coating media

need not be metered to provide an exact amount of coating media in the dip pan.” [*Id.* at 217, 4:42-44; *see also id.* at 217, 4:57-63.] Finally, the specification states that:

the depth of the coating media within [sic] dip pan, the distance between the outer surface of the substrate and the inner side surface of the dip pan, the depth of immersion of the substrate and the distance from the end 24 of the substrate 20 to the bottom of the dip pan may vary so long as the volume 22 of the coating media is sufficient to perform the coating operation.

[*Id.* at 217, 4:57-64 (citing Figure 2).] So reading a measured distance or specific amount of excess between the bottom of the substrate and the dip pan would contravene the clear and unambiguous language in the specification. In fact, the varied size and depth of the dip pan and the unmetered excess of slurry are aspects of the invention that distinguish ‘210 from the prior art. [*See* DE 145-1 at 216, 2:18-25; *id.* at 217, 3:53-61.]

Indeed, the specification suggests that the precise amount of excess is irrelevant so long as the dip pan has enough excess to ensure that the coating is sucked through the channels “in a consistent and even manner.” [DE 145-1 at 218, 5:27-32.] As BASF explained to the Examiner, the ‘210 patent does so by loading the dip pan with both sufficient coating above the immersed substrate to coat the channels and enough excess to prevent the volume above the immersed substrate from dropping below the substrate. [DE 145-2 at 281.] This ensures “there is always an amount of the coating media immediately below the channels of the substrate sufficient to provide a smooth, continuous coating upwardly therein.” [*Id.*] Otherwise, if there is no excess, the vacuum will suck air rather than slurry into some of the channels, which creates an uneven, curvilinear profile as in the ‘563 patent.

I would also note that while it’s true that claims should be construed to preserve their validity, the Federal Circuit “ha[s] not applied that principle broadly, and [has] certainly not

endorsed a regime in which validity analysis is a regular component of claim construction.” *Phillips*, 415 F.3d at 1327 (en banc). Instead, courts have limited the maxim to cases in which, “after applying all the available tools of claims construction, [] the claim is still ambiguous.” *Id.* In other words, when ambiguity forces a court to choose from several equally reasonable interpretations, the court should choose one that preserves the claim’s validity. *Id.* at 1327-28 (calling “[t]he doctrine of construing claims to preserve their validity, a doctrine of limited utility”); see *Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1372 (Fed. Cir. 2002) (“[W]here claim language is clear we must accord it full breadth even if the result is a claim that is clearly invalid.”). And here, not only is the language clear, but Aristo does not even attempt to explain why failing to read this limitation into the ‘210 patent would render the patent invalid. See *Rhine*, 183 F.3d at 1346 (“Casio cannot avoid a full-blown validity analysis by raising the specter of invalidity during the claim construction phase.”).

Finally, the parties dispute the definition of the “desired level.” Aristo argues that “desired level” is a finished product in which the channels of the substrate are coated less than the entire length of the channels with one coating material. But as I explained above, the ‘210 patent requires that each coating step is limited to a partially coated substrate. So the desired level is some point along the channels that is less than the full length of the substrate.

For the following reasons, I credit BASF’s definition, and define “said vessel containing an amount of coating media in excess of the amount sufficient to coat the substrate to a desired level” as: “a vessel containing more slurry than is needed to coat the channels less than the length of the substrate, such that the height of slurry above the bottom of the immersed substrate is high enough above the immersed end during coating that no air is drawn into the channels.”

**D. “At an intensity and a time sufficient to draw the coating media upwardly from the bath”**

The next disputed term is “at an intensity and a time sufficient to draw the coating media upwardly from the bath.” Aristo claims that the term is indefinite and thus invalid, while BASF argues that the term should be given its normal, ordinary meaning. I agree with BASF.

A patent claim may be rendered invalid for indefiniteness. *Exxon Research and Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). A claim is indefinite if it does not reasonably apprise those skilled in the art of its scope. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1217 (Fed. Cir. 1991). But “because claim construction frequently poses difficult questions over which reasonable minds may disagree, proof of indefiniteness must meet ‘an exacting standard.’” *Haemonetics*, 607 F.3d at 783 (quoting *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249-50 (Fed. Cir. 2008) (“Only claims ‘not amenable to construction’ or ‘insolubly ambiguous’ are indefinite.”). “An accused infringer must thus demonstrate by clear and convincing evidence that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art.” *Id.*; see *Saso Golf, Inc. v. Nike, Inc.*, 2010 WL 4481772, at \*3 (N.D. Ill. Nov. 1, 2010) (applying clear and convincing standard in *Markman* context).<sup>8</sup>

