EXHIBIT B

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**

AMENDED ANSWER AND COUNTERCLAIMS OF DEFENDANTS NOVA CHEMICALS CORPORATION AND NOVA CHEMICALS INC.

Defendants NOVA Chemicals Corporation, and NOVA Chemicals Inc. (collectively "NOVA") file this Amended Answer and Counterclaims in response to the Complaint dated October 21, 2005, filed by Plaintiff The Dow Chemical Company ("Dow").

ANSWER

PARTIES

1. Dow is a corporation organized under the laws of Delaware with a principal place of business at 2030 Dow Center, Midland, Michigan 48674.

Answer: Upon information and belief, NOVA admits the allegations of paragraph 1 of the Complaint.

2. On information and belief, NOVA Chemicals Corporation is a corporation organized under the laws of Canada with a principal place of business at 1000 Seventh Avenue S.W., Calgary, Alberta T2P SC6, Canada.

Answer: NOVA admits the allegations of paragraph 2 of the Complaint.

3. Shares of NOVA Chemicals Corporation are traded on the New York Stock Exchange under the stock ticker symbol NCX.

Answer: NOVA admits the allegations of paragraph 3 of the Complaint.

4. NOVA Chemicals Corporation manufactures chemicals, including polyethylene and other products.

Answer: NOVA admits the allegations of paragraph 4 of the Complaint.

5. On information and belief, NOVA Chemicals Corporation either directly or indirectly imports into, sells, and/or offers for sale its products in Delaware and elsewhere in the United States.

Answer: NOVA admits the allegations of paragraph 5 of the Complaint.

6. On information and belief, NOVA Chemicals Inc. is a corporation organized under the laws of Delaware with a principal place of business at Westpointe Center, 1550 Caraopolis Heights Road, Moon Township, Pennsylvania 15108.

Answer: NOVA admits the allegations of paragraph 6 of the Complaint.

7. On information and belief, NOVA Chemicals Inc. is a subsidiary of NOVA Chemicals Corporation.

Answer: NOVA admits the allegations of paragraph 7 of the Complaint.

8. On information and belief, NOVA Chemicals Inc. manufactures chemicals that are sold and offered for sale in Delaware and elsewhere in the United States.

Answer: NOVA admits the allegations of paragraph 8 of the Complaint.

9. Collectively, defendants have United States manufacturing sites in the following United States locations: Bayport, Texas; Monaca, Pennsylvania; Belpre, Ohio; Chesapeake, Virginia; Decatur, Alabama; Painesville, Ohio; Indian Orchard, Massachusetts; and Channelview, Texas.

Answer: NOVA admits having United States manufacturing sites in Monaca, Pennsylvania; Chesapeake, Virginia; Painesville, Ohio; and Channelview, Texas, but otherwise denies the allegations of paragraph 9 of the Complaint.

10. NOVA Chemicals Inc. is authorized to do business, is doing business, and/or has a regular and established place of business in this judicial district, is incorporated in Delaware, and has committed acts of infringement in this District.

Answer: NOVA admits that NOVA Chemicals Inc. is authorized to do business, is doing business, or has a regular and established place of business in this judicial district, and is incorporated in the State of Delaware. NOVA otherwise denies the allegations of

paragraph 10 of the Complaint and specifically denies that it has committed acts of infringement in this District or elsewhere.

JURISDICTION AND VENUE

11. This patent infringement action arises under the patent laws of the United States of America, 35 U.S.C. § 101 et seq. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

Answer: NOVA admits that Dow alleges in paragraph 11 of the Complaint that this is an action for infringement arising under the patent laws of the United States, Title 35, United States Code. NOVA admits that the Court has subject matter jurisdiction over this action.

12. This Court has personal jurisdiction over defendants based on the above allegations.

Answer: NOVA admits that it is subject to personal jurisdiction in this District.

13. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b), (c), and (d) and 1400(b) based on the above allegations.

Answer: NOVA admits that venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391 and 1400(b).

THE PATENTS IN SUIT

14. On December 8, 1998, United States Patent No. 5,847,053 ("the '053 patent") was duly and legally issued to Dow for an invention entitled "Ethylene Polymer Film Made From Ethylene Polymer Blends"; and since that date Dow has been and still is the owner of the '053 patent. A copy of the '053 patent is attached hereto as Exhibit A.

Answer: NOVA admits that United States Patent No. 5,847,053 ("the '053 patent") is entitled "Ethylene Polymer Film Made From Ethylene Polymer Blends," has an issue date of December 8, 1998, was issued with Dow identified as the assignee, and, on information and belief, that Dow remains the owner of the '053 patent. NOVA admits that Exhibit A of the complaint contains a copy of the '053 patent. NOVA otherwise denies the

allegations of paragraph 14 of the Complaint and specifically denies that the '053 patent was duly and legally issued.

15. On August 29, 2000, United States Patent No. 6,111,023 ("the '023 patent") was duly and legally issued to Dow for an invention entitled "Fabricated Articles Made From Ethylene Polymer Blends"; and since that date Dow has been and still is the owner of the '023 patent. A copy of the '023 patent is attached hereto as Exhibit B.

Answer: NOVA admits that United States Patent No. 6,111,023 ("the '023 patent") is entitled "Fabricated Articles Made From Ethylene Polymer Blends," has an issue date of August 29, 2000, was issued with Dow identified as the assignee, and, on information and belief, that Dow remains the owner of the '023 patent. NOVA admits that Exhibit B of the complaint contains a copy of the '023 patent. NOVA otherwise denies the allegations of paragraph 14 of the Complaint and specifically denies that the '023 patent was duly and legally issued.

ALLEGED INFRINGEMENT OF THE PATENTS IN SUIT

16. Since around the spring of 2003, defendants have been and still are infringing the '053 patent and the '023 patent directly, contributorily, and/or by inducing others to infringe by making, selling, offering for sale, using and/or importing into the United States ethylene polymer blend products, specifically defendants' SURPASS line of polyethylene products, that embody the patented inventions.

Answer: NOVA denies the allegations of paragraph 16 of the Complaint.

17. Defendants will continue to infringe the '053 patent and the '023 patent unless enjoined by this court.

Answer: NOVA denies the allegations of paragraph 17 of the Complaint.

18. On information and belief, defendants' infringement of the '053 patent and the '023 patent has been and is knowing and willful.

Answer: NOVA denies the allegations of paragraph 18 of the Complaint.

FIRST DEFENSE - NO INFRINGEMENT

NOVA has not made, used, sold and/or offered to sell in this country, and/or imported into this country any SURPASS® polyethylene products that are within the claims of the '053 patent and thus has not infringed and is not infringing any claim of the '053 patent, either directly, contributorily, and/or by inducement.

NOVA has not made, used, sold and/or offered to sell in this country, and/or imported into this country any SURPASS® polyethylene products that are within the claims of the '023 patent and thus has not infringed and is not infringing any claim of the '023 patent, either directly, contributorily, and/or by inducement.

SECOND DEFENSE - INVALIDITY

The '053 patent is invalid for failure to comply with the conditions for patentability specified by 35 U.S.C. § 101 *et seq.*, including sections 102, 103, 111, 112, and/or 113.

The '023 patent is invalid for failure to comply with the conditions for patentability specified by 35 U.S.C. § 101 *et seq.*, including sections 102, 103, 111, 112, and/or 113.

