

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

THE DOW CHEMICAL COMPANY,	:	
	:	
Plaintiff,	:	
	:	
v.	:	Civ. No. 05-737-LPS
	:	
NOVA CHEMICALS CORPORATION (CANADA),	:	
AND NOVA CHEMICALS, INC. (DELAWARE)	:	
	:	
Defendants.	:	
	:	

Rodger D. Smith, II, Esq., MORRIS NICHOLS ARSHT & TUNNELL, LLP, Wilmington, DE

Harry J. Roper, Esq., Paul D. Margolis, Esq., Jamie Keating Lord, and Aaron A. Barlow, Esq., JENNER & BLOCK, LLP, Chicago, IL

Raymond N. Nimrod, Esq., and Joshua S. Reisberg, Esq., QUINN EMANUEL URQUHART OLIVER & HEDGES, LLP, New York, NY

Attorneys for Plaintiff The Dow Chemical Company

David E. Moore, Esq., POTTER ANDERSON & CORROON, LLP, Wilmington, DE

Ford F. Farabow, Jr., Esq., Mark J. Feldstein, Esq., Sulay D. Jhaveri, Esq., Eric J. Fues, Esq., Ronald A. Bleeker., Esq., and Pier D. DeRoo, Esq., FINNEGAN HENDERSON FARABOW GARRETT & DUNNER, LLP, Washington, DC

Attorneys for Defendants Nova Chemicals Corporation and Nova Chemicals, Inc.

March 28, 2014
Wilmington, Delaware.



STARK, U.S. District Judge:

Pending before the Court is the issue of post-trial damages for the period of continued infringement from January 1, 2010 through October 15, 2011 (“Supplemental Damages Period”) by Defendants, NOVA Chemicals Corporation (Canada) and NOVA Chemicals Inc. (Delaware) (together, “NOVA” or “Defendant”), of two of Plaintiff Dow Chemical Company’s (“Dow” or “Plaintiff”) patents. The Court held a two-day bench trial on this issue in April and May, 2013. Also pending is NOVA’s motion for stay of entry and execution of judgment. (D.I. 746) For the reasons explained below, the Court finds that Dow is entitled to lost profits and reasonable royalties for the Supplemental Damages period, but is not entitled to enhanced damages. The Court also denies NOVA’s motion for a stay of entry and execution of judgment.

BACKGROUND

A. The Parties, their Products, and the Patents

1. Plaintiff Dow is a chemicals company that manufactures plastics, including polyethylene (“PE”) products, which it then sells to customers who convert the PE product into items such as stretch film or shampoo bottles. (D.I. 749 at 3)
2. Plaintiff is the owner of the patents-in-suit: U.S. Patent Nos. 5,847,053 and 6,111,023. (D.I. 1) The patents-in-suit expired on October 15, 2011. (D.I. 731 at 2, ¶1)
3. Dow manufactures and sells ELITE, a type of plastic product that is both stronger and thinner than other types of plastic, and is also an embodiment of the patents-in-suit. (D.I. 573 at 114-15)

4. Defendant NOVA manufactures chemicals, including PE and other products.

(D.I. 14 at 2)

5. NOVA manufactures and sells SURPASS, a PE product that competes directly with Dow's ELITE. (D.I. 748 at 2; D.I. 573 at 179) NOVA also manufactures and sells XJS, an off-grade product that does not meet the target grade specifications, which has to be sold for a lower price. (D.I. 578 at 99)

B. The Jury Trial

6. Dow filed suit against NOVA for infringement of the patents-in-suit on October 21, 2005. (D.I. 1)

7. The Court held a jury trial in June 2010.

8. On June 15, 2010, the jury returned a verdict finding that NOVA's SURPASS and XJS products infringed one or more claims of the patents-in-suit. (D.I. 526) The jury awarded Dow \$61,770,994.60 in total damages: \$57,447,024.98 for lost profits and \$4,323,969.62 in reasonable royalties. These damages were for NOVA's infringement of the patents-in-suit from March 2002 through December 31, 2009. (*Id.*)

9. The jury did not award Dow the full amount of damages it had sought. With respect to lost profits, Dow's expert, Creighton Hoffman, opined that Dow would have captured 80% of NOVA's sales, but the jury apparently applied only a 72% capture rate. (314-15, 377-78; *see also* 530, 536 (testimony of Dow expert Chelton Tanger))¹ As for a reasonable royalty, the

