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 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

6. 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. 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. 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.

JURISDICTION, VENUE AND INTERSTATE COMMERCE

9. NOVA brings this action for declaratory judgment, 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.*, 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.

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 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. Claim 1 of the '053 patent is addressed to 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. Claims 1 and 6 of the '053 patent are the only independent claims of the '053 patent.

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

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

50. 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)."

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

52. The '053 patent states, *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."

53. The '053 patent states, *inter alia*, at column 8, lines 23-26 that "[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)."

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

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

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

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

59. 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. 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. The '053 patent states, *inter alia*, at column 6, lines 61-64 that "FIG. 1 graphically depicts the relationship between the density of the homogeneously branched substantially linear ethylene polymers and ethylene/α-olefin polymers as a function of their slope of strain hardening coefficient."

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

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

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

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

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

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

86. 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. 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. 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. 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. 3,485,706, "MPa" in United States Patent No. 4,597,920, "KPa" in United States Patent No. 5,059,481, "GPa" and "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. 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. 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. The '053 patent does not specify units for the "slope of strain hardening" parameter.

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

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

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

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

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

> The 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).

101. The '053 patent does not disclose that the 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).

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

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

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

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

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

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 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. Claim 1 of the '023 patent is addressed to "[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. Claim 9 of the '023 patent is addressed to "[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. Claims 1 and 9 of the '023 patent are the only independent claims of the '023 patent.

143. 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. The '023 patent states, *inter alia*, at column 8, lines 13-17 that "[t]he ethylene polymer to be combined with the homogeneous ethylene/α-olefin interpolymer is a heterogeneously branched (e.g., Ziegler polymerized) interpolymer…."

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

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

149. 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."

150. The '023 patent states, *inter alia*, at column 9, lines 9-12 that "[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)."

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

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

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

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

156. 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. 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. 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-olefin polymers as a function of their slope of strain hardening coefficient."

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

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

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

166. 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. 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. 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. 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. 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

171. The "slope of strain hardening" parameter appearing in the SHC equation defined in the '023 patent at column 7, lines 22-28 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."

172. A figure showing a "strain hardening region" is not present in the '023 patent.

173. The determination of a "parallel line in the strain hardening region" is not disclosed in the '023 patent.

174. In the prosecution leading to the '023 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 7, lines 22-28 of the '023 patent.

175. In the prosecution leading to the '023 patent, the Examiners 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 7, lines 22-28 of the '023 patent.

176. The '023 patent indicates that the I_2 parameter in the equation at column 7, lines 22-28 has the units of "grams/10 minutes."

177. The '023 patent does not provide any units for the "slope of strain hardening" parameter in the equation at column 7, lines 22-28.

178. The '023 patent does not provide any units for the "SHC" parameter in the equation at column 7, lines 22-28.

179. In the section of the '023 patent entitled "Determination of the Slope of Strain Hardening Coefficient" beginning at column 6, line 52, the '023 patent refers to both English units (*e.g.*, psi at column 6, line 59) and metric units (*e.g.*, grams/cm^3 at column 7, lines 35-36).

180. The '023 patent does not state whether English or metric units should be used for the "slope of strain hardening" parameter in the equation at column 7, lines 22-28.

181. The '023 patent does not state what units should be used for the "slope of strain hardening" parameter in the equation at column 7, lines 22-28.

182. The '023 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. 3,485,706 "MPa" in United States Patent No. 4,597,920, "KPa" in United States Patent No. 5,059,481, "(GPa" and 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.

183. 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."

184. The numerical value for the SHC parameter in the equation at column 7, lines 22-28 of the '023 patent depends on, *inter alia*, the units used for the "slope of strain hardening" parameter.

185. The '023 patent does not specify units for the "slope of strain hardening" parameter.

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

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

188. Pak-Wing S. Chum is a named inventor on both the '398 patent and the '023 patent.

189. On information and belief, Pak-Wing S. Chum was and/or is an employee of Dow.

190. On information and belief, Pak-Wing S. Chum was aware of the contents of the specification of the application leading to the '398 patent at least by January 10, 2000, the date Mr. Chum executed the Declaration and Power of Attorney filed in that application.

191. Mr. McKinney prosecuted both the application leading to the '398 patent and the application leading to the '023 patent.

192. On information and belief, Mr. McKinney was and/or is an employee of Dow.

193. The "Utility Patent Application Transmittal" dated November 1, 1999, for the application leading to the '398 patent was signed by Mr. McKinney.

194. The "Utility Patent Application Transmittal" dated November 1, 1999, for the application leading to the '398 patent was submitted while the application leading to the '023 patent was pending at the USPTO.

195. The application leading to the '398 patent was not disclosed by or on behalf Dow in the application leading to the '023 patent.

196. The application leading to the '398 patent was not cited by the Examiner in the application leading to the '023 patent.

197. 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."

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

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

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

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

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

> The 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).

203. The '023 patent does not disclose that the 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).

204. 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.

205. The '023 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.

206. The '398 patent identifies the "line parallel to the strain hardening region" as a "10 percent secant tangent line."

207. The '023 patent does not identify the "line parallel to the strain hardening region" as a "10 percent secant tangent line."

208. The '023 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 '023 patent, is or should be determined.

209. 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 '023 patent.

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

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

212. The '023 patent does not disclose that "slope of strain hardening" should be in units of "pounds/inch."

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

214. Subsequent to the November 1, 1999, filing of the application leading to the '398 patent, Mr. McKinney presented arguments on behalf of Dow in the application leading to the '023 patent based on, *inter alia*, values of the "slope of the strain hardening coefficient."

(2) The Relevant Market and Dow's Market Position in Polyethylene Resins and Technology

215. Polyethylene is the world's most widely used plastic. Polyethylene is a thermoplastic of the polyolefin group. Polyethylene is derived from ethylene through a process of polymerization, a process during which monomers are reacted with each other to produce long chains of repeated series of monomers, called polymers. The process of polymerization of ethylene produces polyethylene resins. Those resins are then utilized in the manufacture of consumer goods, including films, packaging, bottles, water pipes and other end uses.

