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) **JURY TRIAL DEMANDED** **PUBLIC VERSION**

NOVA'S OPENING CLAIM CONSTRUCTION BRIEF

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I. NATURE AND STAGE OF THE PROCEEDINGS

Dow Chemical Company ("Dow") has sued NOVA Chemicals Corporation and NOVA Chemicals Inc. ("NOVA") for allegedly infringing claims of U.S. Patent Nos. 5,847,053 ("the '053 patent," Ex. A)[1] and 6,111,023 ("the '023 patent," Ex. B). NOVA has denied infringement of the asserted claims,[2] and has counterclaimed, *inter alia*, that Dow's patent claims are invalid and unenforceable. Discovery is ongoing and a Markman hearing is scheduled for September 11, 2008.

Pursuant to the Scheduling Order (D.I. 113), NOVA submits this initial brief in support of NOVA's proposed construction of the disputed claim terms amenable to construction. NOVA also explains herein why the claim term "a slope of strain hardening coefficient of greater than or equal to 1.3" is **not** amenable to construction. If the Court agrees, the issue of claim construction for this term is potentially case-dispositive and NOVA will seek leave to file an appropriate motion for summary judgment. *See First Years, Inc. v. Munchkin, Inc.*, C.A. No. 07-cv-558-BBC, 2008 US Dist. LEXIS 31826, *15-16 (W.D. Wis. Apr. 15, 2008), Mod. 2008 U.S. Dist. LEXIS 39363 (W.D. May 13, 2008), where the Court stated:

> Defendant has requested this court simply to "decline to provide a construction" for the terms it believes to be indefinite, or in the alternative, rule invalid those claims in which the indefinite terms appear. Neither alternative is appropriate. Determinations of definiteness arise from the court's role as interpreter of patent claims and are therefore questions of law. *Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1378 (Fed. Cir. 1999). At the stage of claim construction, the court may do more

[1] References to "Ex. ___" refer to the exhibits contained in the Appendix in Support of NOVA's Opening Claim Construction Brief, filed contemporaneously herewith.

[2] To date, Dow has asserted claim 6 of the '053 patent and claim 1 of the '023 patent. (*See* Ex. C (Dow's Response to NOVA Interrogatory No. 1).) While Dow has stated in recent correspondence an intention to assert additional claims, they have not been specifically identified.

> than decline to construe terms that appear indefinite; it may determine whether a claim is "amenable to construction" as a matter of law. *Honeywell Int'l, Inc. v. ITC*, 341 F.3d [1332] at 1338 [(Fed. Cir. 2003)]. This is not the same as a ruling of invalidity; however, such a conclusion is an automatic ground for a finding of invalidity upon a later motion for summary judgment. *Id.* General principles of claim construction apply to determinations of definiteness. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347-48 (Fed. Cir. 2005).

II. SUMMARY OF ARGUMENT[3]

1. All claims of both patents-in-suit require a polymer component having "**a slope of strain hardening coefficient [SHC] greater than or equal to 1.3**." This claim term, however, is **not** amenable to construction because critical information, including a drawing relied on to define SHC, is missing from the patents-in-suit. For the limitation to have any meaning, it is necessary to know in what units—*e.g.*, pounds per square inch, gigapascales, pounds, kilograms, etc.—the SHC value is measured. To calculate SHC, one also must be able to determine the slope of a line parallel to the strain hardening region of a stress/strain curve measured on the polymer component. However, there are several different methods one can use to draw such a line and the patents-in-suit do not identify which method to use. Nor do they identify the units to plot on the stress/strain curve. Without this information, it is impossible to determine the slope of strain hardening, impossible to calculate SHC, and impossible to determine whether or not a material is covered by the claims. These defects render the claim term unconstruable.

2. "**Homogeneously branched linear ethylene α-olefin interpolymer**" in the '053 patent claims should be construed to mean: Ethylene α-olefin interpolymer in which the comonomer is randomly distributed within a given interpolymer molecule and wherein

[3] The terms NOVA proposes for construction and NOVA's constructions thereof are provided in chart format in Exhibit N hereto.

substantially all of the interpolymer molecules have the same ethylene/comonomer ratio within that interpolymer. Such interpolymer has a CBDI greater than about 30 percent and no long chain branching. Such interpolymer is not substantially linear as defined in the patent. (Ex. A, '053 patent, col. 3, ll. 28-40, 48-50.)

3. "**Heterogeneously branched linear ethylene polymer**" in the '053 claims should be construed to mean: Ethylene 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. (Ex. A, '053 patent, Fig. 2; col. 2, ll. 15-21; col. 7, l. 33 - col. 8, l. 9.)

4. "**Comprising**" is not a weasel word with which to abrogate claim limitations. Although "comprising" does not exclude additional unrecited elements, "comprising" cannot alter the limitations of the recited elements in the '053 claims.

5. "**(A) . . . at least one ethylene interpolymer**" in the '023 claims means at least one **substantially linear** ethylene polymer prepared from a catalyst with constrained geometry about the metal atom because during prosecution Dow argued the invention was so limited. Dow further disavowed a potential broader interpretation of the claims by remaining silent in the face of the Examiner's statement that he was allowing the '023 patent to issue because the prior art did not disclose blends comprising such substantially linear ethylene polymers prepared from a catalyst with constrained geometry about the metal atom.

6. "**(B) . . . ethylene polymer . . . comprising a linear polymer fraction**" in the '023 claims should be construed to mean: a (B) component that is a **heterogeneously branched** ethylene polymer and contains a polymer fraction that is neither branched nor highly branched

but is linear, as determined using a temperature rising elution fractionation (TREF) technique. (Ex. B, '023 patent, col. 2, ll. 48-50, 65-67; col. 8, ll. 29-31.)