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<sup>8</sup> BASF argues that an indefiniteness analysis is not proper during the claim construction stage, and some courts have agreed with this. See *Bone Care Intern., LLC v. Pentech Pharm., Inc.*, 2010 WL 3023423, at \*4 (N.D. Ill. July 30, 2010) (“[A]n indefiniteness argument is better viewed as ‘a purported consequence of claim construction, not a misapprehension,’ and thus an argument that may be better made at a later state of this case.”) (quoting *Baldwin Graphic Systems, Inc. v. Siebert, Inc.*, 2005 WL 4034698, at \*1 n. 1 (N.D. Ill. Dec. 21, 2005)) (internal citation omitted); see also *Phillips*, 415 F.3d at 1327 (expressing reservations about “a regime in which validity analysis is a regular component of claim construction”). But because I find that the term is sufficiently definite, I will address the argument.

Moreover, “close questions of indefiniteness in litigation involving issued patents are properly resolved in favor of the patentee.” *Exxon*, 265 F.3d at 1380.

Here, Aristo argues that the above claim is indefinite because the patent specification provides no insight into what is the “sufficient” amount of vacuum intensity and time necessary to draw the slurry from the dip pan. [DE 142 at 21.] In support, Aristo’s expert concluded that a person of ordinary skill in the art cannot determine the sufficient intensity and time without undue experimentation because the process parameters vary based on substrate size and length and the slurry conditions. [*Id.* at 21-22.] BASF counters by arguing that, because the ‘210 patent teaches that no one setting can be used in every instance, the specification sets out ranges for immersion depths, vacuum times, and vacuum pressures to allow those skilled in the art to develop process parameters specific to their situation. And to the extent this is insufficient, BASF notes that additional information can be found in the ‘563 patent, which ‘210 incorporates by reference.

Both the patent claims and specification address the time and intensity necessary to draw slurry from the bath and into the channels. In most cases, the substrate is immersed in coating to a depth of about 0.25 to 0.50 inches. [DE 145-1 at 218, 5:9-11; *see* claim 10.] A low intensity vacuum then draws the coating media up through the channels. This vacuum “should be maintained at no more than about 1 inch of water.” [*Id.* at 218, 5:32-34; *see* claim 7.]<sup>9</sup> And while “the time the low intensity vacuum is applied will vary depending on the consistency and density of the coating media and the length the channels are coated. . . . [i]n most cases, the low

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<sup>9</sup> I am entirely unclear what is meant by the reference to maintaining the vacuum in water. The parties gloss over this in the briefing. In any event, the issue was not raised by Aristo as a reason the claim is indefinite, so I will not address the issue here.

intensity vacuum will be applied for from about 1 to 3 seconds.” [*Id.* at 218, 5:37-40; *see* claim 6.] Then a higher intensity vacuum is applied, which must be maintained at greater than 1 inch of water, though typically from 5 to 15 inches of water. [*Id.* at 218, 5:41-45; *see* claim 8.] The high intensity vacuum should be applied from 2 to 4 seconds, and the entire process should not last more than 5 seconds. [*Id.* at 218, 5:45-50; *see* claim 9.]

I find this sufficiently definite. First, the range of 1 to 3 seconds for the low intensity vacuum (and correspondingly, 2-4 seconds for the high intensity vacuum) provides sufficient parameters for a person of ordinary skill in the art to determine how long it will take to draw the coating out of the dip pan. That’s because “the fact that some experimentation may be necessary to determine the scope of the claims does not render the claims indefinite.” *Exxon*, 265 F.3d at 1379. So setting out a range is permissible, especially where the actual time may vary depending on the circumstances. *Id.* at 1378-79 (finding the term “period sufficient” definite where the specification stated the period was “usually accomplished in about .025-24 hours, preferably about 0.5-2 hours” and “the patent makes clear that the period in question will vary with changes in the catalyst and the conditions in which the process is run”). And *Aristo* does not provide sufficient evidence showing why this narrow time range prevents one of ordinary skill from discerning the boundaries of the patent.

Similarly, the specification’s claim that the low intensity vacuum “should be maintained at no more than about 1 inch of water” is sufficiently definite. [DE 145-1 at 218, 5:32-34; *see* claim 7.] *Aristo* has not shown that these parameters would prevent a person of ordinary skill from determining where in this range – from greater than zero to 1 inch of water – the vacuum should be maintained, depending on their circumstances. *See Exxon*, 265 F.3d at 1378-79.