216. Different types of reactors, different comonomers, different concentration of the comonomers and different conditions during the polymerization process (catalyst, temperature and pressure) can be utilized to produce polyethylene resins with varying characteristics. Three main families of polyethylene are low density polyethylene ("LDPE"), high density polyethylene ("HDPE") and linear low density polyethylene ("LLDPE").

217. Within the LLDPE family, different resins with varying characteristics, performance properties and uses can be produced by using different alpha olefin comonomers, catalysts, pressures and temperatures.

218. The principal comonomers used in the production of LLDPE are butene, hexene and octene.

219. The production of LLDPE requires the use of a catalyst in the reactor to generate the necessary chemical reaction to produce LLDPE. The use of different transition metal catalysts results in the production of LLDPE resins with different chemical structures and different performance properties. Transition metal catalysts can be classified as 1) heterogeneous catalysts or 2) homogeneous catalysts.

220. SSC C8 Polymers offer the user of film resins a unique combination of performance characteristics, including workability, strength, and puncture resistance and economics of production. For many users of SSC C8 Polymers there is no adequate substitute in terms of their combination of performance characteristics. Moreover, enough users of SSC C8 Polymers have no adequate alternative such that a monopolist in SSC C8 Polymers would be able to profitably raise the price of such above the level that would prevail in a competitive market.

221. Polyethylene can be produced utilizing gas phase technology or Solution Phase Technology. In gas phase technology, the chemical reaction occurs while the polymers are suspended in a gaseous phase, while with solution technology, the chemical reactions occur while the polymers are in a liquid phase.

222. Gas phase technology requires the use of different reactors and other equipment than Solution Phase Technology. Solution Phase Technology allows more rapid transitions between different polymer grades and this makes it economically feasible to produce a broader range of different polymer products for a given plant output capacity.

223. SSC C8 Polymers can only be economically produced using Solution Phase Technology with a homogeneous catalyst.

(3) Dow's Dominant Position in Technology and Product Sales

224. Dow acquired a substantial ownership position in Univation Technologies LLC, a technology licensing organization having gas phase polyethylene production technology. Through this position, Dow obtains the economic benefit of a substantial share of any royalties Univation receives for the licensing of Univation's gas-phase polyethylene production technology.

225. Univation holds and licenses commercial gas-phase technology for the production of LLDPE and other polyethylene resins suitable for use in the manufacture of films and other products.

226. Dow also owns Solution Phase Technology, that includes Dow's INSITE™ Technology.

227. Dow is a dominant seller of SSC C8 Polymers in North America as well as Europe.

228. NOVA has, despite the patent barriers that Dow has erected, developed its own noninfringing Solution Phase Homogeneous SSC C8 Polymer Technology (the "Advanced SCLAIRTECH Technology™").

229. The INSITE Technology and the Advanced SCLAIRTECH Technology are or would be reasonably interchangeable substitutes for one another for producers seeking to build a solution phase polyethylene reactor.

230. For a producer seeking to operate a solution-phase reactor capable of producing SSC C8 Polymers at economical rates, there is no technology which is reasonably interchangeable with the INSITE and Advanced SCLAIRTECH Technologies. Gas phase technologies, for example, are incapable of producing SSC C8 Polymers on a commercial scale

and do not offer comparable economies in switching from the production of one polyethylene product to another.

231. Upon information and belief, although Univation licenses commercially its gas-phase technology for the production of LLDPE and other products, Dow does not license its INSITE Technology to third parties, other than through joint ventures with Dow. Dow thereby seeks to compel any producer interested in Solution Phase Technology to grant Dow a share of the profits of its plant.

232. NOVA's development of the Advanced SCLAIRTECH Technology threatens Dow's stranglehold over the sale of SSC C8 Polymers and over Solution Phase Technology. In order to discourage NOVA's sale of SSC C8 Polymers and to impair the value of the Advanced SCLAIRTECH Technology, to discourage potential licensees from purchasing the Advanced SCLAIRTECH Technology and to maintain its unilateral control over such products and technology, Dow has embarked upon a course of attempting to discredit the Advanced SCLAIRTECH Technology and generate apprehension in the market place that NOVA's SSC C8 Polymers, the product of that technology, infringes Dow's patents.

COUNT I -
DECLARATORY JUDGMENT OF NO INFRINGEMENT OF THE '053 PATENT

233. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

234. A present, genuine, and justiciable controversy exists between NOVA and Dow regarding, *inter alia*, infringement of the '053 patent.

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

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

237. 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 '053 patent.

238. 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® polyethylene product.

239. On information and belief, prior to filing its Complaint in the present action, Dow did not identify in any accused NOVA SURPASS® polyethylene 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.

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

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

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

243. 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.

COUNT II -
DECLARATORY JUDGMENT OF INVALIDITY OF THE '053 PATENT

244. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

245. A present, genuine, and justiciable controversy exists between NOVA and Dow regarding, *inter alia*, invalidity of the '053 patent.

246. 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.

247. On information and belief, one or more attorneys or patent agents 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.

248. On information and belief, at the time 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.

249. 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.

250. 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.

251. 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.

252. 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.

253. 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.

254. 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, 111, 112, and/or 113.

COUNT III -
DECLARATORY JUDGMENT OF UNENFORCEABILITY OF THE '053 PATENT

255. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

256. A present, genuine, and justiciable controversy exists between Plaintiff and Defendants NOVA regarding, *inter alia*, the enforceability of the '053 patent.

257. The '053 patent is unenforceable because individuals owing a duty of candor and good faith under 37 C.F.R. § 1.56 engaged in inequitable conduct in the prosecution leading to the '053 patent at least by making material misrepresentations to the USPTO with an intent to deceive.

