IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

THE DOW CHEMICAL COMPANY, Plaintiff, v. NOVA CHEMICALS CORPORATION (CANADA) and NOVA CHEMICALS INC. (DELAWARE), Defendants.	)	C.A. No. 05-737 (JJF) **PUBLIC VERSION**

DOW'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiff The Dow Chemical Company ("Dow") submits this brief detailing its proposed claim constructions for the claim terms at issue in United States Patent Nos. 5,847,053 ("the '053 patent") and 6,111,023 ("the '023 patent"). These patents concern polyethylene plastic, particularly the kind useful for films. Dow asserts that Nova is infringing or inducing infringement of all 16 claims of the '053 patent and 16 claims of the '023 patent.

The claim construction issues in this case are simple and straightforward. There are six terms in dispute between the parties that require construction: (1) "composition comprising (A) . . . and (B) . . . "; (2) "homogeneously branched linear ethylene/α-olefin interpolymer"; (3) "slope of strain hardening coefficient greater than or equal to 1.3"; (4) "heterogeneously branched linear ethylene polymer"; (5) "at least one ethylene interpolymer"; and (6) "linear polymer fraction as determined using a TREF technique."

On first glance, these terms appear to be highly technical, and comprehensible only with an in-depth knowledge of the science behind the patented invention. But in fact an in-depth knowledge is not necessary in order to construe the disputed terms. The meaning of each term is crystal clear from the patent specification, which the Federal Circuit has instructed is "the single best guide to the meaning of a disputed term." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (*en banc*). In this case, the prosecution history adds little beyond what can be gleaned from the specification.

Nova seeks to confuse and complicate matters by arguing in favor of limitations that are found nowhere in the claims. It does so in an attempt to narrow Dow's patents to exclude Nova's accused products from the patents' reach. Nova's approach is not surprising, given that Nova's product was made after years of trying to copy Dow's technology, including hiring key scientists who developed Dow's product. But the Federal Circuit has held over and

over again that in construing patent claims, the Court should not read limitations into the claims that are not stated there. The specification is to be used as an aid in interpreting the terms used in the claims, not as a way of adding new limitations that the patentholder chose not to use in defining his invention.

Nova's approach to avoid a finding of infringement should be rejected, and Dow's construction of the disputed terms adopted.

II. BACKGROUND

This case involves a kind of polymer called polyethylene. A polymer is a collection of molecules made of repeating units or "monomers." A polymer molecule made of repeating units of the monomer ethylene (E) can be represented (in a simplified form) like this:

------EEEEEEEEEEEEEEEEEEEEEEEEEEEE------

Interpolymers are collections of molecules that contain at least two monomers. Ethylene interpolymers are usually made with a second monomer from the class of compounds called α-olefins. The accused products here are interpolymers that contain only two repeating units: ethylene and the α-olefin octene (O). In such interpolymers, ethylene is referred to as the monomer and octene is referred to as the comonomer. A typical polymer molecule found in such an interpolymer can be represented like this, with octene comonomers interspersed among the ethylene monomers:

------EEEOEEOEEEEEOEEEOEEEEOEEEOEEOEEOEEOEO------

The main purpose of including the octene comonomer is to change the density of the plastic made from the polymer. Comonomer units introduce a short branch of carbon atoms off of the side of the molecule, and this branch lowers the density of the composition by preventing the polymer chains from folding up compactly. Thus, while pure polyethylene, with

no branches at all, has a density of about 0.96 grams per cubic centimeter (g/cc), polymer manufacturers can lower the density of polyethylene to about 0.86 g/cc using large amounts of octene comonomer. The more comonomer that is used, the lower the density of the resulting copolymer.

Comonomer branches are called "short chain branches" (SCBs) to distinguish them from another kind of branch called a "long chain branch" (LCB). Short chain branches are only a few carbons long – in the case of octene, six carbons long. Long chain branches are thousands of carbons long. Before 1991, long chain branches occurred only in the oldest kind of polyethylene: high pressure LDPE, which is different from the polyethylene at issue in this case. In 1991, Dow invented a new kind of polyethylene that was mostly linear – mostly without LCBs – but had a few LCBs. Dow called this polymer a "substantially linear" polymer to distinguish it from LDPE, which had many LCBs, and from all the other existing polyethylene, which had no LCBs.