THIRD DEFENSE - MARKING

Upon information and belief, Dow, and/or its licensees failed to comply with 35 U.S.C. § 287 in connection with the making, offering for sale, and/or selling of products covered by the '053 patent by failing to mark those products with the number of the '053 patent.

Upon information and belief, Dow and/or their licensees failed to comply with 35 U.S.C. § 287 in connection with the making, offering for sale, and/or selling of products covered by the '023 patent by failing to mark those products with the number of the '023 patent.

FOURTH DEFENSE - UNENFORCEABILITY

The '053 patent was procured with inequitable conduct and is unenforceable for this reason. The bases for unenforceability are described in paragraphs 14 - 214, 255 - 274, and 320 - 330 of NOVA's counterclaims, which are incorporated herein by reference.

The '023 patent was procured with inequitable conduct and is unenforceable for this reason. The bases for unenforceability are described in paragraphs 14 - 214, 302 - 318, and 331 - 351 of NOVA's counterclaims, which are incorporated herein by reference.

RIGHT TO ASSERT ADDITIONAL DEFENSES

NOVA's investigations into the allegations set forth in Dow's Complaint are ongoing and discovery has ~~not yet~~only just commenced. NOVA expressly reserves the right to assert and pursue additional defenses.

COUNTERCLAIMS

Counterclaim Plaintiffs, NOVA Chemicals Corporation (Canada) and NOVA Chemicals Inc. (Delaware), collectively "NOVA," for its Counterclaims against Counterclaim Defendant, The Dow Chemical Company ("DOW"), allege as follows:

NATURE OF THE COUNTERCLAIMS

1. Pursuant to its Complaint in this case Dow purports to seek to hold NOVA liable for allegedly infringing upon United States Patent No. 5,847,053, entitled "Ethylene Polymer Film Made From Ethylene Polymer Blends," which was issued to Dow on December 8, 1998 (the "'053 patent") and United States Patent No. 6,111,023, entitled "Fabricated Articles Made From Ethylene Polymer Blends", which was issued to Dow on August 29, 2000 (the "'023 patent").

2. NOVA brings this Counterclaim for declaratory judgments that it has not infringed and is not infringing either the '053 patent or the '023 patent, either directly, contributorily or by inducement.

3. Further, NOVA brings this Counterclaim for declaratory judgments that both the '053 patent and the '023 patents are invalid because they fail to comply with the conditions for patentability specified by 35 U.S.C. §§ 101, *et seq.*, including failing adequately to enable the practice of the claimed inventions.

4. In addition, NOVA brings this Counterclaim for declaratory judgments that neither the '053 nor the '023 patent is enforceable because of the inequitable conduct before the United States Patent and Trademark Office ("USPTO") of Dow and its employees who were involved in the prosecution leading to the patents-in-suit. On information and belief, Dow and its employees, on multiple occasions, intentionally deceived and misled the USPTO by misrepresenting material facts with respect to the patent applications which led to these patents, and their predecessors, by deceiving the Examiner with respect to material facts, and by withholding from the Examiner material information.

5. Furthermore, NOVA seeks treble damages and injunctive and declaratory relief for Dow's attempt to monopolize the sale of linear low density, single site catalyzed ("SSC") polyethylene resins containing from 100% to at least 25% homogeneous linear low density ethylene-octene co-polymer for use in film resins (hereinafter referred to by the shorthand term "SSC C8 Polymers") and the licensing of technology for the production of polyethylene resins capable of utilizing a homogeneous catalyst in a solution phase process ("Solution Phase Technology"). Dow's current attempt to monopolize these markets by intentionally practicing fraud upon the USPTO in procuring the patents in suit and by pursuing this litigation despite

Dow's knowledge (i) that there is no infringement of either the '053 patent or the '023 patent; (ii) that neither patent is valid; and (iii) that neither patent is enforceable is a continuation of an overall scheme to eliminate competition in the manufacture and sale of SSC C8 Polymer products and the development, use and licensing of related Solution Phase Technology.

THE PARTIES ~~AND JURISDICTION~~

6. ~~1.~~ NOVA Chemicals Corporation is a corporation organized under the laws of Canada with a principal place of business at 1000 Seventh Avenue S.W., Calgary, Alberta T2P SC6, Canada.

7. ~~2.~~ NOVA Chemicals Inc. is a corporation organized under the laws of Delaware with a principal place of business at Westpointe Center, 1550 Coraopolis Heights Road, Moon Township, Pennsylvania 15108.

8. ~~3.~~ On information and belief, Dow is a corporation organized under the laws of Delaware with a principal place of business at 2030 Dow Center, Midland, Michigan 48674.

~~4. This Court has jurisdiction over these Counterclaims pursuant to at least 28 U.S.C. §§ 1331, 1338, 1367, and 2201.~~

~~5. [Dow is subject to personal jurisdiction in]this judicial district for the present Counterclaims, at least because it commenced the present action and because, upon information and belief, it is a Delaware corporation.~~

JURISDICTION, VENUE AND INTERSTATE COMMERCE

9. ~~6. These Counterclaims are~~NOVA brings this action for declaratory judgment ~~relief arising under 28 U.S.C. §§ 2201 and 2202, and the patent law~~, treble damages, attorneys' fees and costs, permanent injunctive relief and punitive damages against Dow pursuant to the patent laws of the United States, 35 U.S.C. ~~§ 101 *et seq.*~~§§ 101 *et seq.*, Section 2 of the Sherman Act (15 U.S.C. §2), and Section 4(a) of the Clayton Act (15 U.S.C. §15(a)). This Court has

subject matter jurisdiction pursuant to 15 U.S.C. §§15(a) and 26 and 28 U.S.C. §§1331, 1337 and 1367.

~~COUNTERCLAIM I: DECLARATORY JUDGMENT OF NO INFRINGEMENT OF THE '053 PATENT~~

~~7. NOVA adopts and incorporates in this Counterclaim paragraphs 1 - 6 above, as if set forth herein.~~

~~8. Claim 1 of the '053 patent is addressed to a "film made from~~

10. On October 21, 2005, Dow sued NOVA in this judicial District for allegedly infringing the '053 and '023 patents. NOVA admits that this Court had subject matter jurisdiction over such claims of infringement pursuant to 28 U.S.C. §§2201 et seq., 1331, 1337(a), 1338(a) and 1367.

11. Dow is incorporated in the State of Delaware, has a regular or established place of business in the State of Delaware, is authorized to do business and is doing business in the State of Delaware and has committed in the State of Delaware acts giving rise to the claims asserted herein. Therefore, Dow is subject to personal jurisdiction in the State of Delaware.

12. Venue is proper in the judicial district pursuant to 15 U.S.C. §§15(a), 22 and 26, as well as 28 U.S.C. §1391(b) in that Dow resides in the judicial district and a substantial part of the events giving rise to the claims asserted herein occurred in this judicial district. Venue is also properly based upon Dow's having brought an action against NOVA in this judicial district.

13. Dow is engaged in the sale of polyethylene resins for film products, including SSC C8 Polymers, in the interstate and foreign commerce of the United States ("Commerce"), as is NOVA. Further, Dow and NOVA are both engaged in Commerce in the licensing of, offering for license or otherwise exploiting, Solution Phase Technology. Dow has undertaken in the course of Commerce wrongful acts which constitute an attempt to monopolize the sale of SSC

C8 Polymers and the licensing of Solution Phase Technology. Dow's anticompetitive conduct has restrained and interfered with Commerce in the sale of such resins and the licensing of such technology.