258. Misrepresentations of Dow in connection with the prosecution leading to the '053 patent and its predecessor application are contained in the Third Markovich Declaration and Dow's arguments to the USPTO in the course of prosecution.

259. Dow first submitted the Third Markovich Declaration to the USPTO during the prosecution of the '497 Application, the parent to the application for the '053 patent.

260. The deception by Dow, its attorneys and patent agents, and Markovich, and their intent to deceive, in connection with the preparation and submission of the Third Markovich Declaration is illustrated by the following particulars:

(a) Without (i) calling the Examiner's attention to the fact or (ii) providing the Examiner any explanation for why they have done so, Markovich and Dow in the Third Markovich Declaration reclassify as "Comparative Examples" samples BD1 and BD2, which they had in the Second Markovich Declaration identified as "Inventive Examples."

(b) The Third Markovich Declaration reports substantially different measurements for the Dynatup intrinsic tear properties for samples AD1, BD1, CD1, X1, AD2, BD2, CD2, and X2 than the data reported in the

Second Markovich Declaration for the same test procedure, for the same property, for the same samples.

(c) The Third Markovich Declaration provides no explanation for why the Dynatup measurements for samples AD1, BD1, CD1, X1, AD2, BD2, CD2 and X2 were remeasured in connection with the Third Markovich Declaration. Nor does the Declaration provide any explanation for how the measurement process for those samples which was followed in connection with the Third Markovich Declaration differed from the measurement process followed in connection with the Second Markovich Declaration. Nor does the Third Markovich Declaration provide any explanation of why the Dynatup measurements for these samples for the Third Markovich Declaration differ from those for the Second Markovich Declaration. Nor does the Declaration or any submissions by Dow to the USPTO point out that the values in Third Markovich Declaration were different than those in the Second Markovich Declaration.

(d) In the Second Markovich Declaration, in which Markovich and Dow were contending that the performance of BD1 and BD2, as "Inventive Examples," was surprisingly superior to the performance of X1 and X2, the "Comparative Examples," the Dynatup measurements for BD1 and BD2 were *greater* by 133% and 67%, respectively, than those for X1 and X2, the corresponding Comparative Examples. However, in the Third Markovich Declaration, where Markovich and Dow were attempting to persuade the Examiner that the remaining Inventive Examples were

surprisingly superior to the performance of the original Comparative Examples, X1 and X2, the now redesignated Comparative Examples, BD1 and BD2, were *lower* by 20% and 14%, respectively, relative to the measurements for X1 and X2.

(e) In stating that "the impact properties of the Inventive Examples are particularly unexpected and surprising in that they show substantially higher impact resistance even at slightly higher densities relative to blend compositions representative of WO '414, whereas one skilled in the art would ordinarily expect compositions having higher densities to show inferior impact properties relative to comparative compositions having lower densities," Dow and Markovich willfully ignore the material fact that the Inventive Examples all have octene copolymers while the Comparative Examples all have butene copolymers, and one skilled in the art would anticipate that such a difference in composition would produce the differences in impact properties reported.

(f) In arguing that the remeasured Dynatup impact resistance measurements show that the samples still labeled "Inventive Examples" show surprisingly greater impact resistance than the samples now labeled "Comparative Examples" (including now BD1 and BD2), Dow and Markovich fail to disclose to the Examiner that the magnitude of the change in the Dynatup measurements between the Second Markovich Declaration and the Third Markovich Declaration equals or exceeds the

magnitude of the differential between the Inventive Examples and the Comparative Examples.

261. As a result of all of the circumstances set forth in the preceding paragraph, the assertions by Dow and Markovich in connection with the '497 Application, and later in the '050 Application, that the Inventive Examples display surprisingly superior performance results are deceptive.

262. Further, in the course of the prosecution of the '050 Application, Dow's representation to the USPTO 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" was false.

263. On information and belief, and as evidenced by his contemporaneous cancellation of claims directed to SLEP species and express intent to pursue claims directed to LINEAR 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 with an intent to deceive, as examples AD1 and CD1 contain the non-elected SLEP species and therefore are not "inventive."

264. On information and belief, the falsehoods contained in the Third Markovich Declaration and in the arguments presented by Dow to the USPTO were known by Markovich and/or a Dow attorney or patent agent involved in the prosecution.

265. The Third Markovich Declaration and the false arguments submitted by Dow to the USPTO in connection therewith were material to the patentability of claims pending in the '497 Application, and indeed were relied upon by the Examiner in overcoming the rejection

based on WO '414, and were further material to the subsequently prosecuted claims pending in the '050 Application, since the Examiner did not revisit WO '414 as the basis for any rejection therein.

266. Prior to submitting the Third Markovich Declaration, Dow's only clear path to persuading Examiner Wu that the data supported the patentability of the claims was to move BD1 and BD2 into the prior art category.

267. On information and belief, Dow possessed the motivation to produce data on BD1 and BD2 that distinguished these compositions from the allegedly inventive examples when Dow (i) remeasured the impact properties of the test examples and (ii) measured, apparently for the first time, the SHC of the component polymers used to prepare those examples.

268. Dow's intent to deceive is evidenced by its motivation and the fact that Dow offered no explanations whatsoever, through either Markovich himself or its attorney or patent agent, for suddenly performing the remeasurements of BD1 and BD2 and measurements of SHC.

269. The totality of the circumstances surrounding the preparation and submission of the Third Markovich Declaration demonstrate that either the measurements or the remeasurements reported for BD1 and BD2 are false and unreliable; accordingly, Dow's repeated reliance on the Third Markovich Declaration was unfounded and deceptive.

270. The actions of Dow, its attorneys and patent agents, and/or Markovich in the preparation and submission of the Third Markovich Declaration were intentionally deceptive.

271. Additionally, on information and belief, Dow and its counsel who had a duty of disclosure in the prosecution that led to the '053 patent were aware of prior art highly pertinent to that prosecution that was effectively withheld from the USPTO. Specifically, U.S. Patent No. 5,530,065 ("US '065") owned by Exxon, based on its priority application dated January 7, 1992,

anticipates or renders obvious claims of the '053 patent and would have been highly material to the '053 prosecution.