¹All citations refer to the transcript from trial on supplemental damages held on April 30 (D.I. 743) and May 1, 2013 (D.I. 744), unless indicated otherwise (*e.g.*, D.I. 746). The Court's citations to the trial transcript are intended to refer both to the testimony itself as well as any admitted exhibits discussed by the witness in that portion of the transcript.

jury rejected Dow's proposed rate of 10% and instead applied an effective royalty rate of 1.755%.
(346)

C. Post-Trial Proceedings

10. On July 30, 2010, the Court denied NOVA's motions for judgment as a matter of law and a new trial related to the jury's lost profits award. (D.I. 609) Generally, the Court concluded that "the jury was entitled to credit Mr. Hoffman's testimony" and, in particular, that "Mr. Hoffman's testimony and the related evidence on lost profits [supported] the jury's lost profits award." (*Id.* at 9) The Court further concluded that the evidence presented at the 2010 trial sufficiently established the absence of non-infringing alternatives that were acceptable to NOVA's customers who purchased NOVA's infringing SURPASS products. (*Id.*)

11. Also on July 30, 2010, the Court denied Dow's motion for a permanent injunction (D.I. 556), thereby permitting NOVA to continue to sell SURPASS and XJS products (D.I. 603). Among other things, the Court found that there were "substantial issues for appeal" and that NOVA customers would be injured by an injunction. (*Id.* at 2-3) After the denial of the permanent injunction, NOVA adopted and implemented a remedial policy not to sell the infringing SURPASS products to new accounts. (414)

12. NOVA filed an appeal. (D.I. 614, D.I. 617) On December 22, 2010, the Court stayed proceedings in this Court during the pendency of the appeal. (D.I. 634) On April 4, 2012, the Federal Circuit affirmed the judgment for Dow in all respects. (D.I. 637, D.I. 638) On June 7, 2012, the Court lifted its stay. (D.I. 652)

13. On August 20, 2012, the Court granted NOVA's motion for summary judgment of no willful infringement. (D.I. 674)

14. On October 29, 2012, the Supreme Court denied NOVA's petition for a writ of certiorari. *See Nova Chemicals Corp. v. Dow Chem. Co.*, 133 S. Ct. 544 (2012).

D. Bench Trial

15. As the parties were unable to agree on the amount of supplemental damages to which Dow is entitled, the Court scheduled a bench trial. (D.I. 652, D.I. 711)

16. At the pretrial conference on April 12, 2013, the Court, among other things, denied NOVA's motion to stay the damages proceeding or, in the alternative, stay entry and execution of judgment during the pendency of ongoing reexamination proceedings of the patents-in-suit by the U.S. Patent and Trademark Office ("PTO"). (D.I. 727, D.I. 741, D.I. 759) The Court's denial was without prejudice to renew the stay request with respect to entry and execution of the judgment in connection with briefing that would follow the bench trial on damages. (D.I. 741)

17. The Court held a bench trial on supplemental damages on April 30 and May 1, 2013. The parties completed post-trial briefing on July 18, 2013. (D.I. 747-751, D.I. 754)

18. NOVA renewed its motion for a stay on June 3, 2013. (D.I. 746) After briefing was completed on NOVA's motion on July 18, 2013 (D.I. 747, D.I. 752), the parties advised the Court of subsequent developments on October 24, 2013, November 6, 2013, and February 12, 2014 (D.I. 755, D.I. 756, D.I. 758), including the PTO's issuance of Office Actions rejecting all claims of both patents-in-suit (D.I. 755).