III. STATEMENT OF FACTS

A. Common Specification of the Patents-in-Suit

The '053 and '023 patents-in-suit have a common specification, the subject matter of which "relates to compositions comprising specific ethylene/α-olefin polymer blends." (Ex. A ('053 patent), col. 1, ll. 26-27; Ex. B ('023 patent), col. 1, ll. 28-29.) The "SUMMARY OF THE INVENTION" section of the specification explains that these specific polymer blends comprise an "(A)" component and a "(B)" component, where the (A) component is defined as a homogeneously branched ethylene/α-olefin interpolymer that is either "**linear**" or "**substantially linear**" while the (B) component is a heterogeneously branched ethylene polymer. (Ex. A ('053 patent), col. 2, l. 24 - col. 3, l. 3; *see also* col. 1, ll. 25-35; Abstract.) The homogeneously branched "**linear**" and "**substantially linear**" polymers are mutually exclusive, with the substantially linear polymers having "long chain branching," as described in a prior patent (U.S. Patent No. 5,272,236 ("'236 patent")) that is incorporated in the specification of the patents-in-suit, and the "linear" polymers lacking such long chain branching. (Ex. A ('053 patent), col. 3, ll. 21-27, col. 4, ll. 11-12, 23-33; Ex. D ('236 patent), col. 3, ll. 47-50.)

B. Prosecution History of the '053 Patent

The '053 patent application was filed with two sets of claims. In one set, the (A) component of the polymer blend was "substantially linear." In the other set, the (A) component of the polymer blend was "linear." (Ex. E at E-032 to 87 (Certified File History of U.S. Patent No. 5,847,053 ("'053 pros. hist."), as-filed specification at 27-32).) At the outset of prosecution, applicants submitted a "PRE-EXAMINATION AMENDMENT" to, *inter alia*, "direct (by deletion of Claims 1-8) the claimed invention to the homogeneously branched **linear** ethylene α-

olefin species." (Ex. E at E-118 ('053 pros. hist., paper 3 at 6) (emphasis added).) All claims to the "substantially linear" (A) polymers were cancelled from the application.

In the first Office Action, the Examiner rejected all of the claims as anticipated by, or obvious over, U.S. Patent No. 5,408,004 ("Lai") or U.S. Patent No. 5,376,439 ("Hodgson"). (Ex. E at E-123 to 126 ('053 pros. hist., paper 4 at 3-6).) As part of his rationale, the Examiner maintained that there was a reasonable basis to believe that Lai's linear homogeneously branched polyethylene and Hodgson's copolymer "possess[] substantially the same value of the slope of strain hardening coefficient" and that, "[s]ince the PTO does not have proper means to conduct the analytical tests, the burden of proof is now shifted to Applicants to show otherwise." (*Id.* at E-142 and 125.)

In response, applicants submitted a photocopy of the Third Markovich Declaration, which had been originally submitted during the examination of a parent application. (Ex. E at E-159 to 66 ('053 pros. hist., paper 6).) The Declaration reported the Slope of Strain Hardening Coefficient (SHC) for nine different polymeric samples. (*Id.* at E-162 (Table 1).) However, as with the specification of the patents-in-suit, the Declaration did not identify the units of SHC, the units of slope of strain hardening, or the units of stress and strain for a stress/strain curve. Nor did the Declaration identify the method used for determining where to draw the line in the strain hardening region of the stress/strain curve to determine the scope of strain hardening.

Applicants also submitted Response A (Ex. E at E-141 to 56 ('053 pros. hist., paper 5)) in which they argued: (1) "the slope of strain hardening coefficient required by the present invention is <u>not</u> an inherent property of homogeneously branched ethylene polymers" (*Id.* at E-153 (emphasis in original)) and (2) "small slope of strain hardening differences between suitable and non-suitable component (A) polymers [resulted] in dramatic impact/toughness

improvements when blended with a suitable component (B)" (*Id.* at E-155). More specifically, applicants argued that Inventive Examples made from "component (a) polymers having SHC values within the claimed range at 1.5 and 1.7" had "substantially improved Dynatup impact performance and tear resistance relative to the comparative example," which was made from a component that had "a SHC value of 1.0." (*Id.*) As with the specifications of the patents-in-suit and the Third Markovich Declaration, Response A did not identify the units for the slope of strain hardening or the units of stress and strain of the stress/strain curve from which the slope had been derived. It also did not identify the method used for determining where to draw the line in the strain hardening region of the stress/strain curve to determine the slope of strain hardening.

In addition to the slope of strain hardening coefficient arguments, applicants contended that Lai was not prior art because applicants were entitled to an earlier priority date (*Id.* at E-142 to 52) and that Hodgson did not disclose "the required (B) component of the present invention" (*Id.* at E-153 to 55). The Examiner found these arguments convincing and issued a Notice of Allowance. (Ex. E at E-227 ('053 pros. hist., paper 8).)

C. Prosecution History of the '023 Patent

The application from which the '023 patent matured also was filed with two sets of claims—one set describing the (A) component as "**substantially linear**" and the other set referring to the (A) component as "**linear**." (Ex. F at F-035 to 40 (Certified File History of U.S. Patent No. 6,111,023 ("'023 pros. hist."), as-filed specification at 27-32).) In a "PRE-EXAMINATION AMENDMENT," applicants cancelled the linear (A) component claims explaining that they were "drawn to matter being examined under a related application," evidently referring to the application for the '053 patent which was pending at that time. (Ex. F at E-048 ('023 pros. hist., paper 2 at 4).)