SCBs can be used to lower density to obtain polymers that have better properties for specific applications.[1] Polyethylene interpolymers with densities of around 0.92 g/cc have excellent resistance to punctures. This kind of resistance is referred to as "impact resistance." Before Dow's invention here, however, polymers of that density would tear very easily – i.e., they had poor "tear properties."

Prior to Dow's invention, makers of plastic film had a choice. They could improve the film's tear properties by raising the density, at the expense of decreasing the impact resistance. Alternatively, they could improve the impact resistance by using lower density

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1 LCBs are used for an entirely different purpose – to make the polymers easier to use when they are melted. The melt properties are not relevant to the claim construction issues here.

polymer, at the expense of producing film with poor tear properties. It was not known how to solve this problem through blending because it was unknown what polymers could be blended to avoid a polymer having worse properties than the components used to make the blend. (*See* Exh. 1 at col. 1, ll. 46-53, concerning "destructive synergism" resulting from prior art blending.) Instead, manufacturers typically would make the films thicker to obtain good tear and impact properties, using substantially more polymer.

The Dow inventors' innovation was to create blends that did not suffer from these trade-offs, allowing the use of thinner films with a good balance of impact resistance and tear properties. The Dow discovery was a blend of two polymers – a polymer A of a lower density and a polymer B of a higher density, each of A and B having certain key properties. (Exh. 1 and Exh. 2.)

One key property of the invention is that component A has a highly uniform branching composition. The collections of molecules in polymers include molecules of differing lengths and differing amounts of comonomer (i.e., the molecules contain different numbers of octene units interspersed with the ethylene units). Because comonomer units introduce a branch off the side of the molecule, the distribution of molecules with differing amounts of comonomer is referred to as the branching distribution. And because a polymer with a narrow branching distribution is uniform – or homogeneous – throughout the polymer, it is called a *homogeneously branched polymer*. A polymer with a distribution of comonomer units that is not uniform – with some molecules having relatively more octene units and some having relatively few – is referred to as a *heterogeneously branched polymer*.

Another important property of the invention is that component A has a high value for the slope of strain hardening coefficient ("SHC"), which describes how the polymer behaves

when it is stretched. When component A, with its high SHC (as well as its uniform composition), is blended with component B, the blend gives rise to the unique combination of impact resistance and tear properties that the Dow invention exhibits.

The patent claims that Dow asserts in this case set forth the properties required of component A and component B. A representative claim from the '053 patent, containing claim language that the parties dispute, is claim 6, which states as follows:

> 6. An ethylene polymer composition comprising
>
> (A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one homogeneously branched linear ethylene/α-olefin interpolymer having:
>
> (i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.935 g/cm^3,
>
> (ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,
>
> (iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min) to about 10 g/10 min,
>
> (iv) no high density fraction,
>
> (v) a single melting peak as measured using differential scanning calorimetry, and
>
> (vi) a slope of strain hardening coefficient greater than or equal to 1.3; and
>
> (B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched linear ethylene polymer having a density from about 0.93 g/cm^3 to about 0.965 g/cm^3.

(Exh. 1 at col. 16, ll. 4-26.) A representative claim from the '023 patent, also containing disputed claim language, is claim 1, which states as follows:

> 1. An ethylene polymer composition comprising
>
> (A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one ethylene interpolymer having:
>
> (i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.935 g/cm^3
>
> (ii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,
>
> (iii) a slope of strain hardening coefficient greater than or equal to 1.3, and
>
> (iv) a Composition Distribution Branch Index (CDBI) greater than 50 percent; and
>
> (B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one ethylene polymer characterized as having a density from about 0.93 g/cm^3 to about 0.965 g/cm^3 and comprising a linear polymer fraction, as determined using a temperature rising elution fractionation (TREF) technique.

(Exh. 2 at col. 15, l. 59 - col. 16, l. 39.)