Consolidated Statement Of Facts

(1) Dow's Patent Applications And Patents

14. Commencing in 1991, Dow filed a series of related patent applications leading to the '053 and '023 patents in suit. The initial application and those leading or related to the '053 and '023 patents in suit include:

Filing Date	App. No.	Issue Date	Patent No. or Status	Priority claim
Oct. 15, 1991	07/776,130 ("'130 application")	Dec. 21, 1993	5,272,236 ("'236 patent)	
Apr. 28, 1993	08/054,379 ("'379 application")	n/a	abandoned	Continuation-in-part of 07/776,130
Jan. 27, 1995	08/378,998 ("'998 application")	n/a	abandoned	continuation of 08/054,379
Oct. 18, 1995	08/544,497 ("'497 application")	Oct. 14, 1997	5,677,383 ("'383 patent)	continuation of 08/378,998
Apr. 11, 1997	08/834,050 ("'050 application")	Dec. 8, 1998	5,847,053 ("'053 patent")	continuation of 08/544,497
Aug. 27, 1997	08/927,393 ("'393 application")	Aug. 29, 2000	6,111,023 ("'023 patent)	continuation of 08/544,497
Nov. 1, 1999	09/430,919 ("'919 application")	Apr. 20, 2004	6,723,398 ("'398 patent")	No claim of priority at time of filing; claim of priority to 08/927,393 added after issuance of '023 patent, then deleted by Certificate of Correction

In total, Dow has more than 60 United States patents or patent applications claiming priority to its October 15, 1991, Application No. 07/776,130, including an application filed as recently as February 1, 2005.

The '379 Application

15. U.S. Serial No. 08/054,379, filed April 28, 1993 ("the '379 Application") claimed, *inter alia*, an ethylene polymer composition~~," the composition comprising, *inter alia*, "at least one heterogeneously branched linear ethylene polymer having a density from about 0.93 g/cm^3 to about 0.965g/cm^3."~~ formulated from at least two polymers, one termed Component A and the other Component B for the purposes of these counterclaims.

16. The '379 Application refers in its disclosure to a newly identified parameter denominated the "slope of strain hardening coefficient," which is abbreviated "SHC," as an alleged polymer property.

17. The USPTO Examiner examining the '379 Application, David Wu, initially rejected the claims on multiple grounds, including:

(a) anticipation under 35 U.S.C. § 102 by or, in the alternative, obviousness under 35 U.S.C. § 103 over WIPO published application number WO 90/30414 ("WO '414"); and

(b) obviousness under 35 U.S.C. § 103 over Hodgson U.S. Patent No. 5,206,075 ("Hodgson '075").

18. In arguing against the rejection based on Hodgson '075, Dow added a limitation based on SHC to Component B of each of the independent claims, 1 and 17.

19. The USPTO issued a final action in which the rejection based on WO '414 was repeated, but the rejection based on Hodgson '075 was overcome by the addition of the SHC limitation to Component B.

The '998 Application

20. The '379 Application was abandoned in favor of a continuation application, U.S. Serial No. 08/378,998, filed January 27, 1995 ("the '998 Application").

21. Examiner Wu initially rejected the claims of the '998 Application, which claims had been carried over from the abandoned '379 Application, again as anticipated by, or in the alterative, obvious over WO '414.

22. The Examiner advised what Dow must do to overcome these rejections based on WO '414:

> Since the examiner does not have proper equipment to carry out the analytical tests, the burden is on applicants to prove the claimed polymer blends are necessarily different from those of WO '414 and unobvious thereof. In re Fitzgerald et al. 205 USPQ 594.

23. In response to the Examiner's continued rejections in view of WO '414, Dow submitted in succession one declaration by one of the named inventors, Chum, and two Declarations by another of the named inventors, Markovich, but was unsuccessful in meeting Examiner Wu's requirement for evidence of patentability over the prior art.

24. The First and Second Markovich Declarations emphasized the allegedly superior impact resistance properties of two examples said to be representative of the invention, BD1 and BD2, as compared with examples said to be representative of the prior art WO '414 composition.

25. Examiner Wu was unpersuaded by the declarations because the toughness properties of BD1 and BD2 were not shown to be superior to the prior art; this deficiency represented the only remaining obstacle raised by the Examiner to obtaining an allowance of the claims in the '998 Application.

The '497 Application

26. After Examiner Wu maintained the rejections of anticipation by, or in the alterative, obviousness over WO '414, Dow abandoned the '998 Application in favor of U.S. Serial No. 08/544,497, filed October 18, 1995 ("the '497 Application").

27. Before examination of the '497 Application by Examiner Wu, Dow took the following actions:

(a) amended the independent claims 1 and 17 to now recite an SHC value range in Component A; and

(b) submitted the Third Markovich Declaration.

28. The Third Markovich Declaration:

(a) states, without explanation, that the impact properties for the Inventive Examples and the Comparative Examples have been remeasured and changes their values relative to the Second Markovich Declaration, without pointing out or explaining the differences in these values;

(b) states, without explanation, that the slope of strain hardening coefficients (SHC) for the component polymers used to prepare the various Inventive and Comparative Examples have been measured;

(c) changes, without pointing out that it was doing so or providing any explanation of the basis for doing so, the characterization of the previously identified Inventive Examples BD1 and BD2 (the toughness measurements of which had resulted in the Examiner's prior rejection of the related '998 Application) to "Comparative Examples," thus changing them from purportedly inventive examples to non-inventive examples in an effort to overcome the rejections based on WO '414;

(d) proclaims that the surviving Inventive Blend Examples, no longer including BD1 and BD2 which had been reclassified as described in subparagraph (c) above, exhibit "superior to dramatically superior" impact resistance and intrinsic tear resistance to the comparative WO '414 compositions; and

(e) concludes that the impact properties of the Inventive Examples are unexpected and surprising.

29. Thus, the Third Markovich Declaration and accompanying submissions to the USPTO on behalf of Dow provide no explanation of why the remeasurements were done, whether the measurement process differed in any way from the original methodology for measurement of the impact properties, why the measured impact strength of the remeasured samples was substantially different in the second test than in the first, why only the impact strength was remeasured, how the SHC values were determined, and also fail to even point out that the values had been changed.

30. Examiner Wu expressly relied upon the Third Markovich Declaration in declaring that the rejection in the '497 Application based on WO '414 was overcome.

31. Examiner Wu allowed the claims of the '497 Application and U.S. Patent No. 5,677,383 ("the '383 patent") issued therefrom on October 14, 1997.

The '050 Application

32. Dow filed U.S. Application Serial No. 08/834,050 ("'050 Application") on April 11, 1997 as a continuation of the '497 Application.

33. During the prosecution of the '050 Application, Dow once again submitted and relied upon the Third Markovich Declaration; as will be established hereinafter, Dow and it

agents knew the Declaration and their representations based thereon to be false and intended to use it to mislead the Examiner.

34. In prosecuting the chain of patent applications leading to and including the '050 Application, Dow represented to the USPTO that the genus of homogeneously branched ethylene polymers includes at least two species:

(a) "substantially linear ethylene/alpha-olefin interpolymers ("SLEP"); and

(b) "linear ethylene/alpha olefin interpolymers" ("LINEAR").