In the REMARKS accompanying the PRE-EXAMINATION AMENDMENT, applicants explained that "the **present invention**" is "directed to **substantially linear** ethylene polymers." (*Id.* at F-053.) In that regard, applicants amended the specification to add information pertaining to the "critical shear stress and critical shear rate" for such substantially linear polymers from "parent application number 07/776,130 (now USP 5,272,236)." (*Id.*)

Applicants thereafter filed a SECOND PRE-EXAMINATION AMENDMENT cancelling the original claims and adding a new set of claims. Applicants explained that "New Claims 36-51 are reformulations that Applicants believe set forth only the essential features of their invention," but did not elaborate further or modify their previous representation that "the **present invention**" is "directed to **substantially linear** ethylene polymers." (Ex. F at F-076 ('023 pros. hist., paper 7 at 3) and F-053 (paper 2 at 4) (emphasis added).) With this amendment applicants submitted a copy of the Third Markovich Declaration, which provided test data for "Inventive Blend" Examples each containing "substantially linear" ethylene polymers. (Ex. F at F-081 ('023 pros. hist., Third Markovich Declaration, Table 1).)

In the first Office Action, the Examiner rejected all of the claims as anticipated by, or obvious over, prior patent publication WO 90/03414 ("WO '414"). (Ex. F at F-089 to 91 ('023 pros. hist., paper 8 at 2-4).) Applicants responded by arguing, *inter alia*, that "[t]he **present invention** is nonobvious over WO '414 because the **present invention** provides unexpected results." (Ex. F at F-152 to 53 ('023 pros. hist., paper 11 at 3-4) (emphasis added).) For the unexpected results of the invention, applicants directed the Examiner's attention to the Third Markovich Declaration and maintained that "this declaration provides a comparison between **Inventive Example ADI**, comparative Example BDI and **Inventive Example CDI** which clearly and convincingly demonstrates that **the present invention** provides unexpected results."

(*Id.* at F-152 (emphasis added).) As with all "inventive" examples in the Declaration, Inventive Examples ADI and CDI are both blends made from "**substantially linear**" ethylene polymer. (*See* Ex. F at F-081 to 82 ('023 pros. hist.), Third Markovich Declaration, Tables 1 and 2).)

Following applicants' response, the Examiner issued a Notice of Allowance. In the Notice of Allowance, the Examiner withdrew his rejection over WO '414. The Examiner explained his "Reasons for Allowance" by pointing out that, while blends comprising other homogeneously branched ethylene interpolymers were known, "the **substantially linear**/alpha olefin interpolymers of the **present invention** are herein defined as in copending application serial number 07/776,130, now U.S. Patent No. 5,272,236" and blends comprising:

> polymer prepared from a catalyst with constrained geometry about the metal atom as described in U.S. Patent No. 5,272,236 **[are] not disclosed by WO '414**. WO '414 discloses bridged metallocenes with a transition metal sandwiched between two cyclopentadienyl rings. It is known in the prior art that these two types of catalysts produce polyolefins with different properties.

(Ex. F at F-163 ('023 pros. hist., paper 13 at 4) (emphasis added).)

Thus, the Reasons for Allowance were the Examiner's understanding, consistent with applicants, repeated representations, that the claims were directed to blends comprising the "substantially linear" polymer prepared from a constrained geometry catalyst as described in U.S. Patent No. 5,272,236, polymers that were not disclosed by WO '414. Applicants did not respond to the Examiner's "Reasons for Allowance" or otherwise attempt to clarify or correct the Examiner's understanding of the claimed invention as being limited to blends of the distinct "substantially linear" polymer.

IV. ARGUMENT

A. Basic Principles of Claim Construction

"Claims 'must be read in view of the specification, of which they are a part.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (*en banc*). The specification "is the single best guide to the meaning of a disputed term." *Id.* Indeed, "[w]hen the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1478 (Fed. Cir. 1998).

"In addition to consulting the specification, . . . a court 'should also consider the patent's prosecution history . . . . '" *Phillips,* 415 F.3d at 1317. "The prosecution history . . . consists of the complete record of the proceedings before the PTO. . . . " *Id.* It "provides evidence of how the PTO and the inventor understood the patent." *Id.*

"[T]he Examiner's Statement of Reasons for Allowance may help show that the applicant's own arguments during prosecution constitute a clear disavowal of claim scope." *Salazar v. Proctor & Gamble Co.,* 414 F.3d 1342, 1346 (Fed. Cir. 2005) Moreover, "[w]hether the patentee chooses to dispute the examiner's view of matters is relevant to claim interpretation," because "in ascertaining the scope of an issued patent, the public is entitled to equate an inventor's acquiescence to the examiner's narrow view of patentable subject matter with abandonment of the rest." *Torpharm, Inc. v. Ranbaxy Pharms., Inc.*, 336 F.3d 1322, 1330 (Fed. Cir. 2003) "'[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection' for particular subject matter." *Fuji Photo Film Co., Ltd. v. ITC*, 386 F.3d 1095, 1100 (Fed. Cir. 2004).

"Because the claims perform the fundamental function of delineating the scope of the invention," the claims must be definite. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005). "The requirement of claim definiteness . . . assures that claims in a patent are 'sufficiently precise to permit a potential competitor to determine whether or not he is infringing.'" *Amgen Inc., v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1342 (Fed. Cir. 2003).