III. SUMMARY OF THE ARGUMENT

Dow's straightforward constructions come directly from claims themselves, as well as definitions provided in the specifications of the patents-in-suit. Dow's proposed constructions are also consistent with the plain and ordinary meaning of each term.

1. The phrase "composition comprising (A) . . . and (B)" should be construed to mean a composition that includes at least A and B but may also include additional, unnamed elements.

2. The phrase "homogeneously branched linear ethylene/α-olefin interpolymer" has two parts:

   (a) "homogenously branched" should be construed to refer to a polymer in which the comonomer is randomly distributed with a given interpolymer molecule and wherein substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer; and

   (b) "linear ethylene/α-olefin interpolymer" should be construed to mean an interpolymer that does not have long chain branching.

3. The phrase "slope of strain hardening coefficient of greater than or equal to 1.3" should be construed to mean that the slope of strain hardening multiplied by the melt index raised to the 0.25 power must be greater than or equal to 1.3.

4. The phrase "heterogeneously branched linear ethylene polymer" should be construed to mean a polymer having a distribution of branching different from and broader than the homogeneously branched ethylene/α-olefin interpolymer.

5. The phrase "at least one ethylene interpolymer" should be construed to mean a polymer made from ethylene and at least one comonomer.

6. The phrase "linear polymer fraction as determined using temperature rising elution fractionation (TREF) technique" should be construed to mean a fraction that is neither highly branched nor medium branched.

IV. ARGUMENT

A. Legal Principles Governing Claim Construction

Claim construction is a question of law. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). The general rules of claim construction are set forth in the Federal Circuit's *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). As the *Phillips* court explained, disputed claim terms "are generally given their ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art . . . at the time of the invention." *Id*. at 1312-13. That "person of ordinary skill in the art is deemed to read the claim term . . . in the context of the entire patent, including the specification." *Id*. at 1313. Thus, claims are to be construed in light of the context in which the terms appear. *Id*.

For technical terms having a particular meaning in a field of art, such as those at issue here, the court looks first to intrinsic evidence – i.e., "the words of the claims themselves, the remainder of the specification, the prosecution history" – and then to "extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id*. (quoting *Innova/PureWater, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)) (internal quotation marks omitted). In carrying out this analysis, the specification is particularly important. As the Federal Circuit stated in *Phillips*, the 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." *Id*. at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)) (internal quotation marks omitted). But it is not permissible to focus on only a portion of the specification and ignore other parts; rather, "[t]he court must always read the claims in view of the full specification." *SanDisk Corp v. Memorex Products, Inc.*, 415 F.3d 1278, 1285 (Fed. Cir. 2005). In addition, when using the

specification to discern the meaning of a disputed term, a court must take care not to import limitations from the specification into the claim. To do so is a clear error of law. *See Phillips*, 415 F.3d at 1323.

B. Claim Terms and Phrases Requiring Construction

1. "composition comprising (A) . . . and (B)"

This phrase appears in all the independent claims of both the '053 patent and the '023 patent. However, the only dispute between the parties concerns the interpretation of this phrase in the '053 patent. The parties' alternative constructions for this term are set forth in the chart below.

Dow's Construction	**Nova's Construction**
a composition that includes at least A and B but may also include additional, unnamed elements.	Composition must contain the recited "homogeneously branched linear ethylene/α-olefin interpolymer" (A) and the recited "heterogeneously branched linear ethylene polymer" (B). Composition may include other components. However, all "homogeneously branched linear ethylene/α-olefin interpolymer(s)" must satisfy the requirements of element (A) and all "heterogeneously branched linear ethylene polymer(s)" must satisfy the requirements of element (B).

The language in dispute here is the straightforward and common term found in many patents: "comprising." The Federal Circuit's decisions clearly establish that as a matter of patent law this term has a meaning equivalent to "including, but not limited to." In other words, an infringing product that comprises A and B must contain A and B, but it also may, or may not, contain many other things. *See*, *e.g.*, *Lucent Techs. v. Gateway, Inc.*, 525 F.3d 1200, 1214 (Fed. Cir. 2008) (affirming that "comprising" means that the listed elements are essential but that other elements may be added); *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1345

(Fed. Cir. 2003) ("[A] claim reciting 'a widget comprising A and B' . . . would be infringed by any widget containing A and B, no matter that C, D, or E might be present.").