35. Dow distinguished SLEP from LINEAR on the basis that the SLEP species has long chain branches ("LCB") and the LINEAR species does not contain LCB, and based on Dow's definitions of these polymers, the USPTO deemed compositions based thereon to be independent and patentably distinct subject matter.

36. While the claims of the '383 patent, which issued from the parent of the '050 Application, are restricted to blends comprising a SLEP species, Dow told the USPTO that it intended "to direct the presently claimed invention" of the '050 Application to blends comprising the LINEAR species as the homogeneously branched polyethylene component. Accordingly, Dow contemporaneously cancelled the claims directed to compositions comprising the SLEP species and pursued instead claims directed to compositions comprising the LINEAR species.

37. Dow asserted in the prosecution of the '050 Application that the Third Markovich Declaration provided unexpected results, as follows:

(a) Dow directed the Examiner's attention to the Third Markovich Declaration, asserting that "[i]n Table 2, this declaration provides a comparison between Inventive Example AD1, Comparative Example BD1

and Inventive Example CD1 which clearly and convincingly demonstrates that the present invention provides unexpected results."

(b) Dow made this representation in "RESPONSE A", dated May 19, 1998, which was signed by a Dow patent agent who owed a duty of candor and good faith to the USPTO.

38. In fact, compositions AD1 and CD1 of the Third Markovich Declaration each contain what Dow identified as SLEP as the sole homogeneously branched interpolymer blend component.

39. The claims in the '050 Application (and in the subsequently issued '053 patent) did not cover SLEP as the homogeneously branched ethylene interpolymer blend component, but rather were limited to the homogeneously branched LINEAR species, as was known to the Dow patent agent.

40. On information and belief, and as evidenced by his contemporaneous cancellation of claims directed to SLEP species and express intent to pursue other ethylene polymer species, Dow's patent agent made the representation that "a comparison between Inventive Example AD1, comparative example BD1 and Inventive Example CD1 … clearly and convincingly demonstrates that the present invention provides unexpected results" knowing that it was false.

41. Further, in the May 27, 1998 Response A, filed by Dow through its patent agent in connection with the '050 Application, Dow's patent agent states:

> Note also from Table 2 [of the Third Markovich Declaration] that the Inventive Examples [AD1 and CD1] have substantially improved Dynatup impact performance and tear resistance relative to the comparative example [BD1]. This result is unexpected because other than the difference in SHC values, all examples have about the same I_2, $I_{10/I2}$, M_w/M_n and density. One of ordinary skill in the art would ordinarily measure these properties and expect

equivalent performance for such samples. The dramatic improvement provided by the present invention would be a completely unexpected surprise.

42. Dow's patent agent misleadingly withheld any mention of the fact that the "Inventive Examples" (AD1 and CD1) in the Third Markovich Declaration each contain an ethylene/octene interpolymer as the homogeneous polymer component, while the Comparative Example (BD1) contains an ethylene/butene interpolymer as the linear polymer component.

43. On information and belief, Dow's patent agent knew (1) that one skilled in the art would have expected blends containing ethylene/octene interpolymer to have superior impact performance and/or tear resistance relative to blends containing ethylene/butene interpolymers having otherwise comparable properties and (2) that his assertions in the May 27, 1998 Response A regarding "expected equivalent performance" and "unexpected results" were false.

44. The claims of the '050 Application were allowed subsequent to Dow's false statements and misrepresentations, and U.S. Patent No. 5,847,053 ("the '053 patent") issued on December 8, 1998.

The '053 Patent

45. ~~9.~~ Claim ~~6~~1 of the ~~'~~'053 patent is addressed to ~~"A~~a "film made from an ethylene polymer composition," the composition comprising,~~"~~ *inter alia*, ~~"~~"at least one heterogeneously branched linear ethylene polymer having a density from about 0.93 g/cm^3 to about 0.965g/cm^3.~~"~~

46. Claim 6 of the '053 patent is addressed to "[a]n ethylene polymer composition comprising," *inter alia*, "at least one heterogeneously branched linear ethylene polymer having a density from about 0.93 g/cm to about 0.965g/cm^3.

47. ~~10.~~ Claims 1 and 6 of the ~~'~~'053 patent are the only independent claims of the ~~'~~'053 patent.

48. ~~11.~~ The "'053 patent states, *inter alia*, at column 7, lines 28-30 that "~~The~~"[t]he ethylene polymer to be combined with the homogeneous ethylene/α-olefin interpolymer is a heterogeneously branched (e.g., Ziegler polymerized) interpolymer…."

~~12. On information and belief, prior to filing its Complaint in the present action, Dow did not have information showing that any accused NOVA SURPASS® product contains a heterogeneously branched polymer, as that term is used in the '053 patent.~~

~~13. On information and belief, prior to serving its Complaint in the present action, Dow had information that NOVA SURPASS® products do not contain a heterogeneously branched polymer, as that term is used in the '053 patent.~~

49. ~~14.~~ The "'053 patent states, *inter alia*, in column 7, lines 33-36 that "~~Heterogenously~~[h]eterogeneously branched ethylene/α-olefin interpolymers differ from the homogeneously branched ethylene/α-olefin interpolymers primarily in their branching distribution."

50. ~~15.~~ The "'053 patent states, *inter alia*, in column 7, lines 36-41 that ""heterogeneously branched LLDPE 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)."

~~16. On information and belief, prior to filing its Complaint in the present action, Dow did not identify a polymer component in any accused NOVA SURPASS® product as having "[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),]" as those terms are used in the '053 patent.~~

51. ~~17.~~ The '053 patent states, ~~,~~ *inter alia*, ~~,~~ at column 7, lines 57 - 66 that Dowlex® 2045 is ""a heterogeneously branched ethylene/1-octene copolymer~~....~~"..."

52. ~~18.~~ The '053 patent states, ~~*inter alia*~~, *inter alia*, at column 8, lines 4-7 that ""Dowlex® 2045 also has a distinct peak at an elution temperature of about 98°C., indicating the 'linear' fraction of the whole polymer.""

~~19. On information and belief, prior to filing its Complaint in the present action, Dow did not measure "a distinct peak at an elution temperature of about 98°C," as those terms are used in the '053 patent, for any accused NOVA SURPASS® product.~~

53. ~~20.~~ The '053 patent states, *inter alia*, at column 8, lines 23-26 that ~~"The"~~[t]he heterogeneously branched ethylene/α-olefin interpolymers and/or copolymers also have at least two melting peaks as determined using Differential Scanning Calorimetry (DSC)."