Moreover, in discussing the high intensity vacuum range of 5 to 15 inches of water, the Examiner stated, “it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause-effective variable such as vacuum intensity through routine experimentation.” [DE 145-2 at 273 (citing *In re Woodruff*, 919 F.2d 1575, 1577 (Fed. Cir. 1990)).] While Aristo tries to distinguish this by addressing its indefiniteness argument at the low intensity vacuum rather than the high intensity vacuum, [DE 160 at 94-95], it fails to explain why the difference matters. Both present a relatively narrow range of water depths that must be maintained in order to reach sufficient intensity. Indeed, the Examiner stated that in this context variables “*such as*” vacuum intensity could be determined through routine experimentation. As a result, Aristo has not shown why this is indefinite.<sup>10</sup>

For the following reasons, the term “at an intensity and a time sufficient to draw the coating media upwardly from the bath” is given its normal, ordinary meaning.

**E. “Replenishing the bath with an amount of the coating media which was used to coat the substrate” and “while the substrate is being coated”**

Next, the parties dispute two terms from claim 5, which I’ll address together: “replenishing the bath with an amount of the coating media which was used to coat the substrate” and “while the substrate is being coated.” Aristo asserts that this means “the coating media flows with no interruption into the coating pan while the substrate is still immersed” and,

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<sup>10</sup> Aristo cites to BASF documents that suggest BASF could have provided more guidance in the specification to help determine sufficient time and intensity. Maybe so, but this does not mean that the term must be found indefinite. *See Exxon*, 265 F.3d at 1376 (despite the lack of “specificity that in some instances would have been easy to provide and would have largely obviated the need to address the issue of indefiniteness,” the trial court was wrong to find the term indefinite).

again, BASF believes the terms should be given their normal, ordinary meanings.

Recall that claim 1 calls for loading the dip pan with more slurry than is necessary to coat the substrate to the desired level. And, again, according to the specification, this can be done either at the start of the coating process so that the substrate is immersed in a dip pan containing the essential volume or “the coating media may be continuously supplied during the coating operation to maintain the desired volume.” [DE 145-1 at 217, 4:47-52.] And claim 5 teaches “[t]he method of claim 1 further comprising replenishing the bath with an amount of the coating media which was used to coat the substrate while the substrate is being coated.” [*Id.* at 219, 7:16-18.] So while claim 1 can cover both methods, claim 5, which is dependent on claim 1, is limited to the latter.

Aristo believes that claim 5’s approach of replenishing the dip pan during the coating process means that the coating must flow to the dip pan without interruption while the substrate is immersed. It cites language in the specification stating that the coating must flow “continuously” to “maintain the desired volume,” and argues that “[t]he only way to ‘maintain’ this volume is to have no interruption in the flow of coating media at any time while the substrate is still immersed.” [DE 142 at 25.] BASF counters that claim 5 merely requires that coating media must be supplied or added while coating takes place but does not require an uninterrupted flow of coating into the dip pan.

I agree with BASF. Nothing in the patent or the specification states that claim 5 requires an uninterrupted flow of coating into the dip pan during the replenishing process. Claim 5 merely requires replenishing the dip pan with an amount of the coating that was used to coat the substrate “while the substrate is being coated.” And as Aristo stated at the *Markman* hearing, the

dip pan does not have to be replenished at the same rate that it's depleted. [See DE 160 at 112, 121.] So, for example, the specification language does not preclude the scenario in which intermittent spurts of coating are continuously loaded into the dip pan, so long as the dip pan is replenished "with an amount of the coating media which was used to coat the substrate." [DE 145-1 at 219, 7:16-18.] In this circumstance, the dip pan is continuously filled with slurry during the coating process and the desired level is maintained. Aristo's limitation is unnecessary. As a result, claim 5 must be given its normal, ordinary meaning.

**F. "A coated monolithic substrate having a uniform coating profile produced in accordance with the method of claim 1"**

The final disputed term is "a coated monolithic substrate having a uniform coating profile produced in accordance with the method of claim 1." Claim 11 is the product of the method used in claim 1, and it must be consistent with the relevant claim terms defined above. See *Paragon Solutions, LLC v. Timex Corp.*, 566 F.3d 1075, 1087 (Fed. Cir. 2009). For example, "uniform coating profile" is a substantially linear cross-sectional profile, which deviates only slightly, if at all, across the width of the substrate, and "a coated monolithic substrate" must be coated such that any single coating process coats less than the entire length of the substrate. As a result, this term requires no further construction.

## **V. CONCLUSION**

For the foregoing reasons, the claims are construed in the manner set forth in this Opinion and Order. Moving forward, a telephonic status conference is hereby **SET** for **September 20, 2011 at 1:30 p.m., Hammond/Central Time**. The parties are **ORDERED** to notify the Case Management Deputy by email to [simon\\_chambers@innd.uscourts.gov](mailto:simon_chambers@innd.uscourts.gov) **48 hours in advance** of the telephonic hearing as to which attorneys will be participating on the

conference call and what telephone number should be used to contact them.