Nova agrees that the composition may include components other than A and B, but attempts to place limitations on what can be part of the composition in addition to A and B. There is no basis for such a construction. Here, A is a "homogeneously branched linear ethylene/α-olefin interpolymer" having certain specific properties, and B is a "heterogeneously branched linear ethylene polymer" having other specific properties. Both of those components must be present in the composition. But nothing about the claim excludes the presence of homogeneously branched linear interpolymers with different properties from those that characterize A, or of heterogeneously branched linear polymers with different properties from those that characterize B.

Nova's attempt to read an extra limitation into the claims is flatly forbidden. *See*, *e.g.*, *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1331 (Fed. Cir. 2007); *Northern Telecom Ltd. v. Samsung Elecs. Co., Ltd.*, 215 F.3d 1281, 1290-91 (Fed. Cir. 2000) ("This court has repeatedly and clearly held that it will not read unstated limitations into claim language."). The Court should interpret the patent claims to cover compositions that include components A and B as well any other additional, unnamed elements.

2. "homogeneously branched linear ethylene/α-olefin interpolymer"

This phrase includes two terms that the parties dispute. The first is "homogeneously branched" and the second is "linear ethylene/α-olefin interpolymer." The complete phrase appears in each of the independent claims of the '053 patent, i.e., claims 1 and 6.

The two issues are separately discussed in the subsections below.

a. "homogeneously branched"

The chart below includes Dow's construction of the phrase "homogeneously branched" as well as Nova's construction of the entire phrase "homogeneously branched linear ethylene/α-olefin interpolymer" with the portions that relate to homogeneity of branching highlighted. The remainder of Nova's construction relates to the meaning of the term "linear" and will be addressed in the next sub-section.

Dow's Construction	**Nova's Construction**
A polymer in which the comonomer is randomly distributed within a given interpolymer molecule and wherein substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer.	**Ethylene/α-olefin interpolymer in which the comonomer is randomly distributed within a given interpolymer molecule and wherein substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer. Such interpolymer has a CDBI greater than about 30 percent** and no long chain branching. Such interpolymer is not "substantially linear" as defined in the patent.

Dow's construction of "homogeneously branched" is taken straight out of the patent specification, in accordance with *Phillips*' teaching that the specification is "the single best guide to the meaning of a disputed term." 415 F.3d at 1315. Specifically, the '053 patent states:

> The homogeneously branched ethylene/α-olefin interpolymers useful for forming the compositions described herein are those in which the comonomer is randomly distributed within a given interpolymer molecule and wherein substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer.

(Exh. 1 at col. 3, ll. 29-35.) Moreover, this definition is the same as the ordinary and customary meaning of homogeneously branched polymers in the art. (Soares Dec., ¶ 5.) For both of these reasons, this definition should control here. *See Phillips*, 415 F.3d at 1315; *3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1370 (Fed. Cir. 2003) (stating that there

is "'a heavy presumption' that a claim term carries its ordinary and customary meaning . . . namely its meaning amongst artisans of ordinary skill in the relevant art at the time of the invention").

Nova's construction begins with the same definition as Dow's, but appends an extra requirement found nowhere in the claims themselves: a CDBI (a comonomer distribution branching index) of greater than 30. Nova purports to draw that requirement from a statement in the '053 patent that "[t]he SCBDI or CDBI for the linear and for the substantially linear olefin polymers of the present invention is preferably greater than about 30 percent…." (Exh. 1 at col. 3, ll. 48-50.)

But this passage only states that polymers with a CDBI of more than 30 are ***preferred***. It is well-settled that a discussion of a preferred embodiment cannot be added as a claim limitation. It is self-evident that if the CDBI of a polymer is *preferably* greater than 30%, the CDBI is not required to be greater than 30%, because there are always less-preferred embodiments of an invention. *See Pfizer Inc. v. Teva Pharm., USA, Inc.*, 429 F.3d 1364, 1374 (Fed. Cir. 2005) (explaining that the identification of a particular embodiment as "preferred" indicates that the claimed invention includes a "broader, albeit less preferred class" of other embodiments).