"Only claims 'not amenable to construction' or 'insolubly ambiguous' are indefinite." *Datamize*, 417 F.3d at 1347. "Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning." *Id.* "If the court determines that a claim is not 'amenable to construction' then the claim is invalid as indefinite under 35 U.S.C. § 112, ¶ 2." *Honeywell Int'l, Inc. v. ITC*, 341 F.3d 1332, 1338 (Fed. Cir. 2003).

B. Claim Terms Common to Both of the '053 and '023 Patents-In-Suit

1. "Slope of strain hardening coefficient of greater than or equal to 1.3"

All of the claims of the patents-in-suit require that component "(A)" have "a slope of strain hardening coefficient greater than or equal to 1.3." This claim term is not amenable to construction. Rather, it is insolubly ambiguous. Although the specification provides an equation for calculating the slope of strain hardening coefficient (SHC):

$$SHC = (\textbf{slope of strain hardening}) \bullet I_2^{0.25},$$

this equation is useless because no units are provided for SHC and one of the variables therein, the **slope of strain hardening**, is indeterminable. (Ex. G, Declaration of Dr. Charles Stanley Speed in Support of NOVA's Opening Claim Construction Brief ("Speed Declaration") ¶5-7.) Indeed, the intrinsic record of the patents-in-suit lacks two key pieces of information.

First, many different units of stress and strain could be used for SHC and slope of strain hardening yet the intrinsic record does not instruct one skilled in the art which units to use. (*Id.* at ¶7, 10-12, 18.) Depending on which units are used, the calculated SHC can vary greatly. (*Id.* at ¶18-23.) For example, if stress were measured in megapascales (MPa), the calculated SHC would be approximately 145 times less than if stress were measured in pounds per square inch (psi). (*Id.* at ¶18.) This difference is many times greater than the difference between SHC values for "suitable" (1.5 and 1.7) and "non-suitable" (1.0) polymers according to Dow's arguments made during prosecution of the patents-in-suit. (Ex. E at E-155 ('053 pros. hist., paper 5 at 15); Ex. F at F-152 ('023 pros. hist., paper 11 at 3).)

Second, the intrinsic record does not instruct one skilled in the art where to draw a line parallel to the strain hardening region of the stress/strain curve. (*E.g.*, Ex. G (Speed Declaration) ¶7, 8, 12 - 17.) In this regard, the specification states that "FIG. 1 shows the various stages of the stress/strain curve used to calculate the slope of strain hardening." (Ex. A ('053 patent), col. 6, ll. 40-41; Ex. B ('023 patent), col. 7, ll. 18-19.) However, this figure is missing from both patents. (D.I. 54 (Dow's Reply to Amended Counterclaims), Nos. 63 and 160.) Because this critical information is missing from the intrinsic record of the patents-in-suit, the slope of strain hardening cannot be determined and the SHC cannot be calculated. [redacted]

Without at least these pieces of missing information, a potential competitor cannot determine whether or not he is infringing because he will not know in what units the SHC must be greater than 1.3 and cannot plot the curve or draw the line to determine the slope of strain

hardening. Thus the potential competitors cannot apply the equation provided by the specification for determining whether the SHC is above or below 1.3.

The present case is directly analogous to the facts at issue in *Honeywell Int'l, Inc. v. ITC*, where the dispute focused on the method of measuring one claimed feature—the melting point elevation ("MPE"). 341 F.3d at 1335. All claims required that the yarn produced by the claimed process fall within a specified MPE range at a point during the process. *Id.* However, the patent's specification did not disclose any method to be used to prepare the yarn specimen for analysis and a number of different preparation conditions were possible. *Id.* at 1336. Depending on which sample preparation method was used, the calculated MPE for a given sample could vary greatly. *Id.*

"[B]ecause the sample preparation method [was deemed] critical to discerning whether a PET yarn has been produced by the claimed process," the Federal Circuit concluded that "knowing the proper sample preparation method is necessary to practice the invention." *Id.* at 1340. After reviewing the entire record, the Court determined that "the claims, the written description, and the prosecution history fail to give us, as interpreter of the claim term, any guidance as to what one of ordinary skill in the art would interpret the claim to require." *Id.* Accordingly, the Court held "that the claims are insolubly ambiguous, and hence indefinite, with respect to a required sample preparation method." *Id.*

Likewise, here the method for determining the slope of the strain hardening region of the stress/strain curve by drawing a parallel line and the units of stress and strain used to plot the stress/strain curve are critical to discerning whether a polymer falls within the claim. However, the written description does not disclose the units to be used for SHC, slope of strain hardening,

or a stress/strain curve and also does not disclose which method to use for drawing a line parallel to the strain hardening region.

[redacted] Significantly, as was the case in *Honeywell*, there are a number of different methods for drawing the line parallel to the strain hardening region of the stress/strain curve.[6]

[redacted]

[4] In fact, there are many different units for reporting stress and strain that could be plotted on a stress strain curve. (Ex. G (Speed Declaration) ¶10, 11, 18.)