272. Dow, and its agent, Mr. McKinney, in an Information Disclosure Statement filed in the application for the '053 patent, cited to the USPTO as "particularly relevant" the WIPO counterpart of this Exxon patent, which listed a first filing date of November 12, 1993, too late to be prior art relative to the April 28, 1993, priority date of the '053 patent. Dow and its agent, Mr. McKinney, also cited the US '065 patent, which has a priority date of January 7, 1992, nearly one year before the priority date of the '053 patent, to the USPTO but intentionally buried this highly pertinent reference in a list of over 130 references not indicated to be particularly pertinent, thereby effectively concealing it from the USPTO.

273. On information and belief, Dow and its agent knew and understood the high materiality of the '065 Exxon patent and its January 7, 1992 priority application, but intentionally mischaracterized and buried this information in order to deceive the USPTO as described above.

274. Dow, acting through employees who owed a duty of candor and good faith to the USPTO under 37 C.F.R. § 1.56, engaged in inequitable conduct in the prosecution leading to the '053 patent.

COUNT IV -
DECLARATORY JUDGMENT OF NO INFRINGEMENT OF THE '023 PATENT

275. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

276. A present, genuine, and justiciable controversy exists between NOVA and Dow regarding, *inter alia*, infringement of the '023 patent.

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

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

279. 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® polyethylene product.

280. The '023 patent states, *inter alia*, at column 9, lines 9-12 that "The heterogeneously branched ethylene/α-olefin interpolymers and/or copolymers also have at least two melting peaks as determined using Differential Scanning Calorimetry (DSC)."

281. On information and belief, prior to filing its Complaint in the present action, Dow did not identify in any accused NOVA SURPASS® polyethylene 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.

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

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

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

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

286. 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.

COUNT V -
DECLARATORY JUDGMENT OF INVALIDITY OF THE '023 PATENT

287. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

288. A present, genuine, and justiciable controversy exists between NOVA and Dow regarding, *inter alia*, invalidity of the '023 patent.

289. 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.

290. 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.

291. 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 7, lines 22-28 of the '023 patent.

292. The '023 patent indicates that the I_2 parameter in the equation at column 7, lines 22-28 has the units of "grams/10 minutes."

293. On information and belief, prior to April 28, 1993, at least one of the named inventors of the '023 patent was aware of units for the "slope of strain hardening" parameter, as that parameter is used in the '023 patent at column 7, lines 22-28.

294. On information and belief, one or more of the named inventors of the '023 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.

295. On information and belief, one or more attorneys or patent agents in Dow's Patent Department who participated in the prosecution leading to the '023 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.

296. On information and belief, at the time Dow served its complaint in this action, Dow knew that its '023 patent failed to furnish a drawing necessary for the understanding of the subject matter sought to be patented.

297. On information and belief, at the time Dow served its complaint in this action, Dow knew that its '023 patent failed to adequately disclose the SHC parameter recited in each claim of the '023 patent and/or for failed to disclose the best mode for determining SHC because of the omission from the '023 specification of the "FIG. 1" referred to at column 7, lines 22-28.

298. On information and belief, at the time Dow served its complaint in this action, Dow knew that the '023 patent failed to disclose units for the "slope of strain hardening" parameter that appears in the SHC equation described at column 7, lines 22-28.

299. 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

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

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

300. On information and belief, at the time Dow served its complaint in this action, Dow knew that its '023 patent failed to furnish any units for the "slope of strain hardening" parameter that appears in the SHC equation described at column 7, lines 22-28, which units are necessary for calculation of SHC.

301. The claims of the '023 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, 111, 112, and/or 113.

COUNT VI -
DECLARATORY JUDGMENT OF UNENFORCEABILITY OF THE '023 PATENT

302. NOVA adopts and incorporates by reference paragraphs 1 - 214 above, as if set forth herein.

303. A present, genuine, and justiciable controversy exists between Plaintiff and Defendants NOVA regarding, *inter alia*, the enforceability of the '023 patent.

304. The '023 patent is unenforceable because individuals owing a duty of candor and good faith under 37 C.F.R. § 1.56 engaged in inequitable conduct in the prosecution leading to the '023 patent at least by making material misrepresentations to and withholding material information from the USPTO with an intent to deceive.

305. Dow, through Mr. McKinney, by deliberate deception, succeeded in preventing information in the '919 Application that was highly material to the patentability of the claims of the copending '393 Application from being considered by Examiner Wu.

306. The materiality and impact of this deception were confirmed when:

(a) The USPTO initially rejected the claims of the '919 Application principally on the basis of the '383 patent;

(b) Dow was unable to establish on the merits the patentability of the '919 Application claims over the '383 patent;

(c) Dow had to resort to a late-filed claim of priority to the '383 patent, made through the '023 patent after its issuance, in order to eliminate the '383 patent as prior art.

307. On information and belief, while the '393 Application was pending before Examiner Wu and after the '919 Application had been filed, Dow inventors and/or attorneys or patent agents with a duty of disclosure withheld the contents and existence of the '919 Application from Examiner Wu with an intent to deceive.

308. Dow inventors and/or attorneys or patent agents with a duty of disclosure made material misrepresentations throughout the prosecution leading to the '023 patent, indicating that the claims in the application for the '023 patent were expressly limited to blends having a SLEP component. Dow inventors and/or attorneys or patent agents with a duty of disclosure further failed to correct the Examiner's consequent misunderstanding that the claims of the '023 patent were not expressly limited to blends having a SLEP component.