For this reason, the Federal Circuit has repeatedly "cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1328 (Fed. Cir. 2002) (quoting *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558, 1563 (Fed. Cir. 1986). Indeed, the Federal Circuit has characterized this as one of the "cardinal sins" of claim construction. *Phillips*, 415 F.3d at 1320; *see also Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir.

1998). The Federal Circuit has also cautioned that where a claim term is expressed in general descriptive terms, it is improper to limit the term to a numerical range. *See Conoco, Inc. v. Energy & Envtl. Int'l, L.C.*, 460 F.3d 1349, 1358 (Fed. Cir. 2006); *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n,* 75 F.3d 1545, 1551 (Fed. Cir. 1996), *abrogated on other grounds by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558 (Fed. Cir. 2000) (*en banc*).

Indeed, where the component A polymer is defined in Dow's patents in part by CDBI, it is done by expressly writing the CDBI requirement into the claim. For example, in the '023 patent, component A is limited to polymers having a CDBI of 50% or more. (Exh. 2 at col. 16, ll. 31-32.) Consequently, Nova's suggestion that "homogeneously branched" indicates a polymer having a CDBI of 30% or more is inconsistent with the way component A polymers are defined in the Dow patents.

Dow's construction follows the rules set forth by the Federal Circuit in *Phillips*, and Nova's flouts them. This Court should adopt Dow's construction of the disputed term.

b. "linear ethylene/α-olefin interpolymer"

This phrase is also defined in the patent specification. The chart below includes Dow's construction of this phrase as well as Nova's construction of the entire phrase "homogeneously branched linear ethylene/α-olefin interpolymer" with the portions that relate to linearity highlighted. As just discussed, the unhighlighted portions below in Nova's construction relate to the meaning of "homogeneously branched."

Dow's Construction	**Nova's Construction**
An interpolymer that does not have long chain branching.	**Ethylene/α-olefin interpolymer** in which the comonomer is randomly distributed within a given interpolymer molecule and wherein substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer. **Such interpolymer**

	has a CDBI greater than about 30 percent and **no long chain branching. Such interpolymer is not "substantially linear" as defined in the patent.**

Dow's construction is once again taken directly from the patent itself, in accordance with *Phillips* rules for proper claim construction. The '053 patent expressly defines "linear ethylene/α-olefin interpolymer":

> The term "linear ethylene/α-olefin interpolymer" means that the interpolymer does not have long chain branching.

(Exh. 1 at col. 4, ll. 11-12.) This definition is clear, simple, and straightforward to apply. *See Phillips*, 415 F.3d at 1316 (explaining that "the inventor's lexicography governs").

Nova's construction begins with this definition, stating that such a polymer has no long chain branching. But Nova's construction then adds another term that purports to define what the polymer is not. In so doing, Nova introduces the wholly superfluous concept of "substantially linear," which is used in the patent (by cross-reference to a separate patent) but is not part of the claims of any of the asserted patents. This is nothing but a recipe for confusion. A proper claim construction is one that resolves ambiguity, not one that introduces it. *See Phillips*, 415 F.3d at 1327.

The Court should not permit Nova to read unstated – and unhelpfully confusing – limitations into the language of the claims. *See MBO Labs*, 474 F.3d at 1331; *Northern Telecom*, 215 F.3d at 1290-91. Instead, consistent with Federal Circuit precedent, the patent's express definition of the disputed term should govern.

3. "slope of strain hardening coefficient greater than or equal to 1.3"

This phrase appears in all of the independent claims of the both patents-in-suit – namely claims 1 and 6 of the '053 patent and claims 1 and 9 of the '023 patent. Dow offers a

single construction for the phrase in both patents, and Nova argues that the phrase is indefinite as it appears in both patents.