[5] [redacted]

[6] [redacted]

[redacted]

Because the line drawing method and units of stress and strain are critical to discerning whether a polymer falls within the claims, knowing the proper line drawing method and the proper units of stress and strain is necessary to practice the invention. Since "the claims, the written description, and the prosecution history fail to give . . . any guidance as to what one of ordinary skill in the art would interpret the claim to require," "the claims are insolubly ambiguous, and hence indefinite," with respect to determining the slope of strain hardening variable needed to calculate whether or not a polymer satisfies the SHC limitation of the claims. *Honeywell*, 341 F.3d at 1340; *see also Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470 (Fed. Cir. 1993) ("Since the evidence shows that the claims at issue here are not sufficiently precise to permit a potential competitor to determine whether or not he is infringing, we also agree with the district court's determination that the claims are invalid for failure to satisfy the definiteness requirement of section 112, second paragraph."); *Amgen,* 314 F.3d at 1342 (Fed. Cir. 2003) ("That the court recognized that one of ordinary skill in the art would have been faced with this 'conundrum' should have ended the inquiry, for such ambiguity in claim scope is at the heart of the definiteness requirement of 35 U.S.C. § 112, ¶ 2. One cannot logically determine whether an accused product comes within the bounds of a claim of unascertainable scope.").

Dow argues that the claim term "slope of strain hardening coefficient [SHC] 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." (Ex. M at 2, 3 (Dow's Proposed Claim Constructions of August 11, 2008) (emphasis added).) Dow's proposed construction does not solve the conundrum. The units of SHC that are required to equal or exceed 1.3 are not identified by Dow's proposed definitions or disclosed in the patents-in-suit. Further, Dow's definition requires that "the **slope of strain hardening**" be determined in order to calculate the SHC. Dow's definition is therefore indefinite because, as explained above, the **slope of strain hardening** cannot be ascertained.

Because the SHC claim term is insolubly ambiguous, it is impossible to determine whether or not a polymer is covered by the claims. The SHC claim term is a limitation of all claims of each of the patents-in-suit, and this defect renders all claims of each of the patents-in-suit unconstruable. *Honeywell, supra*; *Morton, supra*; *Amgen, supra; First Years, Inc., supra.*[7]

C. '053 Patent Claim Terms

1. "homogeneously branched linear ethylene α-olefin interpolymer"

All claims of the '053 patent require an "(A)" component that is a "homogeneously branched linear α-olefin interpolymer." (Ex. A ('053 patent), cols. 15-16.) NOVA proposes that this term be construed to mean:

> **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**

[7] If the Court agrees that this SHC claim term is unconstruable, NOVA will seek leave to file a motion for summary judgment under the Court's pretrial procedures. *See*, *First Years*, *supra*, 2008 US Dist. LEXIS 31826, at *15-16.

> **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.**

NOVA's definition is taken directly from the '053 specification.

The '053 specification expressly states that "[t]he **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 the interpolymer**." (Ex. A ('053 patent), col. 3, ll. 29-35.) The specification continues by explaining that "**the homogeneity** of the interpolymers is typically described by the **SCBDI** (Short Chain Branch Distribution Index) or **CBDI** (Composition Distribution Branch Index)." (Ex. A ('053 patent), col. 3, ll. 35-37 (emphasis added).) The specification calls for a CDBI greater than or equal to 30 percent. (Ex. A, col. 3, ll. 48-51.) Additionally, the specification explains that "[t]he term **linear** ethylene/α-olefin interpolymer means that the interpolymer **does not have long chain branching**," and thus distinct from the **substantially linear** polymers. (Ex. A ('053 patent), col. 4, ll. 11-12, 26-33 (emphasis added); *see also* col. 33, ll. 7-14.)

Accordingly, as the following chart summarizes, each portion of NOVA's definition for the claim term "homogeneously branched linear ethylene α-olefin interpolymer" comes from the '053 specification:

NOVA's construction	**Source from '053 specification**
Ethylene α-olefin 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.	Ex. A ('053 patent), col. 3, ll. 29-35
Such interpolymer has a SCBDI or CDBI greater than about 30 percent	Ex. A ('053 patent), col. 3, ll. 35-51
and no long chain branching.	Ex. A ('053 patent), col. 4, ll. 11-12, 26-33
Such interpolymer is not "substantially linear" as defined in the patent.	Ex. A ('053 patent), col. 3, ll. 7-14; col. 4, ll. 26-33

Rather than construing the claim term "homogeneously branched linear ethylene α-olefin interpolymer" in its entirety, Dow proposes separate definitions for each of "homogeneously branched" and "linear ethylene/α-olefin interpolymer." Dow's separate definitions are confusing and incomplete, and contrary to the claim construction principle requiring consideration of the "entire patent." *Phillips*, 415 F.3d at 1313; *see also Cryovac Inc. v. Pechiney Plastic Packaging, Inc.*, 430 F. Supp. 2d 346 (D.Del. 2006) (rejecting a proposed claim construction that did not include the specification's complete definition of the claim term). Dow's separate definitions omit the specification requirements that: (1) "[t]he homogeneity of the [claimed] interpolymer" is "described by the SCBDI . . . or CDBI" (Ex. A, '053 patent, col. 3, ll. 36-50); and (2) the claimed interpolymer is distinct from "substantially linear" interpolymer (Ex. A, '053 patent, col. 3, ll. 7-14, col. 4, ll. 26-33).

As the Federal Circuit has explained, "[t]he 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." *Renishaw PLC v. Marposs Societa per Azioni*, 158 F.3d 1243,

1250 (Fed. Cir. 1998). Here, NOVA's construction stays true to the claim language by construing the claim term in its entirety. NOVA's construction also more naturally aligns with the patent's description of the invention because it includes the totality of the definition set forth in the specification. For these reasons, NOVA's construction of "homogeneously branched linear α-olefin interpolymer" should be adopted here.

2. "heterogeneously branched linear ethylene polymer"

All claims of the '053 patent also require a "(B)" component that is a "heterogeneously branched linear ethylene polymer." (Ex. A ('053 patent), cols. 15-16.) NOVA proposes that this term be construed to mean:

> **Ethylene 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.**

This NOVA definition is again based on the '053 specification.