~~21. On information and belief, prior to filing its Complaint in the present action, Dow did not identify in any accused NOVA SURPASS® product any interpolymers and/or copolymers that "have at least two melting peaks as determined using Differential Scanning Calorimetry (DSC)," as those terms are used in the '053 patent.~~

~~22. During the prosecution leading to the '053 patent, Dow distinguished its claimed products from blends of multiple homogeneous polymers.~~

~~23. On information and belief, prior to serving its Complaint in the present action, Dow had information that SURPASS® products contain only "homogenously branched" copolymers, as those terms are used in the '053 patent.~~

~~24. On information and belief, Dow served its complaint in this action knowing that NOVA did not infringe the '053 patent.~~

~~25. NOVA has not infringed and is not infringing the '053 patent with its SURPASS® polyethylene products, either directly, contributorily, and/or by inducement.~~

~~26. NOVA is entitled to a declaratory judgment that it has not infringed and is not infringing the '053 patent with its SURPASS® polyethylene products, either directly, contributorily, and/or by inducement.~~

~~COUNTERCLAIM II: DECLARATORY JUDGMENT OF INVALIDITY OF THE '053 PATENT~~

~~27. NOVA adopts and incorporates in this Counterclaim paragraphs 1 – 6 above, as if set forth herein.~~

54. ~~28.~~ "Example 4" of the '053 patent is directed, *inter alia*, to an "in-situ blend ... wherein the homogeneously branched substantially linear polymer is made in a first reactor ... [And a] heterogeneously branched ethylene/1-octene copolymer is made in a second reactor operated sequentially with the first reactor ..."

55. ~~29.~~ The '053 patent does not report a slope of strain hardening coefficient (SHC) value for the blend of "Example 4."

56. ~~30.~~ The '053 patent does not report an SHC value for any component identified as a component of the blend of "Example 4."

57. ~~31.~~ The '053 patent does not report an SHC value for any component identified as a component of an in-situ blend.

58. ~~32.~~ The '053 patent does not provide conditions to separate an in-situ blend of polymers into components.

59. ~~33.~~ The '053 patent does not provide conditions to separate an in-situ blend of polymers into separate components where the polymer components have overlapping temperature rising elution fractionation (TREF) elution temperatures.

60. ~~34.~~ The '053 patent states, *inter alia*, at column 6, lines 40-42 that "FIG. 1 shows the various stages of the stress/strain curve used to calculate the slope of strain hardening."

61. ~~35.~~ The '053 patent states, *inter alia*, at column 6, lines 61-62~~4~~ that "FIG. 1 graphically depicts the relationship between the density of the homogeneously branched substantially linear ethylene polymers and ethylene/~~e~~α-olefin polymers as a function of their slope of strain hardening coefficient."

62. ~~36.~~ The '053 patent describes "FIG. 1" differently at column 6, lines 40-42 than at column 6, lines 61-62.

63. ~~37.~~ The "FIG. 1" described in the '053 patent at column 6, lines 40-42 is not contained in the '053 patent.

64. ~~38.~~ On information and belief, prior to April 28, 1993, at least one of the named inventors of the '053 patent was aware of a figure as described at column 6, lines 40-42 of the '053 patent.

65. ~~39.~~ On information and belief, prior to April 28, 1993, at least one member of Dow's Patent Department who participated in the prosecution leading to the '053 patent was aware of a figure as described at Column 6, lines 40-42 of the '053 patent.

66. ~~40.~~ The figure labeled "Figure 1" appearing on the fourth page of the issued '053 patent does not depict "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '053 patent at column 6, lines 40-42.

67. ~~41.~~ The figure labeled "Figure 2" appearing on the fifth page of the issued '053 patent does not depict "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '053 patent at column 6, lines 40-42.

68. ~~42.~~ The '053 patent does not contain a figure showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '053 patent at column 6, lines 40-42.

69. ~~43.~~ A figure showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '053 patent at column 6, lines 40-42, is necessary for the understanding of the subject matter claimed in the '053 patent.

70. ~~44.~~ The '053 patent states, *inter alia*, at column 6, line 67 that "Table 1 displays the data of FIG. 1 in tabular form:"

71. ~~45.~~ The data contained in Table 1 of the '053 patent corresponds to the data of the "FIG. 1" described in the '053 patent at column 6, lines 61-67 and depicted on the fourth page of the '053 patent.

72. ~~46.~~ The data contained in Table 1 of the '053 patent is not data showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '053 patent at column 6, lines 40-42.

73. ~~47.~~ Independent Claims 1 and 6 of the '053 patent contain a limitation requiring that component "A" have "a slope of strain hardening coefficient greater than or equal to 1.3."

74. ~~48.~~ All claims of the '053 patent contain a limitation that component "A" have a "slope of strain hardening coefficient" at least greater than or equal to 1.3.

75. ~~49.~~ The '053 patent states, *inter alia*, at column 6, lines 45-50 that:

> The slope of strain hardening coefficient (SHC) is calculated according to the following equation:

$$SHC = (\text{slope of strain hardening}) * (I_2)^{0.25}$$

where I_2 = melt index in grams/10 minutes.

76. ~~50.~~ The "slope of strain hardening" parameter appearing in the SHC equation defined in the '053 patent at column 6, lines 45-50 is disclosed to be determined using "FIG. 1," wherein "FIG. 1 shows the various stages of the stress/strain curve used to calculate the slope of strain hardening. The slope of the parallel line in the strain hardening region is then determined."

77. ~~51.~~ A figure showing a "strain hardening region" is not present in the '053 patent.

78. ~~52.~~ The determination of a "parallel line in the strain hardening region" is not disclosed in the '053 patent.

79. ~~53.~~ In the prosecution leading to the '053 patent, Dow did not cite any printed publication or public use, as those terms are used in 35 U.S.C. § 102, from prior to April 28, 1993 that contains the SHC definition at column 6, lines 45-50 of the '053 patent.

80. ~~54.~~ In the prosecution leading to the '053 patent, the Examiner did not cite any printed publication or public use, as those terms are used in 35 U.S.C. § 102, from prior to April 28, 1993 that contains the SHC definition at column 6, lines 45-50 of the '053 patent.

81. ~~55.~~ On information and belief, Dow is not aware of any publication or public use, as those terms are used in 35 U.S.C. § 102, from prior to April 28, 1993, that contains the SHC definition at column 6, lines 45-50 of the '053 patent.

82. ~~56.~~ The '053 patent indicates that the I_2 parameter in the equation at column 6, lines 45-50 has the units of "grams/10 minutes."

83. ~~57.~~ The '053 patent does not provide any units for the "slope of strain hardening" parameter in the equation at column 6, lines 45-50.

84. ~~58.~~ On information and belief, prior to April 28, 1993, at least one of the named inventors of the '053 patent was aware of units for the "slope of strain hardening" parameter, as that parameter is used in the '053 patent at column 6, lines 45-50.

85. ~~59.~~ The '053 patent does not provide any units for the "SHC" parameter in the equation at column 6, lines 45-50.

86. ~~60.~~ In the section of the '053 patent entitled "Determination of the Slope of Strain Hardening Coefficient" beginning at column 6, line 6, the '053 patent refers to both English units (*e.g.*, psi at column 6, line 12) and metric units (*e.g.*, grams/cm^3 at column 6, lines 57-58).

87. ~~61.~~ The '053 patent does not state whether English or metric units should be used for the "slope of strain hardening" parameter in the equation at column 6, lines 45-50.

88. ~~62.~~ The '053 patent does not state what units should be used for the "slope of strain hardening" parameter in the equation at column 6, lines 45-50.

89. ~~63.~~ The '053 patent incorporates by reference patents that collectively use multiple different units for the slope of a stress/strain curve, including "lbs./in/ /oz./yd.^{2}" in United States Patent No. 3,4585,706, "MPa" in United States Patent No. 4,597,920, "KPa" in United States Patent No. 5,059,481, "GPa" and "~~gm~~g/denier" in United States Patent No. 4,413,110, "psi" in United States Patent No. 4,663,220, and "Kpsi" in United States Patent No. 4,865,902.