Dow's Construction	**Nova's Construction**
The slope of strain hardening multiplied by the melt index raised to the 0.25 power must be greater than or equal to 1.3	Indefinite. Not amenable to construction. The specification defines: strain hardening coefficient (SHC) = (slope of strain hardening) • $(I_2)^{0.25}$ without identifying any units of measurement. The slope of strain hardening is defined by reference to a drawing (fig. 1, col. 7, l. 18), which is missing from the specification. In the absence of the drawing, the units of slope of strain hardening are not defined. Further, the portion of the strain hardening region for drawing the parallel line (col. 7, ll. 19-21) whose slope is determined is also not defined. SHC, therefore, cannot be determined.

Once again, Dow's proposed construction is the express definition provided for the claim term in the patents themselves:

> The slope of strain hardening coefficient (SHC) is calculated according to the following equation:
>
> SHC = (slope of strain hardening) * $(I_2)^{0.25}$
>
> where I_2 = melt index in grams/10 minutes.

(Exh. 1 at col. 6, ll. 44-50; Exh. 2 at col. 7, ll. 22-28.) Consistent with this definition, the claim language in question means that the slope of strain hardening multiplied by the melt index raised to the 0.25 power must be greater than or equal to 1.3.

Nova proposes no construction at all, arguing instead that the disputed term is not amenable to construction because it is indefinite and therefore invalid. This Court must attempt, however, to determine what the claim means before it can determine whether it is invalid for indefiniteness. *See Pharmastem Therapeutics, Inc. v. Viacell, Inc.*, No. 02-148 GMS, 2003 WL

124149, at *1 n.1 (D. Del. Jan. 13, 2003). Here, the claim's meaning is readily ascertained, and an invalidity analysis has no place at the *Markman* stage of the proceedings. *See Phillips*, 415 F.3d at 1327 ("[W]e have . . . not endorsed a regime in which validity analysis is a regular component of claim construction."); *Nazomi Commc'ns, Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1369 (Fed. Cir. 2005) (cautioning the construing court not to "put the validity cart before the claim construction horse").

Moreover, even if an invalidity analysis were appropriate at this stage (which it is not), Nova has not come close to satisfying its heavy burden to prove invalidity by clear and convincing evidence. *See Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1360 (Fed. Cir. 1984). As this Court has already held, there are issues of fact regarding whether a person of skill in the art would readily be able to ascertain the units of slope of strain hardening (as Dow correctly contends), or whether a person of skill in the art would be unable to ascertain the scope of the claims containing an SHC limitation (as Nova mistakenly contends). (D.I. 27.) Where such issues of fact remain, there can be no finding of invalidity – let alone resolution of the invalidity question in a *Markman* proceeding, which deals only with issues of law.

In the end, Dow's construction of "slope of strain hardening coefficient greater than equal to 1.3," taken directly from the patent, stands unopposed. The Court should therefore adopt it.

4. "heterogeneously branched linear ethylene polymer"

This phrase appears in both independent claims of the '053 patent – claims 1 and 6.

Dow's Construction	Nova's Construction
A polymer having a distribution of branching different from and broader than the homogeneously branched ethylene/α-olefin.	A polymer having a distribution of branching different from and broader than the homogeneously branched ethylene/α-olefin, including having a highly branched portion, a medium branched portion and an essentially linear portion.

Dow's construction – which is identical to the first part of Nova's construction – comes from the patent and the prosecution history. The '053 patent makes clear that the terms "heterogeneously branched" and "homogeneously branched" encompass all branched polymer types. (Exh. 1 at col. 7, ll. 36-41.) Thus, a branched polymer that is not heterogeneously branched is necessarily homogeneously branched, and vice-versa. (Exh. 1 at col. 7, ll. 33-36; Exh. 3 at 144:20-145:20.)

Nova's proposed addition of a requirement that heterogeneously branched polymer have a highly branched portion, a medium branched portion, and an essentially linear portion improperly reads limitations from the specification into the claim. The specification refers to polymers with highly branched, medium branched, and essentially linear portions as *examples* of heterogeneously branched polymers.[2] But the specification nowhere indicates that heterogeneously branched polymers must have all three types of branching. Again, Nova's proposed construction violates the principle that cautions "against limiting the claimed invention to preferred embodiments or specific examples in the specification." *Teleflex*, 299 F.3d at 1328

2 As discussed below, the term "essentially linear" as used in the patent refers to a lightly branched polymer. *See infra* p. 22.