FINDINGS OF FACT²

²Each of the Court's findings of fact, in this section and throughout this Opinion, are based on the Court's assessments of what was demonstrated by a preponderance of the credible evidence, including the testimony of witnesses. *See Fed. R. Civ. Proc. 52(a); Minco, Inc. v.*

A. Dow's Polyethylene Products and Manufacturing Processes

1. Dow sells a variety of polyethylene ("PE") products into the marketplace through direct transactions with customers and through distribution channels. (67-68) The direct customers, called converters, receive PE product from Dow and then convert the PE product into rigid items such as shampoo bottles, or flexible film items such as stretch film. (68-69)

2. Dow's PE products include high-density PE, also known as HDPE, and linear low density PE, also called LLDPE. (68-69) HDPE is used to manufacture rigid types of product such as buckets, pales, milk bottles, shampoo bottles, and butter tubs. (*Id.*) Because of the product's low density, LLDPE can be used in a variety of flexible film products like trash bags, stretch wrap, and meat wrap. (*Id.*)

3. Dow's patented products are LLDPE products sold by Dow under the brand name ELITE. Dow considers ELITE to be one of its premium products. (69) ELITE falls under a subclass of LLDPE products referred to as mLLDPE, whereby "m" refers to the metallocene catalyst used in the production of ELITE, which causes the polymer to have different properties than the type of polymers made with other catalysts. (130) ELITE is sold into the Industrial and Consumer Packaging Market and the Food and Specialty Packaging Market. (130-31) ELITE is used in a variety of product applications, including stretch film and heavy-duty shipping sacks. (69-71, 131-32)

B. Polyethylene Qualification and the Value of Incumbency

Combustion Engineering, Inc., 95 F.3d 1109, 1118 (Fed. Cir. 1996) ("The patent holder bears the burden of proving the amount of the award...by a preponderance of the evidence.").

4. It is valuable for a supplier of PE, such as Dow or NOVA, to be the incumbent supplier of PE products to converters or customers because converters and customers tend to stay with their incumbent supplier to avoid having to qualify an alternative resin. (143-44) Former Dow marketing director Mr. Christopher Paul Thomson testified, “incumbency is a very powerful position, something we worked very hard to get, and we worked very hard . . . to maintain that position.” (143)

5. Qualifying a PE resin is a demanding, time-consuming process in which suppliers work with converters to ensure that particular PE products are engineered to work with the converters’ manufacturing equipment and deliver the properties required by the converters and the converters’ customers. (144-47) NOVA’s Quality Leader, Dr. Paul Tas, explained that the qualification process consists of eight steps: an initial qualification trial, a scale-up trial, testing of the film product manufactured by the converter, evaluating the results of such testing, evaluation by the converter’s customers (the end users), a second scale-up trial, potential negotiations over product specifications, and then full acceptance. (189-95) Each trial alone takes three to fourth months. (192-95) Moreover, according to Dr. Tas, full acceptance can be delayed by “[a]nother three, fourth months” if the customer wants to negotiate the product specification after the scale-up trials. (195) Hence, the process for qualifying an alternative resin at a customer typically takes as long as 18 months. (195)

C. The Market for Dow’s ELITE Products in the Supplemental Damages Period

6. In the Supplemental Damages Period, ELITE was Dow’s premium linear low-density film product. (129) This was also true during the period prior to 2010. (130) Dow

positioned ELITE in the marketplace as having a superior overall balance of excellent physical properties and processability as compared to other products. (131) In 2010-2011, Dow targeted its ELITE product to the same customers that it had targeted in the period considered by the jury, 2002 to 2009 – that is, customers that valued processability and superior physical properties. (131)

7. In the Supplemental Damages Period, Dow's primary competitor for the ELITE film grades was NOVA's SURPASS. (132, 156) This was also true during the period prior to 2010 considered by the jury. (156) According to Mr. Thomson, NOVA's SURPASS and Dow's ELITE products were the most comparable products on the market in terms of processability and balance of physical properties at all pertinent times. (161)

8. In the Supplemental Damages Period, there were PE product offerings in the mLLDPE space other than ELITE and SURPASS. Those products included Exxon's EXCEED, LyondellBasell's STARFLEX, ChevronPhillip's MPACT/MARFLEX, and Westlake's MXSTEN. (156-57) Of all the products sold in the mLLDPE space during the Supplemental Damages Period, only SURPASS and ELITE were made using a dual-reactor, solution process; only ELITE and SURPASS could offer the benefits of the patented invention: the overall balance of excellent physical properties and excellent processability. (157-58, 313; PDEM_SD2205)

9. According to Mr. Thomson, the competitive dynamics between EXCEED, STARFLEX, MPACT and MXSTEN on the one hand, and ELITE and SURPASS on the other, did not change in the 2010-2011 time frame as compared to the 2002 to 2009 period considered by the jury. (159, 160-61) Thomson also testified that what customers found acceptable in the mLLDPE market did not change in 2010 and 2011 as compared with 2009. (161)