90. ~~64.~~ At column 27, lines 26-29 of U. S. Patent No. 4,413,110, the numerical value reported in units of "GPa" is different from the numerical value reported in "g/d."

91. ~~65.~~ The numerical value for the SHC parameter in the equation at column 6, lines 45-50 of the '053 patent depends on, *inter alia*, the units used for the "slope of strain hardening" parameter.

92. ~~66.~~ The '053 patent does not specify units for the "slope of strain hardening" parameter.

93. ~~67.~~ On November 1, 1999, the patent application leading to Dow's United States Patent No. 6,723,398 B1 ("the '398 patent") was filed in the United States Patent Office.

94. ~~68.~~ A true and correct copy of the '398 patent is attached hereto as Exhibit A.

95. ~~69.~~ The '398 patent states, *inter alia*, at column 2, lines 45-49 that "FIG. 2 shows the various regions of a typical tensile curve (as load in pounds versus extension in inches) and the particular region used to determine the slope of strain hardening."

96. ~~70.~~ The '398 patent includes on page 4 "FIG. 2," which corresponds to the description in the '398 patent at column 2, lines 45-49.

97. ~~71.~~ "FIG. 2" of the '398 patent shows "various stages of the stress/strain curve used to calculate the slope of strain hardening."

98. ~~72.~~ As depicted in "FIG. 2" of the '398 patent, the "Strain Hardening Region" begins before the "point of 10% extension before failure."

99. ~~73.~~ The '398 patent discloses that a subsection of the "strain hardening region" is used to determine the "slope of strain hardening."

100. ~~74.~~ The '398 patent states, *inter alia*, at column 11, lines 6-11 that:

> The slope of strain hardening is conveniently taken as ~~a~~the line representing a 10 percent secant tangent which is calculated from the failure point to the point ~~whereat~~ 10 percent extension before the failure point (where 10 percent extension before is equal to 90 percent of the total extension or strain).

101. ~~75.~~ The '053 patent does not disclose that the slope of strain hardening is conveniently taken as athe line representing a 10 percent secant tangent which is calculated from the failure point to the point ~~whereat~~ 10 percent extension before the failure point (where 10 percent extension before is equal to 90 percent of the total extension or strain).

102. ~~76.~~ The '398 patent states, *inter alia*, at column 11, lines 12-15 that:

> A more precise methodology for calculating the slope of strain hardening is performing linear regression analysis using the tensile curve datapoints that represent the last 10 percent extension before the failure point.

103. ~~77.~~ The '053 patent does not disclose that a more precise methodology for calculating the slope of strain hardening is performing linear regression analysis using the tensile curve datapoints that represent the last 10 percent extension before the failure point.

104. ~~78.~~ The '398 patent, at column 10, lines 61-64, identifies the "line parallel to the strain hardening region" as a "10 percent secant tangent line."

105. ~~79.~~ The '053 patent does not identify the "line parallel to the strain hardening region" as a "10 percent secant tangent line."

106. ~~80.~~ The '053 patent does not identify any subsection of the "strain hardening region" from which the "slope of strain hardening," as those terms are used in the '053 patent, is or should be determined.

107. ~~81.~~ No drawing containing the information in "FIG. 2" of the '398 patent related to the region used to determine the "slope of strain hardening" or the units for "slope of strain hardening" is contained in the '053 patent.

108. ~~82.~~ ASTM dimensions for stress/strain curves in accordance with ASTM D-882 are pressure vs. % extension.

109. ~~83.~~ The slope of the strain hardening, as depicted in "FIG. 2" in the '398 patent, has units of "pounds/inch."

110. ~~84.~~ The '053 patent does not disclose that "slope of strain hardening" should be in units of "pounds/inch."

111. ~~85.~~ The units "pounds/inch" do not correspond to the dimensions of pressure vs. % extension.

~~86. On information and belief, one or more of the named inventors of the '053 patent was aware of the preferred subsection of the "strain hardening region" used to determine the "slope of strain hardening" and/or the units to be used in determining that parameter prior to April 28, 1993.~~

~~87. On information and belief, one or more attorneys in Dow's Patent Department who participated in the prosecution leading to the '053 patent was aware of the preferred subsection of the "strain hardening region" used to determine the "slope of strain hardening" and/or units to be used in determining that parameter prior to April 28, 1993.~~

~~88. On information and belief, at the time~~

The '393 Application

112. The application for the '023 patent in suit was filed on August 27, 1997 as U.S. Serial No. 08/927,393 ("the '393 Application"), a continuation of the '497 Application.

113. In transmitting the '393 Application to the USPTO, Dow's in-house patent agent, Osborne K. McKinney, checked the box on the transmittal sheet to claim priority in the '497 Application and listed Examiner Wu and his art unit as having examined the prior application.

114. Dow submitted the Third Markovich Declaration to the USPTO in support of the patentability of the claims of the '393 Application but this time to no avail; Examiner Wu remarked that it was "deemed not to be persuasive."

115. Dow had known that the '393 Application contained a defective disclosure of the information needed to determine SHC values; the defect originated at least in the '379 Application and was carried into the earlier-issued '383 patent and is present in the '053 and '023 patents in suit.

116. On information and belief, Mr. McKinney prosecuted the applications for all three patents ('383, '053 and '023) and became aware of the defective disclosure while he was supervising the prosecution of the application for the '383 patent.

117. The Third Markovich Declaration was first submitted to the USPTO during the prosecution of the application for the '383 patent.

118. The Third Markovich Declaration, for the first time, reported that SHC measurements of various test samples had been made, but an explanation of the methodology for making those measurements was absent.

119. On information and belief, the methodology for measuring SHC was omitted from the Third Markovich Declaration because Dow and/or Mr. McKinney realized that a proper description of that methodology did not appear in the application the Declaration was submitted to support.

120. The claims of the '393 Application were allowed and U.S. Patent No. 6,111,023 ("'023 patent"), issued on August 29, 2000.

The '919 Application

121. In November 1999, more than two years after the October 14, 1997, issue date of the '383 patent and while the '393 Application was still pending, Dow filed a new application on ethylene polymers, U.S. Serial No. 09/430,919, on November 1, 1999 ("the '919 Application"). The new application contained an expanded description of the procedure for determining SHC that attempted to cure defects present in the pending '393 Application.

122. The '919 Application included FIG. 2, a counterpart of which is missing from the '393 and all prior Applications in the family. Figure 2 is described in the '919 Application as "show[ing] the various regions of a typical tensile curve (as load in pounds versus extension in inches) and the particular region used to determine the slope of strain hardening" and which depicts the "Strain Hardening Region" as being the region before the "point of 10% extension before failure."

123. The '919 Application also makes the following disclosure not contained in the '393 Application or other prior applications in the family: (1) that

> [t]he slope of strain hardening is conveniently taken as the line representing a 10 percent secant tangent which is calculated from the failure point to the point at 10 percent extension before the failure point (where 10 percent extension before is equal to 90 percent of the total extension or strain)[.]
>
> and (2) that
>
> [a] more precise methodology for calculating the slope of strain hardening is performing linear regression analysis using the tensile curve datapoints that represent the last 10 percent extension before the failure point.

124. The ´919 Application also discloses units of measurement employed in calculating SHC, information not contained in the ´393 Application or other prior applications in the family.