Under the heading, "The Heterogeneously Branched Ethylene Polymer," (Ex. A, col. 7, line 27) the '053 specification explains that

> [h]eterogeneously branched ethylene/α-olefin interpolymers differ from the homogeneously branched ethylene/α-olefin interpolymers primarily **in their branching distribution**. For example, heterogeneously branched LLDPE [linear low density polyethylene] polymers have a **distribution of branching, including a highly branched portion** (similar to a very low density polyethylene), **a medium branched portion** (similar to a medium branched polyethylene), **and an essentially linear portion** (similar to linear homopolymer polyethylene). The amount of each of these fractions varies depending upon the whole polymer properties desired.

(*Id.* at col. 7, ll. 33-43 (emphasis added).) Thus, the specification discloses that the term "**heterogeneously branched linear ethylene polymer**" refers to polymer having a **different "branching distribution" than homogeneously branched polymer, "including a highly**

branched portion . . . , a medium branched portion . . . and an essentially linear portion." (*Id.* (emphasis added)) The patent expressly illustrates the differences in branching distribution of a heterogeneous polymer in Fig. 2 and explains that, in contrast to a homogeneously branched ethylene interpolymers, the heterogeneously branched ethylene/α-olefin "has a broad branching distribution, as represented [in Fig. 2] by the breadth of the elution temperatures over which the polymer fractions elute." (*Id.* at Fig. 2; col. 2, ll. 15-21; col. 7, l. 52 - col. 8, l. 4.)

Here too, instead of construing the claim term in its entirety, Dow proposes to construe the phrase "heterogeneously branched polymer," a phrase that does not appear as such in the claims. Again, Dow's definition is confusing and incomplete. Moreover, Dow's definition omits the specification's requirement that the heterogeneously branched linear ethylene polymer includes a "highly branched portion," a "medium branched portion" and an "essentially linear portion." (Ex. A ('053 patent), col. 7, ll. 37-41.)

Because NOVA's construction stays truer to the claim language (by construing the claim term in its entirety) and more naturally aligns with the patent's description of the invention (by incorporating the totality of the definitional description from the specification), it should be adopted by the Court. *Phillips*, *supra; Renishaw*, *supra.*

3. "comprising"

The claims of the '053 patent define the invention as a composition "**compris[ing]** (A) . . . and (B) . . ." NOVA proposes that this should be construed to mean:

> **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 requirement of element (B).**

This construction is consistent with the Federal Circuit's rules for construing the transitional term "comprising." That is, the term "comprising" "does not exclude additional unrecited elements." *Spectrum Int'l, Inc. v. Sterlite Corp.*, 164 F.3d 1372, 1380 (Fed. Cir. 1998). However, "comprising" cannot alter the limitations in the recited elements. *Id.* ("'comprising' is not a weasel word with which to abrogate claim limitations.")

A good illustration of the application of this rule is *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 1382-83 (Fed. Cir. 2000). In *Jeneric/Pentron*, after the transitional term "comprising," the claims recited "0-1%" cerium oxide (CeO_2). *Id.* at 1379. The accused composition included 1.61% CeO_2. *Id.* at 1382. The patentee contended that this composition fell within the claims because the total amount of CeO_2 was separated into two components – one component containing 0.92% CeO_2 that fell within the claim 0 - 1 % range. *Id.* The patentee asserted that the other component containing 0.69% CeO_2 was an unrecited element permitted by the transitional term "comprising." *Id.* The Federal Circuit rejected that argument "because it would read out of claim 1 the express claim ranges." *Id.* at 1383.

Similarly, in the present case the claims include express limitations on the homogeneously branched polymer (A) and the heterogeneously branched polymer (B). For example, the homogeneously branched polymer (A) must have "a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.935 g/cm^3." (Ex. A ('053 patent), col. 15, ll. 38-39.) As was the case in *Jeneric/Pentron*, this express claim range for density means that all homogeneously branched polymer in the composition must have a density within this range. Just as the term "comprising" did not alter the express claim range for CeO_2 content in *Jeneric/Pentron*, it cannot alter the express claim range for the density of the homogeneously

branched polymers here to allow "additional" homogeneously branched polymer having a different density.

Dow offers only a limited construction for the term "comprising," which ignores the Federal Circuit rules for construing the transitional term "comprising" set forth in *Spectrum*, *supra,* and *Jeneric/Pentron*, *supra*. NOVA agrees that the claimed composition may include unrecited elements. However, all of the homogeneously branched polymer therein must satisfy the recited parameters for the homogeneously branched polymer set forth in the claim for component (A) and all of the heterogeneously branched polymer therein must satisfy the recited parameters for the heterogeneously branched polymer set forth in the claim for component (B). Otherwise, the term "comprising" would read out of the claims the express claim ranges for these components of the claimed composition. This is not permitted under the Federal Circuit's rules for construing "comprising." *Spectrum*, *supra; Jeneric/Pentron*, *supra.*

D. '023 Patent Claim Terms

1. "(A) . . . at least one ethylene interpolymer . . . . "

The claims of the '023 patent require "an ethylene polymer composition comprising (A) . . . at least one **ethylene interpolymer**." (Ex. B ('023 patent), cols. 15-18.) NOVA proposes that this claim language be construed to mean:

> **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.**

NOVA's construction is based on the prosecution history of the '023 patent as detailed at pages 7-9, *supra*.