D. Dow's Strategy for Selling Polyethylene Products

10. Dow refers to its solution PE sales strategy as "Selling Out and Selling Up," which has been implemented into Dow's business strategy – including at the sales and production levels – since at least the early 2000s. (137-38)

11. "Selling out" refers to Dow's strategy of selling out its manufacturing capacity to fully utilize its reactors. (207-08)

12. Dow also focuses on "selling up" – that is, selling as much of its high value, high margin products as possible. (83-85; PTX 2035 at 19) As Dow strives to first "sell up" higher margin products like ELITE, it necessarily reduces sales of lower margin products like commodity-grade HDPE that is being displaced by the resources (such as manufacturing capacity) it invests in production of higher margin products. (83-86) Dow's commodity grade HDPE products, which Dow refers to as non-strategic products, are sold primarily on a transaction-by-transaction basis; that is, they are not generally subject to a long-term supply agreements. (102, 209)

E. Dow's Strategy for Manufacturing Additional ELITE

13. Dow's eight solution polyethylene trains have the capacity to produce over three billion pounds of polyethylene each year and over one billion pounds of ELITE each year. (77, 202-03, 234-35; PDEM_SD2106) Historically, Dow has made only about 500 million pounds of ELITE annually. (79, 235-37; PDEM_SD2304; PTX2042) Dow's ELITE-capable trains were fully utilized in 2010 and nearly fully utilized in 2011, but only about half of Dow's capacity on those trains was used to manufacture ELITE in those years; the remaining capacity was used to

manufacture DOWLEX³ and HDPE. (235-37; PDEM_SD2305; PTX2042) Thus, Dow had the ability to produce another 500 million pounds of additional ELITE per year during the Supplemental Damages Period. (237)

14. Dow engages in an annual production planning session to determine what volumes of high value, high margin products like ELITE Dow can expect to sell in the following year. This planning session is completed at an annual, fourth-quarter meeting at which sales managers discuss realized sales and project ELITE's increased sales for the next year. (99-100, 204-05) Dow focuses on its current year's sales, and uses its yearly historical sales figures as a starting point to determine its projected ELITE production for the upcoming year, and then adjusts its projections to take into account the fact that Dow has experienced consistent year-over-year growth of ELITE since the product was launched. (*Id.*; PTX2515)

15. Dow's strategy is to load its solution reactors with high value, high margin products like ELITE and high margin DOWLEX, and then load any remaining capacity with lower margin, commodity-grade, non-strategic products like HDPE (as long as it would be profitable to do so). (209)

16. Dow could have manufactured additional ELITE products on its North American assets in 2010 and 2011. (216, 238) As explained by Mr. Jose Obregon, Dow's Global Business Director for Solution- and Gas-Phase PE, Dow could have accomplished this by planning differently. (238-39, 244) If Dow had been selling more ELITE in 2009, Dow would have planned to produce and sell more ELITE in 2010, and would have planned to contract for more

³DOWLEX is another premium LLDPE that has different properties than ELITE (which is classified as an mLLDPE). (D.I. 749 at 3) Production of DOWLEX does not require an ELITE-capable (or dual-reactor) train. (D.I. 748 at 15)

raw materials to allow it to manufacture the additional volume Dow planned to sell. (205-06, 239, 241-43) As a result, Dow would have planned to produce and sell less of its low margin, commodity-grade, non-strategic HDPE products. (238-39, 244)

17. Dow could have met additional demand by allocating more of its capacity to its high value ELITE products, and less of its capacity to non-strategic, commodity-grade products like HDPE, consistent with the strategies discussed above. (216)

18. Dow has historically been able to procure the necessary volume of octene to meet the growth in demand for its ELITE products. (218-19) If Dow needed to manufacture an additional 100 million pounds of ELITE in the Supplemental Damages Period, Dow would have needed to purchase an additional 4.5 kilotons of octene. (221) Given that Dow purchases about 350 kilotons of octene annually, Dow could have and would have procured an additional 4.5 kilotons if needed to meet demand for ELITE, including by maintaining (rather than reducing) its contract levels for octene in 2009. (289-90)