309. The as-filed "Abstract" of the application for the '023 patent states that "[t]he ethylene polymer compositions have at least one [SLEP] and at least one heterogeneously

branched ethylene polymer." The as-filed Abstract does not state that the ethylene polymer compositions of the '023 patent may exclude all SLEP components. At no time during the prosecution of the application for the '023 patent did Dow inventors and/or attorneys or patent agents with a duty of disclosure amend the Abstract to reflect that the ethylene polymer compositions need not include a SLEP component and contain instead other homogeneous ethylene polymers.

310. The as-filed "Field of the Invention" in the application for the '023 patent similarly states that the

> invention relates to compositions comprising specific ethylene/α-olefin polymer blends. The polymer blends preferably comprise:
>
> (A) at least one [SLEP] having specific processing characteristics, blended together with
>
> (B) a heterogeneously branched ethylene polymer.

The as-filed Field of the Invention does not state that the ethylene polymer compositions of the '023 patent need not include a SLEP component. At no time during the prosecution of the application for the '023 patent did Dow amend the Field of the Invention to reflect that the ethylene polymer compositions need not include a SLEP component and contain instead other homogeneous ethylene polymers.

311. In the Pre-Examination Amendment dated August 27, 1997, Dow inventors and/or attorneys or patent agents with a duty of disclosure represented that certain amendments were "provided to more distinctly set forth the present invention as directed to substantially linear ethylene polymers." At no time subsequent to the Pre-Examination Amendment did Dow inventors and/or attorneys or patent agents with a duty of disclosure revise or correct its statement that "the present invention [was] directed to substantially linear ethylene polymers."

312. In Response A, dated January 31, 2000, Dow inventors and/or attorneys or patent agents with a duty of disclosure represented to the USPTO Examiner that the Third Markovich Declaration "clearly and convincingly demonstrates that the present invention provides unexpected results." The "inventive compositions" of the Third Markovich Declaration are limited to blends having a SLEP component as the sole homogeneous ethylene/alpha-olefin interpolymer. The claims of the application at that time did not expressly require a SLEP component, and thus this statement was false.

313. During the prosecution leading to the '023 patent, Dow inventors and/or attorneys or patent agents with a duty of disclosure disclosed that it had an Exxon Exact™ resin with an averaged SHC value of 2.01. Dow inventors and/or attorneys or patent agents with a duty of disclosure characterized Exact™ resins as distinct from SLEPs, stating that the Exact™ polymers are homogeneously branched linear ethylene interpolymers in that they "are believed to be characterized as having a narrow short chain branching distribution and comprise ethylene interpolymerized with at least one α-olefin." Although Dow inventors and/or attorneys or patent agents with a duty of disclosure had a non-SLEP homogeneously branched linear ethylene interpolymer with a SHC of greater than or equal to 1.3, Dow did not disclose to the USPTO during prosecution of the '023 application any data related to any blends therewith.

314. In the Notice of Allowability for the application for the '023 patent, the Examiner distinguished homogeneously branched ethylene/alpha ethylene interpolymer polymers prepared from a catalyst with specific constrained geometry about the metal atom (SLEPs) from those prepared using other catalysts. The Examiner stated that 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," which discloses SLEPs formed from

constrained geometry catalysts. The Examiner indicated that blends of homogeneously branched ethylene/alpha ethylene interpolymers were known and that the allowance was based on the understanding that the claims were directed to blends containing at least one SLEP. At no time did Dow correct the Examiner's misunderstanding that the claims required at least one SLEP, although the Examiner requested correction of errors and, on information and belief, the Dow agent prosecuting the application on behalf of Dow recognized the Examiner's misunderstanding.

315. Additionally, on information and belief, Dow and its counsel who had a duty of disclosure in the prosecution that led to the '023 patent were aware of prior art highly pertinent to that prosecution that was effectively withheld from the USPTO. Specifically, U.S. Patent No. 5,530,065 ("US '065") owned by Exxon, based on its priority application dated January 7, 1992, anticipates or renders obvious claims of the '023 patent and would have been highly material to the '023 prosecution.

316. Dow, and its counsel, Mr. McKinney, in an Information Disclosure Statement filed in the application for the '023 patent, cited to the USPTO as "particularly relevant" the WIPO counterpart of this Exxon patent, which listed a first filing date of November 12, 1993, too late to be prior art relative to the April 28, 1993, priority date of the '023 patent. Dow and its counsel, Mr. McKinney, also cited the US '065 patent, which has a priority date of January 7, 1992, nearly one year before the priority date of the '023 patent, to the USPTO but intentionally buried this highly pertinent reference in a list of over 130 references not indicated to be particularly pertinent, thereby effectively concealing it from the USPTO.

317. On information and belief, Dow and its counsel knew and understood the high materiality of the '065 Exxon patent and its January 7, 1992 priority application, but

intentionally mischaracterized and buried this information in order to deceive the USPTO as described above.

318. Dow, acting through employees who owed a duty of candor and good faith to the USPTO under 37 C.F.R. § 1.56, engaged in inequitable conduct in the prosecution leading to the '023 patent.

COUNT VII - DOW IS ATTEMPTING TO MONOPOLIZE THE RELEVANT MARKETS BY PURSUING CLAIMS OF INFRINGEMENT UNDER PATENTS WHICH DOW OBTAINED BY FRAUD ON THE PATENT OFFICE

319. NOVA adopts and incorporates by reference paragraphs 1 - 232, 255 - 275, and 302 - 318 above, as if set forth herein.

A. Dow Obtained the Patents in Suit Through Fraud On The Patent Office

The '053 Patent

320. In Counterclaim III, which is incorporated in full, NOVA alleges that Dow, acting through employees who owed a duty of candor and good faith to the USPTO under 37 C.F.R. § 1.56 engaged in inequitable conduct in the prosecution leading to the '053 patent. The allegations above, together with those below, demonstrate that Dow acted with the intent to defraud the USPTO, that Dow would not have obtained the '053 patent without such misrepresentations, and that the Examiner relied upon the facts misrepresented by Dow.