(quoting *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558, 1563 (Fed. Cir. 1986)) (internal quotation marks omitted).

Nova's attempt to read limitations into the claims – an enterprise that is "fraught with danger," *MBO Labs.*, 474 F.3d at 1333; *see also Phillips*, 415 F.3d at 1323 – should not be countenanced. Instead, this Court should adopt Dow's straightforward construction.

5. "at least one ethylene interpolymer"

This phrase appears *verbatim* only in the '023 patent. Although ethylene interpolymers are also referred to in the claims of the '053 patent, Nova does not dispute the meaning of the phrase "ethylene interpolymer" as used in that patent. In the '023 patent, "at least one ethylene interpolymer" appears in both independent claims – claims 1 and 9 – and refers to the contents of component A. The parties' alternative constructions are shown below.

Dow's Construction	**Nova's Construction**
a polymer made from ethylene and at least one other comonomer	A substantially linear ethylene polymer prepared from a catalyst with constrained geometry about the metal atom as described in U.S. Patent No. 5,272,236.

Dow's construction simply states the definition of an interpolymer of ethylene. Interpolymer means a polymer made from at least two monomers. The '023 patent expressly defines "interpolymer" in the specification in precisely that way:

> The term "interpolymer" is used herein to indicate a copolymer, or a terpolymer, or the like. That is, at least one other comonomer is polymerized with ethylene to make the interpolymer.

(Exh. 2 at col. 4, ll. 1-4.) An ethylene interpolymer is therefore a polymer made from ethylene and at least one comonomer. This simple definition reflects the well known, ordinary and customary meaning of the term in the art. (Soares Dec., ¶ 6.)

Nova attempts to limit the term to mean only a polymer that is "substantially linear" – i.e., polymers that contain LCBs. But the specification defines the term as including

polymers that are either linear (without LCBs) or substantially linear (with LCBs). "The homogeneously branched ethylene/α-olefin interpolymer is preferably a homogeneously branched substantially linear ethylene/α-olefin interpolymer . . . . The homogeneously branched ethylene/α-olefin interpolymer can also be a linear ethylene/α-olefin interpolymer . . . ." (Exh. 2 at col. 3, ll. 9-14.) According to Nova, the ethylene/α-olefin interpolymers cannot be linear ethylene/α-olefin interpolymers, despite what the inventors said in the specification. However, "the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316.

Nova also attempts to limit the claim term to one of the two types of ethylene interpolymers referred to in the specification ("substantially linear," but not "linear" ethylene interpolymers). That is impermissible. *Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 622 (Fed. Cir. 1995) (where the specification made clear that the step of "associating" included both "implicit" and "explicit" associating, construing the claim to cover only the explicit approach involved "read[ing] an additional limitation into the claim, [which was] an error of law").

Second, Nova attempts to limit the claim term to a polymer made with a specific catalyst called a constrained geometry catalyst. Again, there is no language in the claim that can be construed as requiring a specific catalyst. This is not surprising given that Dow's claims cover a product, and not the process used to make that product. Dow uses a constrained geometry catalyst for its commercial ELITE™ Products. However, the features of the commercial product of the patentee are not relevant to claim construction. *See, e.g., Int'l Visual Corp. v. Crown Metal Co.*, 991 F.2d 768, 771-72 (Fed. Cir. 1993) (reversing claim construction based on "the patentee's commercial embodiment of the claimed invention").

Nova's arguments are nothing more than a blatant attempt to read limitations directly into the claims that do not exist there, in an effort to exclude its accused product from the scope of the claims. *See Purdue Pharma L.P. v. Endo Pharms. Inc.*, 438 F.3d 1123, 1136-37 (Fed. Cir. 2006) ("[W]ithout any specific claim language to interpret . . . the trial court impermissibly imported a limitation into the claims."); *see also Teleflex*, 299 F.3d at 1328; *Comark*, 156 F.3d at 1186. The Court should reject this effort and construe "ethylene interpolymer" in accordance with the patent definition and its ordinary meaning – as a polymer made from ethylene and at least one comonomer.