During prosecution, Dow told the examiner that "the **present invention**" is directed to **substantially linear ethylene polymers**." (Ex. F at F-053 ('023 pros. hist., paper 2 at 9) (emphasis added).) In support of the patentability of this application, Dow submitted the Third

Markovich Declaration, which provided comparative data for polymer blends made from **substantially linear ethylene polymers**. (Ex. F at F-078 to 085, at 081 ('023 pros. hist., Third Markovich Declaration, Table 1).) Dow argued that "this declaration provides a comparison between **Inventive Example ADI**, comparative Example BDI and **Inventive Example CDI** which clearly and convincingly demonstrates that **the present invention** provides unexpected results." (Ex. F at F-152 ('023 pros. hist., paper 11 at 3).) Both of **Inventive Examples ADI** and **CDI** are polymer blends made from **substantially linear** ethylene polymer. (*See* Ex. F at F-081, 082 ('023 pros. hist., Third Markovich Declaration, Tables 1 and 2).) In his statement of his Reasons for Allowance, the Examiner indicated his understanding that the claims were directed to "**substantially linear**" ethylene polymers. (Ex. F at F-163 ('023 pros. hist., paper 13 at 4).) The Examiner explained that he was allowing the patent to issue because the prior art did not disclose blends comprising such substantially linear ethylene polymers, *i.e.*, "polymer prepared from a catalyst with constrained geometry about the metal atom as described in U.S. Patent No. 5,272,236," and that such polymers produced by constrained geometry catalyst, have "different properties" than homogeneously branched ethylene polymers produced from other catalysts. (*Id.*) Dow did not respond to this statement.

These facts are very similar to those before the Federal Circuit in *Elkay Mfg. Co. v. EBCO Mfg. Co.*, 192 F.3d 973, 978-79 (Fed. Cir. 1999). In that case, the patent owner, Elkay, distinguished the prior art on the basis of the prior art's use of separate feeding tubes for liquid and air. In the Examiner's Statement of Reasons for Allowance, the Examiner indicated that he was allowing claim 22 because he understood the claim to describe a single feed tube with a single flow path for both liquid and air. Elkay did not respond to this statement during prosecution. The Federal Circuit concluded from this that "Elkay disavowed a potential

interpretation . . . that would include separate feed tubes or flow paths for liquid and air." *Id.* at 979. In rejecting the patentee's argument that the claim language did not contain recitations expressly requiring a single feed tube with a single flow path for liquid and air, the Court explained that "[a]rguments made during the prosecution of a patent application are given the same weight as claim amendments." *Id.*

Likewise, here it does not matter that the claims do not expressly include the words "substantially linear" because Dow argued during prosecution that the "present invention" was so limited. (Ex. F at F-053 ('023 pros. hist., paper 2 at 9) and F-152 (paper 11 at 3).) As in *Elkay*, Dow further disavowed a potential broader interpretation of the claims by remaining silent in the face of the Examiner's statement (Ex. F at 163) that he was allowing the patent to issue because the prior art did not disclose blends comprising substantially linear ethylene polymers formed from constrained geometry catalysts according to the '236 patent.

"Patent examination would serve little purpose unless the scope of the exclusive patent right correlated with the matter allowed by the PTO." *Torpharm*, 336 F.3d at 1330. "[I]n ascertaining the scope of an issued patent, the public is entitled to equate an inventor's acquiescence to the examiner's narrow view of patentable subject matter with abandonment of the rest." *Id.* "'[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection' for particular subject matter." *Fuji*, 386 F.3d at 1100.

Here, Dow had an opportunity to respond to the Examiner but did not. NOVA is entitled to equate Dow's acquiescence to the examiner's view of patentable subject matter with abandonment of different claim scope. Accordingly, precedent and policy dictate construing the claims of the '023 as being limited to substantially linear ethylene polymer, as described in U.S.

Patent No. 5,272,236. Only then will "the scope of the exclusive patent right correlate[ ] with the matter allowed by the PTO." *Torpharm*, 336 F.3d at 1330.

2. "(B) . . . ethylene polymer . . . comprising a linear polymer[8] fraction"

The claims of the '023 patent also require a "(B)" component that is referred to as being an "ethylene polymer. . .comprising a linear polymer fraction." (Ex. B ('023 patent), col. 16, ll. 33-39.) NOVA proposes that this claim term be construed to be limited to:

> **heterogeneously branched ethylene polymer containing a polymer fraction that is neither branched nor highly branched, but is linear.**

NOVA bases this construction on the '023 specification.

The SUMMARY OF THE INVENTION section of the '023 specification first describes the compositions of the invention as comprising an "(A)" component that is "homogeneously branched substantially linear ethylene/α-olefin interpolymer" and a "(B)" component that is "**heterogeneously branched ethylene polymer**." (Ex. B ('023 patent), col. 2, ll. 25-49 (emphasis added).) The SUMMARY OF THE INVENTION section then adds that "[i]n another aspect the compositions comprise" an "(A)" component that is "homogeneously branched linear ethylene/α-olefin" and a "(B)" component that is "**heterogeneously branched ethylene polymer**." (Ex. B ('023 patent), col. 2, ll. 50-67 (emphasis added).) Thus, although the "(A)" component changes between the two different compositions of the invention, the "(B)" remains constant. Indeed, in the SUMMARY OF THE INVENTION section of the '023 patent the "(B)" component is described only as "**heterogeneously branched** ethylene polymer."

This description of the SUMMARY OF THE INVENTION is consistent with the rest of the specification, which includes a separate section entitled "**THE HETEROGENEOUSLY**

[8] The claim requirement that the linear fraction be "as determined using a temperature rising elution fractionation (TREF) technique" is not disputed between the parties.