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

322. But for the Third Markovich Declaration, the '383 patent would not have issued from the '497 Application.

323. The '383 patent was procured by Dow by practicing fraud upon the USPTO.

324. Knowing that the Third Markovich Declaration was grounded in false information, Dow filed a copy of the Declaration in the USPTO in support of the prosecution of the '050 Application and argued that it supported the patentability of the claims.

325. Having already withdrawn a rejection based on WO '414 in the application that was the parent of the '050 Application by reason of the Third Markovich Declaration, Examiner Wu refrained from raising the WO '414 again in the examination of the '050 Application and used other grounds to initially reject the claims of the '050 Application.

326. Dow eventually overcame these rejections and the '053 patent issued.

327. In order to overcome the Examiner's objection that the '050 Application claims were anticipated by or obvious over Hodgson et al. U.S. Patent No. 5,376,439 ("Hodgson '439"), Dow, through Mr. McKinney, on May 19, 1998 argued that the '050 Application claims were not so anticipated or obvious because the Third Markovich Declaration demonstrated unexpected results for the "present invention" over prior art, even though McKinney knew that the Third Markovich Declaration relied upon "Inventive Examples" which were outside the scope of the claims of the '050 Application. The Examiner's August 5, 1998 Notice of Allowability relied upon Dow's arguments in concluding that the '050 Application is not anticipated by or obvious over the Hodgson '439 patent.

328. But for the pivotal influence of the Third Markovich Declaration in the successful prosecution of the parent of the '050 Application and its use in argument against the rejections levied by Examiner Wu in the '050 Application and its parent, the '053 patent would not have issued.

329. Dow intentionally deceived the USPTO by asserting that the Third Markovich Declaration provided evidence of unexpected and surprising results for the composition covered

by the claims of the '050 Application, while the Declaration in fact dealt with compositions outside the scope of these claims.

330. The '053 patent was procured by Dow by practicing fraud on the USPTO.

The '023 Patent

331. In Counterclaim VI, which is incorporated in full, NOVA alleges that Dow, acting through employees who owed a duty of candor and good faith under 37 C.F.R. § 1.56, engaged in inequitable conduct in the prosecution leading to the '023 patent. The allegations above, together with those below, demonstrate that Dow acted with the intent to defraud the USPTO, that Dow would not have obtained the '023 patent without such misrepresentations, and that the Examiner relied upon the facts misrepresented by Dow.

332. On information and belief, Mr. McKinney was well aware of the practice of the USPTO of assigning, where possible, continuing applications to the Examiner examining a parent application to the new application.

333. On information and belief, Mr. McKinney knew that the '919 Application qualified to claim priority to the copending '393 Application, which in turn claimed priority to the '497 Application.

334. On information and belief, Mr. McKinney knew that the '383 patent, having issued more than two years prior and being identified and incorporated by reference into the '919 Application that he was about to file, should be made the basis for rejection of the claims of the '919 Application.

335. On information and belief, Mr. McKinney knew that a rejection based on the '383 patent could be avoided by claiming priority in the copending '393 Application, but to do so would require him in the transmittal papers to identify Examiner Wu and his Art Unit.

336. On information and belief, Mr. McKinney knew that if Examiner Wu were to become aware of the expanded disclosure of the SHC calculation contained in the '919 Application, he would have a statutory basis to find the claims of the '393 Application defective under 35 U.S.C. § 112.

337. On information and belief, Mr. McKinney knew as early as February 2, 1996, the date on which the Third Markovich Declaration was executed, that the disclosure on the method for calculating SHC was defective in the specifications of the applications in the chain of the '379 Application.

338. Mr. McKinney nonetheless allowed the applications for the '383 and '053 patents to be filed and to subsequently issue with defective specifications.

339. Mr. McKinney knew that any rejection of the '393 Application under 35 U.S.C. § 112, if made final, could spill over and adversely affect Dow's ability to enforce the earlier issued '383 and '053 patents that contained the same defect.

340. Being fully informed of the facts and circumstances aforesaid, Mr. McKinney deliberately, and with intent to deceive, executed the papers transmitting the '919 Application to the USPTO without designating it as a continuing application or identifying Examiner Wu or his Art Unit, and without disclosing the '919 Application in the co-pending application for the '023 patent.

341. The '919 Application was assigned to an examiner in an art unit different from that of Examiner Wu.

342. Mr. McKinney thus committed fraud on the USPTO by intentionally withholding and diverting the '919 Application from Examiner Wu, depriving him of the opportunity to

consider information that was highly material to the patentability of the claims of the application for the '023 patent.

343. On information and belief, the USPTO justifiably relied upon Mr. McKinney's actions by not assigning the '919 Application to Examiner Wu.

344. Mr. McKinney's willful actions in withholding and diverting the '919 Application were material to the patentability of the claims of the application for the '023 patent.

345. But for Mr. McKinney's fraudulent conduct aforesaid, the '023 patent would not have issued.

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

347. The claims of the '919 Application subsequently, but not surprisingly, were rejected based on the '383 patent. After the issuance of the '023 patent, Dow amended the specification of the '919 Application to recite a claim of priority back to the '497 Application, via a claim to priority to the '393 Application for the '023 patent, and thereby removed the '383 patent as prior art. In support of this priority claim, the Inventor's Declaration, executed in July and August 2002 by, *inter alia*, Pak-Wing Chum and Kurt W. Swogger, 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.

348. 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.

349. Dow initially attempted to obtain a Certificate of Correction to add paragraph 63 based on a Patent Office error, but almost immediately withdrew that request.

350. Dow filed a request for Certificate of Correction to delete entirely the language claiming priority and thus the entire basis for having the USPTO remove the '383 patent as prior art.