F. Computation of Damages

19. At the jury trial in 2010, the jury awarded Dow \$61,770,994.60 in total damages: specifically, \$57,447,024.98 in lost profits and \$4,323,969.62 in reasonable royalties. (303; PDEM_SD2402; D.I. 526) This was equal to more than 90% of the lost profits and 17.5% of the reasonable royalties Dow requested. (303; PDEM_SD2402) These damages were for NOVA's infringement of the patents-in-suit from March 2002 through 2009. (303)

20. The jury's lost profits award of \$57,447,024.98 was 17.07% of NOVA's infringing sales of SURPASS in the 2002 to 2009 period of \$336,505,027. (PTX556 at Supp. Ex. C-4; 534) If one applies this effective rate of 17.07% to the approximately \$173 million in

infringing SURPASS sales during the Supplemental Damages Period (*see* PTX2572 at Revised Updated Suppl. Ex. D-9), the damages NOVA would owe Dow would be \$29.5 million for SURPASS, plus damages for XJS sales.

21. Dow's expert Mr. Hoffman determined the amount of supplemental damages resulting from NOVA's continued infringement during the Supplemental Damages Period to be \$30,962,780. (303-06, 345; PDEM_SD2404; PDEM_SD2437; PTX2572 at Revised Updated Suppl. Exs. I & J) Mr. Hoffman calculated damages separately for the period from January 1, 2010 until July 30, 2010 (the date judgment was entered), and the period from July 31, 2010 until October 15, 2011 (the date the patents expired). (305) Damages during the former period, adjusted for the jury award, totaled \$7,621,670, while damages for the latter period totaled \$23,341,110, which was not adjusted for the jury award. (*Id.*) Mr. Hoffman applied the jury's implicit royalty rate of 1.755% for the period January 1, 2010 through July 30, 2010, and applied a 10% royalty rate for the period July 31, 2010 to October 15, 2011. (305-06; PDEM_SD2405)

22. Mr. Hoffman's methodology for calculating Dow's damages in the Supplemental Damages Period was virtually the same as the methodology he had used at the 2010 jury trial. (303-04) Mr. Hoffman made certain adjustments to his calculation for the Supplemental Damages Period that were not necessary for his calculation of damages for the 2002 to 2009 period. For instance, for the Supplemental Damages Period, he deducted Dow's profits on sales of HDPE that Dow would have foregone to make additional ELITE. (*Id.*; PDEM_SD2403) This deduction was not necessary to calculate Dow's lost profits during the 2002-2009 period because, unlike during most of the Supplemental Damages Period, Dow had substantial empty plant capacity between 2002 and 2009. (303)

23. The jury's award to Dow of substantial lost profits damages indicates that the jury determined that Dow would have been the incumbent supplier for the bulk of NOVA's infringing sales in the 2002-2009 time period. (316-17) Mr. Hoffman concluded from the evidence presented that Dow would have, in the Supplemental Damages Period, maintained the business the jury determined Dow would have captured in the 2002-2009 period but for NOVA's infringement. The evidence established that there were no relevant material changes in NOVA's SURPASS customers or competitive dynamics in the Supplemental Damages Period from what had existed in the 2002 to 2009 period considered by the jury. (317-318; PDEM_SD2413; PTX2572 at Revised Updated Supplemental Exhibit L-1; 539)

24. Mr. Hoffman assessed Dow's supplemental lost profits by examining the *Panduit* factors: demand for the patented product; absence of acceptable, non-infringing alternatives; manufacturing capacity; and calculation of lost profits. (308-10)

a. As in the 2002 to 2009 period, demand continued to exist in the Supplemental Damages Period for the patented product. NOVA's sales of the infringing SURPASS product reached record levels in the Supplemental Damages Period. (310; PDEM_SD2408; PTX2572 at Revised Updated Suppl. Exs. H & D-7) In this latter period, NOVA sold about 246 million pounds of infringing SURPASS, and generated about \$173 million in sales. (PTX2572 at Revised Updated Suppl. Ex. H; PDEM_SD2408)

b. As in the 2002 to 2009 period, there were no non-infringing alternatives in the Supplemental Damages Period that were acceptable to those customers who purchased the infringing SURPASS products. (341-42) No new relevant products came onto the market during the Supplemental Damages Period. (*Id.*) There were no products on the market, other

than SURPASS, that offered the same overall balance of excellent physical properties and processability as the patented ELITE products. (*See id.*) While NOVA's sales director testified that a trend existed to utilize multilayer structures in film products, allowing products with inferior processability (such as Exxon's EXCEED) to become more acceptable (410-11), this trend started in the 1990's and grew exponentially in the early 2000s – the exact time frame considered by the jury at the first trial. (299, 416-19) This “trend” is not a change that differentiates the Supplemental Damages Period from the 2002-2009 period.