6. "linear polymer fraction as determined using a TREF technique"

This phrase appears in both independent claims of the '023 patent – claims 1 and 9.

Dow's Construction	**Nova's Construction**
a fraction that is neither highly branched nor medium branched	A polymer fraction that is neither branched nor highly branched, but is linear. This fraction is contained in, or derived from, a heterogeneously branched ethylene polymer.

Nova's construction suffers from a serious flaw: it is circular, using the term "linear" to define the disputed phrase "linear polymer fraction as determined using a TREF technique." This is not a permissible method of claim construction. *See, e.g.*, *Sparton Corp. v. United States*, 68 Fed. Cl. 34, 47 (2005) (explaining that when proposing a definition for a claim term "it is clearly improper" to use a circular definition, i.e., "one that uses the word that it attempts to define in the definition itself").

Nova's definition of "linear" also suffers from the defect that it requires that the polymer have no branching at all. Strikingly, it is plain from Nova's proposed construction of "homogenously branched linear ethylene/α-olefin interpolymer," as discussed above that Nova

agrees that the term "linear" can refer to a polymer having some branching in it. Indeed, the meaning of the term "linear" depends on the context in which it is used. Here, the only context in which the phrase "linear fraction" is used in the '023 patent is to refer to a fraction that includes lightly branched polymers.

Dow's proposed construction permits the polymer to be lightly branched. Dow once again draws its proposed construction entirely from the patent specification. The '023 patent uses the phrase "linear fraction" only once in the description of the invention, at column 8, line 59. That portion of the specification identifies a "linear fraction" in a polymer as determined using a TREF technique. Specifically, the '023 patent specification explains that one kind of heterogeneous polymer – LLDPE, exemplified by Dowlex® 2045 – "has a distinct peak at an elution temperature of about 98° C., indicating the 'linear' fraction of the whole polymer." (Exh. 2 at col. 8, ll. 58-60.) The reference to "elution temperature" refers to the "TREF technique" as recited in the claim term. The "distinct peak" at "about 98° C" for the "linear fraction" contains primarily polymer molecules that are lightly branched. (Soares Dec., ¶ 7.)

The specification refers to Dowlex® 2045 as having three fractions--a "highly branched" fraction, a "medium branched" fraction and an "essentially linear" fraction. (Exh. 2 at col. 8, ll. 22-37.) It is the essentially linear (lightly branched) fraction that the patent specification refers to the "linear fraction."

Accordingly, "linear fraction as used in the claim term "linear polymer fraction as determined using a TREF technique" does not mean completely lacking in branching. Instead, it refers to the fraction of the polymer as determined using the TREF technique that is not either heavily branched or medium branched. And even if, as Nova contends, there were some tension between the way that the patent uses the term "linear" and the way that the term is more

generally understood (which there is not), Dow is entitled as a matter of well-established patent law to be its own lexicographer, and to define a term so as to trump any garden-variety dictionary definition. *See Phillips*, 415 F.3d at 1316 (explaining that "the inventor's lexicography governs").[3] Indeed, this is why, under *Phillips*, the specification is given so much weight in the claim construction process. *See Phillips*, 415 F.3d at 1316; *see also Teleflex, Inc.*, 299 F.3d at 1325 (explaining that the specification can resolve ambiguous terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity").

For these reasons, Nova's unduly limiting construction cannot stand, and Dow's construction should be adopted.

V. CONCLUSION

For all of the foregoing reasons, Dow respectfully requests that this Court adopt Dow's proposed constructions of the disputed claim terms.

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3 *See also Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 805 (Fed. Cir. 2007) (a patent "specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess"); *Cross Medical Products, Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1305 (Fed. Cir. 2005) (explaining that the Court may "refer to the dictionary to begin understanding the ordinary meaning of . . . claim terms, 'so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents'" (quoting *Phillips*, 415 F.3d at 1322-23)).

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CERTIFICATE OF SERVICE

I, Rodger D. Smith II, hereby certify that on August 18, 2008, I electronically filed the foregoing with the Clerk of the Court using CM/ECF, which will send notification of such filing(s) to the following:

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I also certify that copies were caused to be served on August 18, 2008, upon the following in the manner indicated:

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