351. This conduct by Dow was also fraudulent *per se* in the prosecution of the '398 patent.

B. Dow's Market Power

352. NOVA is Dow's only competitor in the SSC C8 Polymer (i.e., linear low density polyethylene resins containing from 100% to at least 25% homogeneous, single site catalyzed linear low density ethylene-octene co-polymer for use in film resins) and Solution Phase Technology markets, in which Dow already enjoys a dominant position. By eliminating NOVA as a viable choice for customers desiring to purchase SSC C8 Polymers and for firms desiring to invest in a new solution-phase polyethylene plant, Dow preserves or increases its market power, increasing Dow's ability to demand supra-competitive prices for the SSC C8 Polymers or to extract from the licensee Dow's asking price for the INSITE Technology, including the demand for an ownership interest in the plant.

353. The relevant product markets are:

(a) the market for SSC C8 Polymers, and

(b) Solution Phase Technology.

354. The relevant geographic market for SSC C8 Polymers is North America.

355. The relevant geographic market for Solution Phase Technology is worldwide.

356. Since NOVA is Dow's only competitor in the relevant markets and Dow's financial resources dwarf NOVA's, there is a dangerous probability that Dow will succeed in monopolizing the relevant markets.

C. Dow's Conduct Is Damaging Competition

357. Dow's improper and exclusionary conduct has denied purchasers of SSC C8 Polymers and actual and potential licensees of Solution Phase Technology the freedom of choice they would enjoy in competitive markets unrestrained by Dow's attempt to monopolize.

358. Dow's conduct has foreclosed free and open competition in the SSC C8 Polymer Market and in the Solution Phase Technology market.

D. NOVA Has Been Injured By Dow's Attempt To Monopolize

359. Dow's conduct in furtherance of its scheme to monopolize the SSC C8 Polymer market and the Solution Phase Technology market has injured NOVA by diminishing its sales, by bringing into question the validity and legality of its technology, by compelling NOVA to incur substantial expenses in defense of baseless litigation, by diverting NOVA's resources from the development of its business in the SSC C8 Polymer market and the Solution Phase Technology market and by discouraging customers from purchasing NOVA's resins and licensees from licensing the Advanced SCLAIRTECH Technology.

360. NOVA's injuries from Dow's predatory and exclusionary conduct are the type of injury the antitrust laws were intended to prevent and constitute antitrust injury.

COUNT VIII -
DOW IS ATTEMPTING TO MONOPOLIZE THE RELEVANT MARKETS BY PURSUING CLAIMS OF INFRINGEMENT UNDER PATENTS DOW KNOWS TO BE NEITHER INFRINGED, NOR VALID, NOR ENFORCEABLE

361. NOVA realleges and incorporates by reference Paragraphs 1 through 360 above.

362. NOVA brings this claim for declaratory judgment, injunctive relief and damages based upon Dow's maintenance of this action which is sham litigation regarding alleged infringement of patents which are known by Dow not to be infringed, not to be valid, *inter alia*, as a result of the failure to include all of the information required to enable the claimed

inventions and not to be enforceable as a result of Dow's procurement of the patents through fraud and inequitable conduct.

363. Since at least 2005 and prior to the service of the underlying complaint, Dow had actual knowledge that NOVA's products did not infringe either the '053 patent or the '023 patent, but nonetheless asserts in this sham action the right to assert damages for infringement of these patents and to enjoin NOVA's competition and to remove it from the relevant markets.

364. Dow's pursuit of sham litigation regarding the '053 and '023 patents, which Dow knows were not infringed, were not valid and were unenforceable as a result of Dow's fraudulent and inequitable conduct before the USPTO has had and continues to have the following anticompetitive effects:

(a) Potential competitors and NOVA have been delayed and hindered in selling SSC C8 Polymers and in licensing Solution Phase Technology.

(b) Because of the maintenance of such sham litigation, NOVA's exploitation of its own competing and non-infringing technology has been hindered. Because of the sham litigation, interference with potential purchasers of SSC C8 Polymers and potential licensors of Solution Phase technology will continue without intervention from the Court. NOVA faces continuing and irreparable injury from Dow's knowing assertion of baseless and irresponsible claims of infringement.

(c) Because of the sham litigation, potential purchasers of SSC C8 Polymers and potential licensees of Solution Phase Technology have been denied a free and unimpaired choice of product and/or technology.

365. Dow knows, and any reasonable patent owner would know, that Dow has no valid and enforceable claim of infringement with respect to either the '053 or the '023 patents, for at least the following reasons:

(a) NOVA has not infringed the '053 patent;

(b) The '053 patent is invalid, *inter alia*, because it does not enable the claimed invention because of, *inter alia*, the failure to disclose the method of determining the SHC;

(c) Dow and its individual representatives were guilty of inequitable conduct in the procurement of the '053 patent, and that inequitable conduct has not been purged. Accordingly, the '053 patent is unenforceable;

(d) NOVA has not infringed the '023 patent;

(e) The '023 patent is invalid, *inter alia*, because it does not enable the claimed invention because of, *inter alia,* the failure to disclose the method of determining the SHC;

(f) Dow and its individual representatives were guilty of inequitable conduct in the procurement of the '023 patent, and that inequitable conduct has not been purged. Accordingly, the '023 patent is unenforceable.

366. Dow both began and continues this lawsuit with actual knowledge that neither patent '053 nor patent '023 is infringed. Both patents require that the infringing composition include both a homogeneous component and a heterogeneous component. Prior to Dow's service of the Complaint upon NOVA, Dow knew that NOVA's SURPASS® SSC C8 Polymers contain only homogeneous polymers.

367. Dow knows that the '053 and '023 patents are invalid for failure to disclose the method for measuring the SHC. Dow's inclusion in its '919 Application of the information which is necessary to measure the SHC, and which Dow omitted from the applications for the '053 and '023 patents demonstrates Dow's knowledge of the invalidity of the '053 and '023 patents. Further evidence of Dow's knowledge of the invalidity of the '053 and '023 patents is Dow's efforts to withhold the '919 Application from the examination of the application for the '023 patent, including the failure to cite the '919 Application in the co-pending application for the '023 patent, Dow's refusal to identify the '919 Application as a continuation in part of the '053 patent and the '023 patent while the application for the '023 patent was pending, and Dow's efforts to remove from the USPTO's files for the '919 Application and the resulting patent Dow's own acknowledgement that the '919 Application related back to the same patents as the '053 and '023 patents.