c. As in the 2002 to 2009 period, Dow had adequate manufacturing capacity, including the capability to manufacture about 500 million pounds of additional ELITE annually, in the Supplemental Damages Period. (238)

d. As in the 2002 to 2009 period, Mr. Hoffman calculated Dow's lost profits for the Supplemental Damages Period to a reasonable degree of certainty, the only difference being that in the Supplemental Damages calculation he deducted the profit on HDPE that Dow would not have made in the “but for” world in order to make more ELITE. (326-27) Just as he did during the first trial, Mr. Hoffman calculated Dow's ELITE component costs based on Dow's quarterly standard cost sheets that Dow prepares in the normal course of business, which are referred to as product cost estimates (“PCEs”), and which are updated every quarter. (335-36) NOVA's expert, Mr. Tanger, also relied on Dow's PCEs at the first trial, as well as in his first expert report relating to the Supplemental Damages Period. (*Id.*; 549)

25. Dow seeks a reasonable royalty of \$3,008,453 on NOVA's sales of infringing SURPASS not subject to lost profits, and infringing XJS sales during the Supplemental Damages Period based on a rate of at least 10%. (D.I. 749 ¶ 74 (citing 345; PDEM_SD2436; PTX2572 at

Revised Updated Suppl. Exs. I-3, I-4, J-3, & J-4) By contrast, NOVA insists that Dow is entitled only to the reasonable royalty rate of 1.755%, consistent with the jury's 2010 verdict. (D.I. 751 ¶ 77)

DISCUSSION

I. Dow's Request for Supplemental Damages

A. Legal Standards

The Court's power to award damages not found by a jury is based on statute. *See* 35 U.S.C. § 284 ("When the damages are not found by a jury, the court shall assess them."). The statute gives no guidance for awarding damages, so the Court must use its discretion in the matter. *See Grain Processing Corp. v. American Maize-Products Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999) ("The district court must exercise sound discretion to determine the amount of damages, based upon its underlying factual findings and legal conclusions"); *Devex Corp. v. Gen. Motors Corp.*, 667 F.2d 347, 357 (3d Cir. 1981) ("[T]he awarding of damages involves a subtle judicial function; the statute allows considerable latitude (to the fact-finding court).").

To recover damages based on lost profits, the patent owner has the burden to show a reasonable probability that "but for" the infringement, it would have made additional sales of and additional profits on the patented product. *See Grain Processing*, 185 F.3d at 1349; *Wechsler v. Macke Intern. Trade, Inc.*, 486 F.3d 1286, 1293 (Fed. Cir. 2007). In awarding damages, the Court must rely on hypothetical economic projections. "The 'but for' inquiry therefore requires a reconstruction of the market, as it would have developed absent the infringement" to determine the amount of lost profits. *Grain Processing*, 185 F.3d at 1350.

Courts tasked with defining the parameters of the “but for” world of lost profits have articulated four elements the patent owner must prove to recover. “[T]he patent owner must prove

(1) a demand for the patented product, (2) an absence of acceptable noninfringing substitutes, (3) the manufacturing and marketing capability to exploit the demand, and (4) the amount of profit the patent owner would have made.” *Siemens Medical Solutions USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1287 (Fed. Cir. 2011) (citing *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978)). After the patent owner establishes a reasonable probability of “but for” causation, the burden shifts to the infringer to show that this conclusion is unreasonable. *See Grain Processing*, 185 F.3d at 1349.

B. Dow Proved It Should Receive Lost Profits for the Supplemental Damages Period

In the 2010 infringement trial, the jury found that Dow proved the *Panduit* factors for lost profits recovery. The Court finds each of these elements were also proven by a preponderance of the evidence for the Supplemental Damages period.

