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)

DECLARATION OF BENJAMIN S. HSIAO

I, Benjamin S. Hsiao, do declare and state as follows:

Educational Background

1. I am a chemistry professor at State University of New York at Stony Brook, where I have been a professor since 1997. I am also a Guest Professor at the Changchun Institute of Applied Chemistry at the Chinese Academy of Sciences. Additionally, I was an Adjunct Associate Professor in the Department of Materials Science and Engineering at the University of Delaware from 1994 to 2000.

2. In addition to lecturing, I conduct and supervise a large amount of research. My research interests include the fundamentals of polymer crystallization, behavior of orientation-induced crystallization and the structure/property/process relationship in nanostructured polymers, elastomers and nanocomposites.

3. I received a M.S. and Ph.D. from the Institute of Materials Science at the University of Connecticut in 1984 and 1987, respectively. Prior to receiving those degrees, I received my B.S. in chemical engineering in 1980 from National Taiwan University.

4. After receiving my Ph.D., I was a Post-Doctoral Research Fellow in the Departments of Chemistry and of Polymer Science & Engineering at the University of Massachusetts from 1987 to 1989. Following my post-doc, I became a Staff Scientist at the Pioneering Laboratory at DuPont Fibers from 1989 to 1993. Then, from 1993 to 1997, I worked as a Senior Staff Scientist in the Materials Science and Engineering Department at DuPont Central Research & Development.

5. I have been a member of numerous panels and organizations. I was a member of the Ad-hoc Advisory Panel for the Polymer Program of the Division of Materials Research for the National Science Foundation in 1997. I am currently a member of the Advisory Board of the American Chemical Society, Petroleum Research Foundation.

6. I am a member of editorial boards for several journals. I am a member of the Editorial Advisory Boards for Polymer, the Journal of Macromolecular Science - Physics, the Journal of Polymer Research, and Chinese Journal Applied Chemistry (Yingyong Huaxue). Additionally, I have been a member of the Executive Editorial Board for High Performance Polymers since 1996. Further, I was the Guest Editor for Journal of Macromolecular Science - Physics in 1998, and the Guest Editor for the Journal of Applied Crystallography in 2000.

7. The specifications of U.S. Patent Nos. 5,847,053 and 6,111,023 (the "Dow Patents") contain a detailed description of the regions of a tensile curve, such as a stress/strain curve:

> The strain hardening region occurs after the sample has pulled its initial load ((i.e., stress) usually with little or no elongation during the initial load) and after the sample has gone through a slight drawing stage (usually with little or no increase in load, but with increasing elongation (i.e., strain)). In the strain hardening region, the load and the elongation of the sample both continue to increase. The load increases in the strain hardening region at a much lower rate than during the initial load region and the elongation also increase, again at a rate lower than that experienced in the drawing region.

USPN 5,847,053, col. 6, lines 29-39; USPN 6,111,023 at col. 7, lines 7-17. Any person of ordinary skill of the art reading the specification of the Dow Patents would know what the figure described above would look like. When a polymer is put under a load, a tensile curve can be obtained for the polymer using the procedure described in the specification at col. 6, lines 24-29 of the '053 patent and col. 7, lines 3-7 of the '023 patent. One of ordinary skill in the art would know this tensile curve typically has four regions: the initial load region, the yield region or point, the deformation or draw region and the strain hardening region.

8. Strain hardening was a well known property seen in polymers put under a load test. There are many examples from the prior art showing the regions of the tensile curve, including the strain hardening region. For example, in a 1971 book published by the American Chemical Society entitled *Mechanical Properties of Solid Polymers*, a tensile curve for a polymer is included in the text at page 271, attached as Exhibit 1. This tensile curve, set forth below, illustrates the same strain hardening region referenced in the Dow Patents:

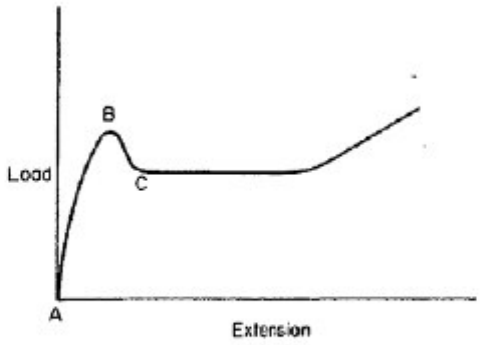


Figure 11.2. Typical load–extension curve for a cold-drawing polymer.

9. From the description in the Dow Patents, a person of ordinary skill in the art could easily reconstruct a figure, such as the one shown above, that shows the various stages of the stress/strain curve used to calculate the slope of strain hardening.

10. In its Motion for Judgment on the Pleadings, Nova states that:

> In order to calculate the SHC, both virtually identical specifications state that one first needs to calculate the 'slope of strain hardening' (a parameter distinct from the slope of strain hardening coefficient, SHC), which is in turn derived from a drawing of a curve.

(Nova's Motion for Judgment on the Pleadings, p. 2).

11. Nova also states:

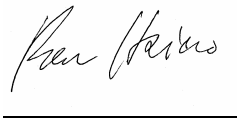
> The value of this "slope of strain hardening," in turn, is said to be calculated from a drawing ("FIG. 1") of a stress/strain curve by drawing a line parallel to the strain hardening region of the stress strain curve.

(Nova's Motion for Judgment on the Pleadings, p. 3).

12. The "FIG.1", as described in the Dow Patents' specifications set forth in paragraph 7 above, would only illustrate the tensile curve for one polymer, either actual or hypothetical. However, normally one would not use a tensile curve for one polymer to determine the strain hardening coefficient for another polymer. Therefore, a person of ordinary skill in the art would know that in order to determine the slope of strain hardening coefficient for a polymer, one must create a tensile curve for that specific polymer, and make the determination of the slope of strain hardening on that curve.

13. Hence, it would not be necessary for one of ordinary skill in the art to have the FIG. 1, as described in the Dow Patents' specifications set forth in paragraph 7 above, for an understanding of the subject matter patented or in order to determine the slope of strain hardening coefficient.

I declare under penalty of perjury that the foregoing is true and correct.



Date: December 6, 2006

Benjamin S. Hsiao

CERTIFICATE OF SERVICE

I, Rodger D. Smith, hereby certify that on December 6, 2006, I electronically filed the foregoing with the Clerk of the Court using CM/ECF, which will send notification of such filing(s) to the following:

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I also certify that copies were caused to be served on December 6, 2006, upon the following in the manner indicated:

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