368. Dow further knows of the inequitable and fraudulent conduct in which it engaged in procuring the '053 and '023 patents, as set forth in paragraphs 14 - 214, 255 - 274, 302 - 318, and 320 - 351 above.

369. The invalidity and unenforceability of the '053 and '023 patents, as well as the absence of any infringement of those patents by NOVA, would be obvious to any reasonable patent holder in Dow's situation.

370. Dow has willfully and knowingly pursued this baseless litigation against NOVA not for the purpose of obtaining a ruling regarding the complete absence of merit in its claims of infringement but rather for the purpose of impeding NOVA's ability to compete in the relevant markets as a consequence of the pendency of the litigation. Dow's intent is that the pendency of the litigation will impede NOVA's development of the market for its SSC C8 Polymers and

prevent actual or potential producers of polyethylene resins who are building or renovating polyethylene plants from licensing the NOVA Advanced SCLAIRTECH Technology, thereby preserving Dow's market power in the relevant markets.

371. NOVA is Dow's only competitor in the markets for the sale of SSC C8 Polymers (*i.e.,* linear low density polyethylene resins containing from 100% to at least 25% homogeneous, single site catalyzed linear low density ethylene-octene co-polymer for use in film resins) and for the licensing of Solution Phase Technology. By eliminating NOVA as an attractive choice for firms purchasing SSC C8 Polymers or for firms interested in investing in technology for a new solution phase polyethylene plant capable of producing SSC C8 Polymers, Dow preserves or enhances its market power, increasing Dow's ability to extract supra-competitive prices for its SSC C8 Polymers and for its Solution Phase Technology.

372. Since NOVA is Dow's only competitor in the market for SSC C8 Polymers and for Solution Phase Technology, there is a dangerous probability that Dow will succeed in monopolizing both relevant markets.

373. As a result of Dow's attempts to bar NOVA from the relevant markets through the assertion of patents which Dow procured by fraud, which Dow knows are not infringed and which Dow knows are invalid for failure to enable the claimed invention, Dow has deprived purchasers of SSC C8 Polymers and actual and potential licensees in the Solution Phase Technology market of free and unrestrained competition for the furnishing of such product and technology, to the detriment of NOVA, the customers, the licensees and their customers.

374. Dow's conduct in furtherance of its scheme to monopolize the SSC C8 Polymer market and the Solution Phase Technology market has prevented and will continue to delay the

dismissal of Dow's infringement claims, thereby continuing the adverse effects of its conduct in this market.

375. Dow's conduct is continuing and will continue without intervention from the Court. NOVA faces continuing and irreparable injury from Dow's knowing assertion of baseless and irresponsible claims of infringement.

PRAYER FOR RELIEF

WHEREFORE, NOVA respectfully requests that the Court enter a judgment in its favor and against Counterclaim Defendant, and grant the following relief.

A. Entering an Order dismissing plaintiff/counter defendant Dow's complaint in its entirety with prejudice;

B. Declaring that each of the claims of U.S. Patent Nos. 5,487,053 and 6,111,023 is invalid;

C. Declaring that NOVA has not infringed any valid claim of U.S. Patent Nos. 5,487,503 and 6,111,023;

D. Declaring that each of the claims of U.S. Patent Nos. 5,487,053 and 6,111,023 is unenforceable;

E. Enjoining plaintiff/counter-defendant Dow, its officers, agents, attorneys, employees and those in active concert with them from enforcing U.S. Patent Nos. 5,487,053 and 6,111,023 against NOVA;

F. Declaring this case exceptional under 35 U.S.C. § 285 and awarding NOVA its attorney fees and costs;

G. Entering a judgment that Counter Defendant has violated Section 2 of the Sherman Antitrust Act (15 U.S.C. § 2);

H. Entering an Order, pursuant to the Sherman Antitrust Act (15 U.S.C. § 1 *et seq.*) and the Clayton Act (15 U.S.C. § 15), awarding damages, costs of suit, interest and attorneys' fees to NOVA and that NOVA's damages be trebled;

I. Entering an Order, pursuant to the Sherman Antitrust Act (15 U.S.C. § 1 *et seq.*) and the Clayton Act (15 U.S.C. § 26), permanently enjoining Counterclaim Defendant from suing NOVA to enforce claims of patent infringement related to the patents in suit and awarding NOVA its costs of suit and reasonable attorneys' fees; and

J. Awarding NOVA such further relief as the Court deems just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, NOVA demands a trial by jury as to all issues triable of right to a jury.

POTTER ANDERSON & CORROON LLP

By: */s/ Kenneth L. Dorsney*
Richard L. Horwitz (#2246)
Kenneth L. Dorsney (#3726)
Hercules Plaza, 6th Floor
1313 N. Market Street
Wilmington, Delaware 19801
Tel: (302) 984-6000
rhorwitz@potteranderson.com
kdorsney@potteranderson.com

Attorneys for Defendants NOVA Chemicals Corporation (Canada), and NOVA Chemicals Inc. (Delaware)

OF COUNSEL:

Ford F. Farabow, Jr.
Ronald A. Bleeker
Joann M. Neth
Mark J. Feldstein
Jeffrey W. Abraham
Troy A. Petersen
Martin I. Fuchs
Ken Motolenich-Salas
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.
901 New York Avenue, N.W.
Washington, DC 20001-4413
Tel: (202) 408-4000

H. Woodruff Turner
KIRKPATRICK & LOCKHART
PRESTON GATES ELLIS LLP
535 Smithfield Street
Pittsburgh, PA 15222
Tel: (412) 355-6478

Dated: January 11, 2008
838707 / 29645

LIST OF EXHIBITS

A. United States Patent No. 6,723,398 B1