1. Continued demand for the patented product

Both Dow and NOVA continued to sell their ELITE and SURPASS products during the Supplemental Damages period. NOVA does not contend that Dow failed to prove continued demand for the patented product.

2. Absence of acceptable non-infringing alternatives

To prove that there are no acceptable noninfringing alternatives, the patent owner “must show either that (1) the purchasers in the marketplace generally were willing to buy the patented

product for its advantages, or (2) the specific purchasers of the infringing product purchased on that basis.” *Standard Havens Prods. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1373 (Fed. Cir. 1991). It follows that “if purchasers are motivated to purchase because of particular features available only from the patented product, products without such features – even if otherwise competing in the marketplace – would not be acceptable noninfringing substitutes.” *Id.*

NOVA argues that the market for polyethylene was changing after 2009: customers were finding products “acceptable” that may not have been considered acceptable before (517-21); processability, the main selling point for the ELITE and SURPASS products, was becoming less important to customers (441-42); and competition was increasing in the market for multi-layer resins (170-71). However, the evidence shows that while these trends did exist in the Supplemental Damages Period, they likewise existed in the 2002 to 2009 period considered by the jury, and indeed began in the 1990s. (299, 416) Moreover, qualifying polyethylene products is a time-consuming and demanding process, often taking as long as eighteen months, which prevents customers from easily moving their business among competitors. (195) The Court finds no material changes in the market for acceptable alternatives took place between the time of the jury trial and the time now under consideration (until October 15, 2011). NOVA failed to show that any new products had been introduced into the market during the Supplemental Damages period which would qualify as non-infringing alternatives.

3. Marketing and manufacturing capability to meet demand

NOVA argues that Dow had no manufacturing capacity during the Supplemental Damages Period, and since there was no excess ELITE capacity there could be no lost profits. While Dow’s manufacturing trains were fully utilized during the Supplemental Damages Period

(349-52), Dow was producing HDPE, a lower-grade product than ELITE, and a product having a lower profit-margin (141, 209). The Court is persuaded that, but for NOVA's infringement, Dow could have and would have been utilizing its production facilities to the full extent necessary for manufacturing ELITE instead of HDPE.

The evidence at trial showed that Dow's business model, throughout the 2000s and through the Supplemental Damages Period, was to optimize production of high profit-margin products like ELITE over other, less profitable products. (235-37) HDPE was just one example of a less profitable product, which Dow used as a capacity filler to prevent production trains from sitting idle.⁴ (*Id.*) Given the opportunity, Dow showed it would "sell up" its plants by decreasing sales of HDPE and other non-strategic products while increasing sales of high margin products like ELITE. (141)

Dow had the capability to forgo its HDPE manufacturing and prioritize its production of ELITE, which would result in higher profits for the company. Unlike ELITE, which was sold as part of a long-term contract agreement (94-96, 102), Dow sold HDPE on a transaction-by-transaction basis (102, 209). The Court found persuasive the testimony presented by Dow outlining its business practice of displacing HDPE production to free up capacity for ELITE or other high profit-margin products. (141) Under this "waterfall" production system, HDPE manufacturing would be moved to facilities with a one-reactor production train, while the two-reactor facilities which are necessary for ELITE production (at The Fort and Plaquemine) would be freed up to produce ELITE products. (75-76, 80-81)

⁴Dow's expert accounted for the profits from sales of HDPE during the Supplemental Damages period as filler to keep the production lines at full capacity, and deducted those sales from his lost profits calculation. (303-04)

The Court further agrees with Dow that but for NOVA's infringement, Dow would have begun the Supplemental Damages Period in the position of incumbent supplier (for the NOVA sales it would have captured). Dow would have planned for, and produced, the additional ELITE products. (99-100, 204-05) Furthermore, the Court is unconvinced by NOVA that Dow would have been defeated by a shortage of octene and finds that Dow had access to the octene necessary to fulfill the demand for ELITE in the but for scenario.