125. These disclosures in the '919 Application related to SHC and slope of strain hardening were material to the patentability of the claims of the copending '393 Application, at least as the basis for rejections regarding requirements under 35 U.S.C. § 112.

126. Dow believed that the earlier-issued '383 patent, which is the parent of the '023 patent, was so relevant to the '919 Application that, in the text of the application, Dow identified the '383 patent by number, described its contents, and incorporated its disclosure by reference.

127. The '383 patent and the '023 patent name an inventor -- Chum -- in common with the inventors named in the '919 Application, thereby meeting the common inventor test for denominating the '919 Application as a continuing application (such as a continuation-in-part application) from the application for the '023 patent and claiming priority through it back to the application for the '383 patent.

128. On behalf of Dow, Mr. McKinney:

(a) was the principal agent from Dow prosecuting all of the applications in the chain from the '379 Application up through the '919 Application, including the then copending application for the '023 patent (*i.e.*, the '393 Application);

(b) knew that the '383 patent, having issued more than two years before the filing date of the '919 Application, should be cited as prior art against this new '919 Application;

(c) knew that the effect of the '383 patent as prior art could be eliminated or reduced by submitting a claim for priority back to that patent (through the '393 Application) when the new '919 Application was filed;

(d) knew that the new application was entitled to claim priority to the application for the '383 patent by reason of a common inventor;

(e) knew that Examiner Wu had examined the prior applications in the chain;

(f) knew that if he denominated the new application as a continuing application with a claim for priority, the application likely would be assigned to Examiner Wu in accordance with USPTO practice; and

(g) anticipated that, if he received the new application, Examiner Wu would (i) consider the '919 Application to be material to the patentability of the claims of the then co-pending '393 Application, (ii) note the dramatic difference in the quality of the disclosures of the '393 Application and the new '919 Application as respects the SHC calculation and (iii) properly reject the claims of the '393 Application at least under 35 U.S.C. § 112.

129. Dow, through Mr. McKinney, in the face of the foregoing circumstances, chose to deceive the USPTO by not claiming priority to the '393 Application by checking the appropriate box on the application transmittal form or with the initially filed Inventors' Declaration for the `919 Application and by not disclosing the '919 Application to Examiner Wu in the prosecution of the '393 Application.

130. On information and belief, as a result of these misleading acts and omissions, relied upon by the USPTO, the '919 Application was assigned to a different examiner in a different art unit and not brought to the attention of Examiner Wu in the '393 Application.

131. By the actions of Mr. McKinney aforesaid, information material to the patentability of the claims of the '393 Application was intentionally withheld from Examiner Wu with an intent to deceive the USPTO.

132. After Mr. McKinney transmitted the '919 Application to the USPTO, Dow, through Mr. McKinney, appointed outside counsel to continue prosecution of that Application.

133. The claims of the '919 Application subsequently, but not surprisingly, were rejected in view of the '383 patent. Only after the '023 patent issued on August 29, 2000, did Dow amend the specification of the '919 Application on June 11, 2002, to recite a claim of priority back to the '497 Application and thereby removed the '383 patent as prior art. As a

result, the '919 Application never came to the attention of Examiner Wu during the prosecution of the '393 Application.

134. In support of this priority claim, the Inventors' Declaration, executed by the named inventors, including Pak-Wing Chum and Kurt W. Swogger, in July and August 2002, falsely claims that the '393 Application was "co-pending," when in fact the '023 patent had issued from the '393 Application nearly two years earlier, on August 29, 2000.

135. The '919 Application issued as U.S. Patent No. 6,723,398 ("the '398 patent") on April 20, 2004.

136. When the USPTO printed the '398 patent, which issued from the '919 Application, it failed to include the "Related Application" information as paragraph 63 on the cover page.

137. On June 9, 2006, Dow attempted to obtain a Certificate of Correction to add paragraph 63 based on a Patent Office error, but withdrew that request on August 10, 2006.

138. On August 21, 2006, two months after Dow served its complaint in this action, Dow ~~knew that "FIG. 1" referred to at Column 6, lines 40-42 was not present in the '053 patent.~~

~~89. On information and belief, at the time Dow served its complaint in this action, Dow knew that the '053 patent failed to disclose units for the "slope of strain hardening" parameter that appears in the SHC equation described at Column 6, lines 45-50.~~

90. On information and belief, at the time Dow served its Complaint in this action, Dow knew that the use of different units for the "slope of strain hardening" parameter[in the equation]

[$SHC = (\text{slope of hardening}) * (I_2)^{0.25}$]

[would result in different SHC values when calculated using this equation.]

91. [On information and belief, at the time Dow served its complaint in this action, Dow knew that its]'053 patent failed to adequately disclose the SHC parameter recited in each claim of the '053 patent and/or failed to disclose the best mode for determining SHC because of the omission from the '053 patent specification of the "FIG. 1" referred to at column 6, lines 40-42.

92. On information and belief, at the time Dow served its complaint in this action, Dow knew that its '053 patent failed to furnish a drawing necessary for the understanding of the subject matter sought to be patented.

93. On information and belief, at the time Dow served its complaint in this action, Dow knew that its '053 patent failed to furnish any units for the "slope of strain hardening"[parameter that appears in the SHC equation described at Column 6, lines 45-50, which units are necessary for calculation of SHC.]

94. [The claims of the]'[053 patent are invalid for failure to comply with the conditions for patentability specified by 35 U.S.C. § 101, *et seq*., including sections 102, 103, 11]2, and/or 113.

COUNTERCLAIM III: **DECLARATORY JUDGMENT OF NO INFRINGEMENT OF THE '023 PATENT**

95. NOVA adopts and incorporates in this Counterclaim paragraphs 1 – 6 above, as if set forth herein.filed a request for Certificate of Correction to delete entirely the language

claiming priority and thus the entire basis Dow had previously used for having the USPTO remove the '383 patent as prior art.

139. The USPTO issued the requested Certificate of Correction.

The '023 Patent

140. ~~96.~~ Claim 1 of the '023 patent is addressed to ~~"An~~"[a]n ethylene polymer composition comprising,~~"~~" *inter alia,* ~~"~~"at least one ethylene polymer characterized as having a density from about 0.93 g/cm^3 to about 0.965g/cm^3 and comprising a linear polymer fraction, as determined using a temperature rising elution fractionation (TREF) technique.~~"~~"

141. ~~97.~~ Claim 9 of the '023 patent is addressed to ~~"A~~"[a] film made from an ethylene polymer composition, wherein the composition comprises,~~"~~" *inter alia*, ~~"~~"at least one ethylene polymer characterized as having a density from about 0.93 g/cm^3 to about 0.965g/cm^3 and comprising a linear polymer fraction, as determined using a temperature rising elution fractionation (TREF) technique.~~"~~"

142. ~~98.~~ Claims 1 and 9 of the '023 patent are the only independent claims of the '023 patent.