**SO ORDERED.**

ENTERED: September 7, 2011.

s/ Philip P. Simon  
PHILIP P. SIMON, CHIEF JUDGE  
UNITED STATES DISTRICT COURT

FIG.2

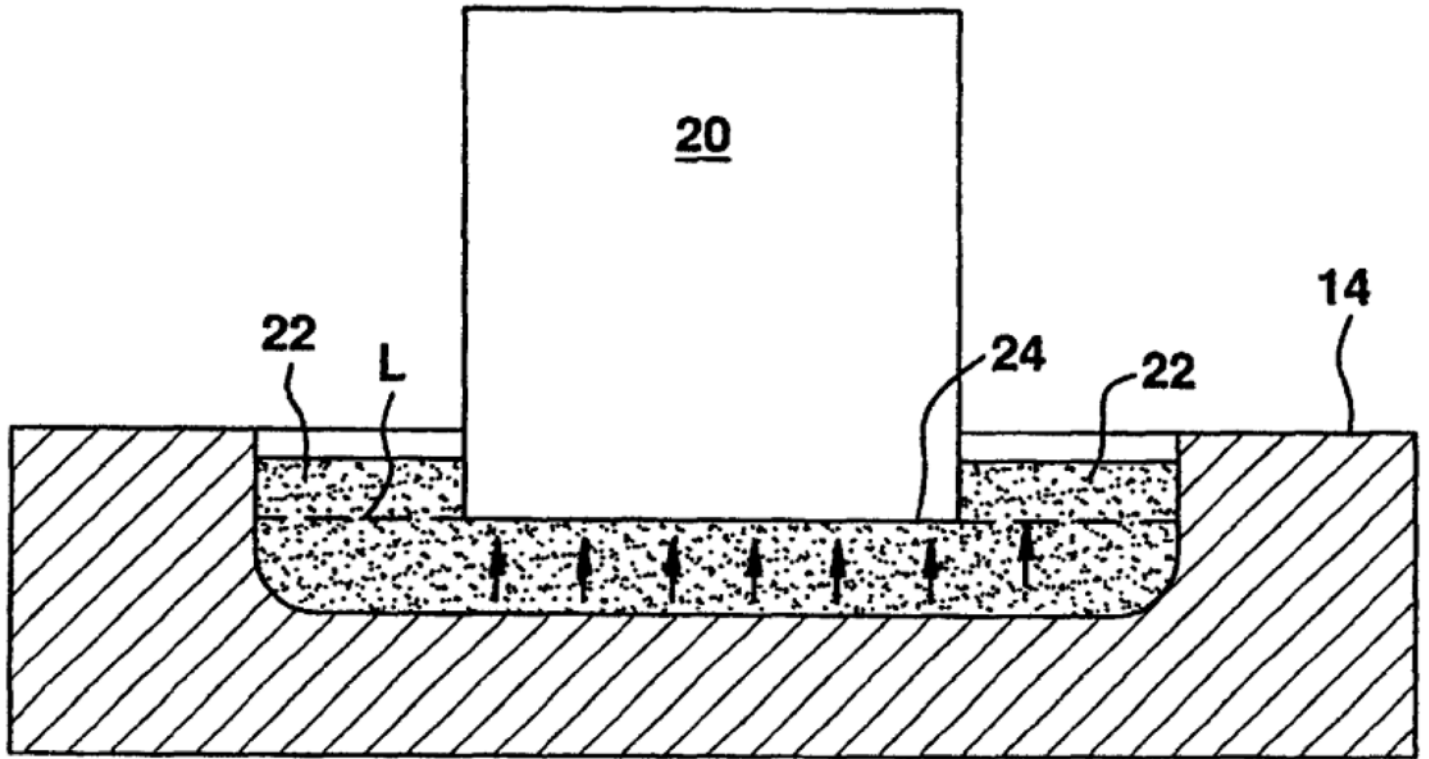