BRANCHED ETHYLENE POLYMER." (Ex. B ('023 patent), col. 8, ll. 11-12 (emphasis added).) This portion of the specification starts off by explaining that "[t]he **ethylene polymer** to be combined with the homogeneous ethylene/α-olefin interpolymer **is a heterogeneously branched** (e.g., Ziegler polymerized) interpolymer of ethylene . . . ." (Ex. B ('023 patent), col. 8, ll. 14-18 (emphasis added).) In view of these specification descriptions of the overall invention as comprising a "(B)" component that is "**heterogeneously branched** ethylene polymer," the term "(B) . . . ethylene polymer" should be construed to mean a heterogeneously branched ethylene polymer in the claims of the '023 patent.

As the Federal Circuit explained in *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004), "[s]tatements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term" and that "[s]tatements that describe the invention as a whole are more likely to be found in certain sections of the specification, such as the Summary of the Invention." *Id.* Accordingly, in *C.R. Bard*, the Federal Circuit construed the claim term "implantable prosthesis" to be limited to an implant that includes a pleated surface because the Summary of the Invention stated that "[t]he present invention is an implantable prosthesis" and "that '*[t]he implant includes a pleated surface.*'" *Id.* (emphasis in original).

Similarly, in *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340 (Fed. Cir. 2004) the Federal Circuit restricted "sending," "transmitting," and "receiving" limitations in the claims to communications over a telephone line because statements in the specification, including statements from the Summary of the Invention, described the invention as being limited to communications over a telephone line. The Court reasoned that "[t]hose statements, some of which are found in the 'Summary of the Invention' portion of the specification, are not limited to

describing a preferred embodiment but more broadly describe the overall inventions." *Id.* at 1348.

As was the case in *C.R. Bard* and *Microsoft*, here the statements from the '023 specification, including those found in the SUMMARY OF THE INVENTION portion, are not limited to describing a preferred embodiment. Rather, they more broadly describe the overall invention as having a component "(B)" that is a "**heterogeneously branched** ethylene polymer."

The claims of the '023 patent also require that the "(B)" component comprise "a **linear polymer fraction**, as determined using temperature rising elution fractionation (TREF) technique." (Ex. B ('023 patent), col. 16, ll. 37-39 (emphasis added).) The meaning of this term in found under the heading "THE HETEROGENEOUSLY BRANCHED ETHYLENE POLYMER," where the '023 specification discloses that the heterogeneously branched ethylene polymer has "a distribution of branching, including a highly branched portion . . . , a medium branched portion . . . , and an essentially **linear** portion (similar to **linear** homopolymer polyethylene)." (*Id.* at col. 8, ll. 23-27 (emphasis added).) The specification elaborates that this essentially linear portion of the heterogeneously branched polymer "**has neither branched nor highly branched fractions, but is linear.**" (*Id.* at col. 8, ll. 29-31 (emphasis added).) Thereafter, the specification refers to this essentially "**linear**" portion of the heterogeneously branched ethylene polymer as "**the 'linear' fraction of the whole polymer.**" (*Id.*, col. 8, ll. 57-60 ("Dowlex® 2045 has a distinct peak at an elution temperature of about 98°C, **indicating the 'linear' fraction of the whole polymer.**") (emphasis added).)

Based on this description from the '023 specification, the claim term "linear polymer fraction, as determined using temperature rising elution fractionation (TREF) technique" refers

to the portion of the heterogeneously branched ethylene polymer that is "linear," *i.e.*, "has neither branched nor highly branched fractions." (*Id.* col. 8, ll. 29-31.)

Rather than construe what this claim term covers, Dow opts to define the term by what it does not cover. Dow proposes that the claim term be defined as a "fraction that is neither highly branched nor medium branched." Thus Dow seeks to cover any fraction with a low level of branching. But, Dow's claims are limited to "linear," which means no branching.

Accordingly, there are two principle flaws with Dow's approach. First, Dow's definition ignores the express disclosure of the specification that the linear portion "**has neither branched nor highly branched fractions, but is linear**." (Ex. B ('023 patent), col. 8, ll. 29-31.) Second, Dow's definition ignores the fact that this "fraction" is a fraction contained in a heterogeneously branched ethylene polymer. Indeed the entire description of this "fraction" falls under the heading "**THE HETEROGENEOUSLY BRANCHED ETHYLENE POLYMER**." (Ex. B ('023 patent), col. 8.)

As the Federal Circuit has explained, in construing a claim term the Court must look to the "entire patent." *Phillips*, 415 F.3d at 1313. Considering the entire '023 patent (Ex. B), including the heading "**THE HETEROGENEOUSLY BRANCHED ETHYLENE POLYMER**" (col. 8, ll. 11-12), the explanation thereunder that such material has a "'**linear**' fraction of the whole polymer," (col. 8, ll. 57-60 (emphasis added)) and the express statement that "linear homopolymer polyethylene **has neither branched nor highly branched fractions but is linear**" (col. 8, ll. 29-31 (emphasis added)) informs one skilled in the art that the claimed "linear polymer fraction" is neither branched nor highly branched but is linear and contained in a heterogeneously branched ethylene polymer.

Thus, NOVA's construction more naturally aligns with the **entire** patent's description of the invention. Accordingly, it should be adopted here. *Phillips*, *supra*; *Renishaw*, *supra*.

V. CONCLUSION

For the reasons set forth here, the Court should find that the claim term, "a slope of strain hardening coefficient of greater than or equal to 1.3" is not amenable to construction. For the remaining disputed claim terms, the Court should adopt the claim constructions proposed by NOVA.

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

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