143. ~~99.~~ During the prosecution leading to the '023 patent, Dow stated, *inter alia*, that ~~"~~"the term '~~"~~linear fraction~~"~~' or '~~"~~linear polymer fraction~~"~~' (at least as used in the present application) refers to heterogeneously branched ethylene polymers.~~"~~"

144. ~~100.~~ The '023 patent states, *inter alia*, at column 8, lines 13-16~~7~~ that ~~"The~~"[t]he ethylene polymer to be combined with the homogeneous ethylene/α-olefin interpolymer is a heterogeneously branched (e.g., Ziegler polymerized) interpolymer….~~"~~"

~~101. On information and belief, prior to filing its Complaint in the present action, Dow did not have information showing that any accused NOVA SURPASS® product contains a heterogeneously branched polymer, as that term is used in the '023 patent.~~

~~102. On information and belief, prior to serving its Complaint in the present action, Dow had information that NOVA SURPASS® products do not contain a heterogeneously branched polymer, as that term is used in the '023 patent.~~

145. ~~103.~~ The '023 patent states, ~~,~~ *inter alia*, ~~,~~ in column 8, lines 19-22 that "~~Heterogeneously~~[h]eterogeneously branched ethylene/α-olefin interpolymers differ from the homogeneously branched ethylene/α-olefin interpolymers primarily in their branching distribution."

146. ~~104.~~ The '023 patent states, *inter alia*, in column 8, lines 22 - 27 that ""heterogeneously branched LLDPE 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)."

147. ~~105.~~ On information and belief, prior to filing its Complaint in the present action, Dow did not identify a polymer component in any accused NOVA SURPASS® polyethylene product as having ""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)," as those terms are used in the '023 patent.

148. ~~106.~~ The '023 patent states, *inter alia*, at column 8, lines 43-45 that Dowlex® 2045 is ""a heterogeneously branched ethylene/1-octene copolymer…."

149. ~~107.~~ The '023 patent states, *inter alia*, at column 8, lines 57-60 that ""Dowlex® 2045 also has a distinct peak at an elution temperature of about 98°C., indicating the 'linear' fraction of the whole polymer."

~~108. On information and belief, prior to filing its Complaint in the present action, Dow did not measure "a distinct peak at an elution temperature of about 98°C," as those terms are used in the '023 patent, for any accused NOVA SURPASS® product.~~

150. ~~109.~~ The "'023 patent states, *inter alia*, at column 9, lines 9-12 that ~~"The~~"[t]he heterogeneously branched ethylene/α-olefin interpolymers and/or copolymers also have at least two melting peaks as determined using Differential Scanning Calorimetry (DSC)."~~"~~

~~110. On information and belief, prior to filing its Complaint in the present action, Dow did not identify in any accused NOVA SURPASS® product any interpolymers and/or copolymers that "have at least two melting peaks as determined using Differential Scanning Calorimetry (DSC)," as those terms are used in the '023 patent.~~

~~111. During the prosecution leading to the '023 patent, Dow distinguished its claimed products from blends of multiple homogeneous polymers.~~

~~112. On information and belief, prior to serving its Complaint in the present action, Dow had information that SURPASS® products contain only "homogenously branched" copolymers, as those terms are used in the '023 patent.~~

~~113. On information and belief, Dow served its complaint in this action knowing that NOVA did not infringe the '023 patent.~~

~~114. NOVA has not infringed and is not infringing the '023 patent with its SURPASS® polyethylene products, either directly, contributorily, and/or by inducement.~~

~~115. NOVA is entitled to a declaratory judgment that it has not infringed and is not infringing the '023 patent with its SURPASS® polyethylene products, either directly, contributorily, and/or by inducement.~~

~~COUNTERCLAIM IV: DECLARATORY JUDGMENT OF INVALIDITY OF THE '023 PATENT~~

~~116. NOVA adopts and incorporates in this Counterclaim paragraphs 1 - 6 above, as if set forth herein.~~

151. ~~117.~~ "Example 4" of the '023 patent is directed, ~~,~~ *inter alia*, ~~,~~ to an "in-situ blend ~~...~~ wherein the homogeneously branched substantially linear polymer is made in a first reactor.... [And a] heterogeneously branched ethylene/1-octene copolymer is made in a second reactor operated sequentially with the first reactor ~~...~~ ."

152. ~~118.~~ The '023 patent does not report a strain hardening coefficient (SHC) value for the blend of "Example 4."

153. ~~119.~~ The '023 patent does not report an SHC value for any component identified as a component of the blend of "Example 4."

154. ~~120.~~ The '023 patent does not report an SHC value for any component identified as a component of an in-situ blend.

155. ~~121.~~ The '023 patent does not provide conditions to separate an in-situ blend of polymers into components.

156. ~~122.~~ The '023 patent does not provide conditions to separate an in-situ blend of polymers into separate components where the polymer components have overlapping temperature rising elution fractionation (TREF) elution temperatures.

157. ~~123.~~ The '023 patent states, *inter alia*, at column 7, lines 18-19 that "FIG. 1 shows the various stages of the stress/strain curve used to calculate the slope of strain hardening."

158. ~~124.~~ The '023 patent states, *inter alia*, at column 7, lines 38-41 that "FIG. 1 graphically depicts the relationship between the density of the homogeneously branched

substantially linear ethylene polymers and ethylene/~~α~~α-olefin polymers as a function of their slope of strain hardening coefficient."

159. ~~125.~~ The '023 patent describes "FIG. 1" differently at column 7, lines 18-19 than at column 7, lines 38-41.

160. ~~126.~~ The "FIG. 1" described in the '023 patent at column 7, lines 18-19 is not contained in the ~~'023 patent.~~

~~127. On information and belief, prior to April 28, 1993, at least one of the named inventors of the '023 patent was aware of a figure as described at column 7, lines 18-19 of the '[023 patent.]~~

~~128. [On information and belief, prior to April 28, 1993, at least one member of Dow]'s Patent Department who participated in the prosecution leading to the '023 patent was aware of a figure as described at Column 7, lines 18 - 19 of the '~~023 patent.

161. ~~129.~~ The figure labeled "FIG. 1" appearing on the fourth page of the issued '023 patent does not depict "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '023 patent at column 7, lines 18-19.

162. ~~130.~~ The figure labeled "FIG. 2" appearing on the fifth page of the issued '023 patent does not depict "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '023 patent at column 7, lines 18-19.

163. ~~131.~~ The '023 patent does not contain a figure showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '023 patent at column 7, lines 18-19.

164. ~~132.~~ A figure showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '023 patent at column 7, lines 18-19, is necessary for the understanding of the subject matter claimed in the '023 patent.

165. ~~133.~~ The '023 patent states, *inter alia*, at column 7, line 44 that "Table 1 displays the data of FIG. 1 in tabular form:"

166. ~~134.~~ The data contained in Table 1 of the '023 patent corresponds to the data of the "FIG. 1" described in the '023 patent at column 7, lines 38-44 and depicted on the fourth page of the '023 patent.

167. ~~135.~~ The data contained in Table 1 of the '023 patent is not data showing "the various stages of the stress/strain curve used to calculate the slope of strain hardening," as described in the '023 patent at column 7, lines 18-19.

168. ~~136.~~ Independent Claims 1 and 9 of the '023 patent contain a limitation requiring that component "A" have "a slope of strain hardening coefficient greater than or equal to 1.3."

169. ~~137.~~ All claims of the '023 patent contain a limitation that component "A" have a "slope of strain hardening coefficient" at least greater than or equal to 1.3.

170. ~~138.~~ The '023 patent states, *inter alia*, at column 7, lines 22-28 that: The slope of strain hardening coefficient (SHC) is calculated according to the following equation:

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