FIG. 3A

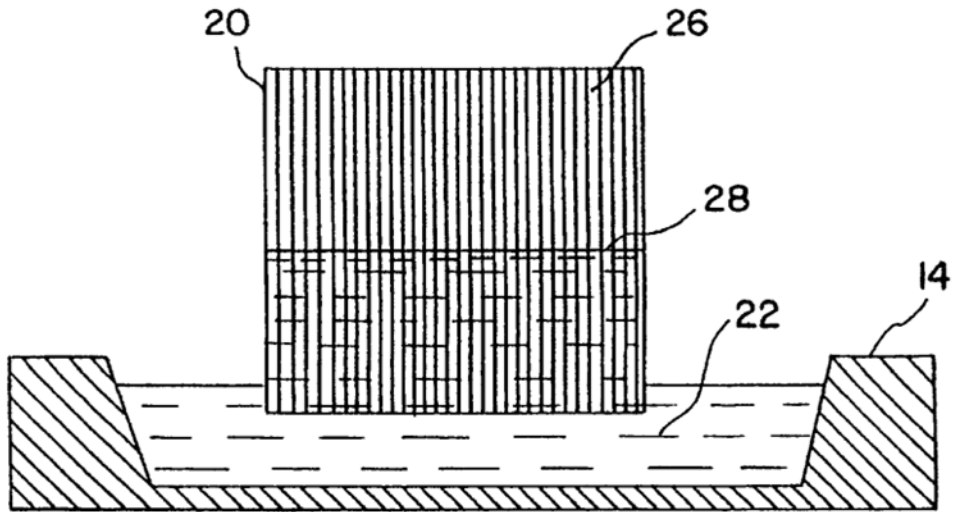
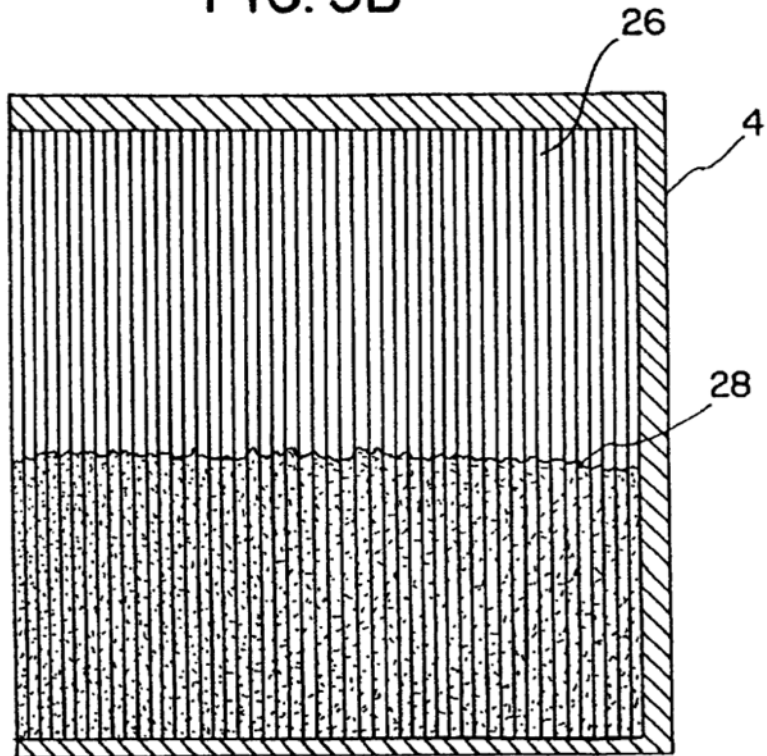
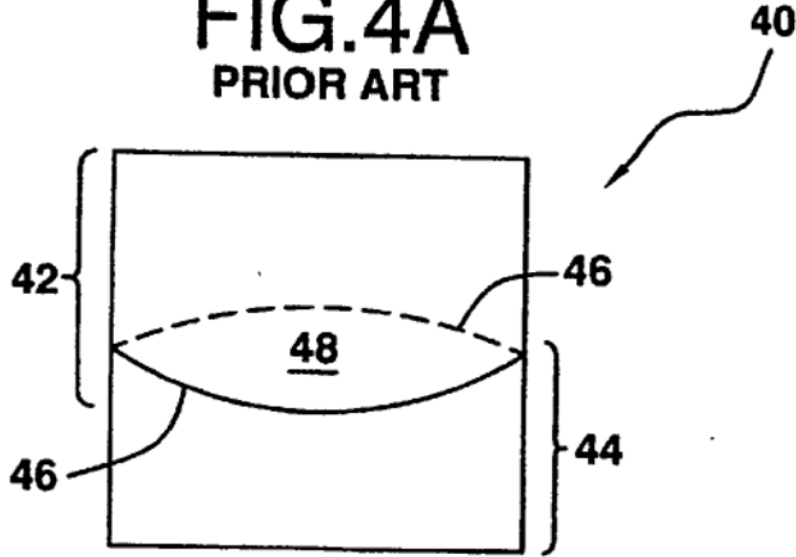


FIG. 3B



**FIG.4A**  
**PRIOR ART**



**FIG.4B**