4. Amount of profit the patent owner would have made

Dow has proven its lost profits by multiplying NOVA's total volume of SURPASS sold by the capture rate of sales by the profit margin per pound on ELITE. While NOVA contests Dow's estimates on both the capture rate and the profit margin, the Court finds that Dow met its burden to prove lost profits under the *Panduit* factors, subject to the limitations described below.

a. Capture Rate

As part of its lost profits calculations, Dow asserts that but for NOVA's infringement, Dow would have captured 80% of the SURPASS sales (in other words, that 80% of NOVA's sales would have instead been sales of Dow's ELITE products). Dow presented the same 80% estimate to the jury at the 2010 trial, but the jury reduced Dow's requested damages award, implying a capture rate of no lower than 72%.⁵ (314-16) As the Court is persuaded that the record warrants essentially extending the jury's award to cover the Supplemental Damages Period, the Court deems it most appropriate to use the 72% capture rate, rather than Dow's

⁵The jury award was approximately 90% of Dow's requested lost profits amount, and approximately 17% of its requested royalties amount. (305)

requested 80% capture rate. The remaining 28% of infringing SURPASS sales will be subject to a reasonable royalty, as discussed below.

NOVA argues that the jury award fully compensates Dow for any injury, including lost customer relationships, and so there would be no captured sales in the “but for” world during the Supplemental Damages period. (D.I. 750 at 5) NOVA’s theory is that the jury award essentially acts to license all infringing sales from 2002 to 2009, and so NOVA rightfully became the incumbent for these sales at the start of the Supplemental Damages Period. (*Id.* at 6) The Court disagrees. *See Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1350 (Fed. Cir. 1999) (stating that but for inquiry “requires a reconstruction of the market as it would have developed absent the infringing product, to determine what the patentee would . . . have made”). NOVA’s approach would give it, an adjudicated infringer, a benefit of substantially reduced damages solely due to the happenstance that the jury trial took place during, and not after, infringement. (*See generally* D.I. 754 at 2) The Court will not exercise its discretion in NOVA’s favor on this basis.

b. Profit Margin

Dow estimates an incremental profit per pound of \$0.37 (329; PDEM_SD2427), while NOVA contends these estimates understate ELITE costs by 4-10 cents per pound (“cpp”) and overstate Dow’s profit margin (D.I. 750 at 25). NOVA’s contention is based on its reliance on Dow’s Profit and Loss Statements’ “Standard Cost - Trade” line item, while Dow’s estimates are based on ELITE component costs from Dow’s quarterly standard cost sheets, referred to as product cost estimates (“PCEs”). (D.I. 750 at 24) During the jury trial, Dow’s expert used the PCE estimates and the same methodology (335-37) – as did, notably, NOVA’s expert (549).

Dow contends that the “Standard Cost - Trade” estimates include fixed costs, which result in a \$0.04 to \$0.07 increase in cost per pound over the PCEs. NOVA contends, by contrast, that PCEs are only estimates and that the calculation of lost profits should be based on actual cost. (371-72)

The Court sides with Dow on this dispute. Accordingly, the Court will apply Dow’s proposed profit margin, \$0.37 cents per pound. (329; PDEM_SD2427)⁶

5. Reasonable royalties

The Court has discretion in determining a reasonable royalty based on all the evidence and facts presented, including the results of a hypothetical negotiation between the patent owner and the infringer, at the appropriate time. *See Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F.Supp. 1116, 1120 (S.D.N.Y. 1970). “The primary inquiry, often complicated by secondary ones, is what the parties would have agreed upon, if both were reasonably trying to reach an agreement. . . . It requires consideration not only of the amount that a willing licensee would have paid for the patent license but also of the amount that a willing licensor would have accepted.” *Id.* at 1121.

⁶The Court has considered all of NOVA’s arguments, even those not explicitly discussed in this Opinion. For instance, the Court evaluated each of the specific criticisms NOVA and its expert leveled on Dr. Hoffman’s analysis, but finds these criticisms – individually and collectively – do not render Hoffman’s analysis unreliable. Additionally, the Court overrules NOVA’s renewed objections to certain portions of Hoffman’s testimony at trial as being beyond the scope of Hoffman’s pretrial disclosures, as the Court agrees with Dow that none of the challenged testimony on which Dow seeks to rely was anything other than a reasonable elaboration on the opinions Hoffman disclosed prior to trial, particularly as they are generally responses to criticisms from NOVA’s expert to which Hoffman had no prior opportunity to respond. (*See* D.I. 754 at 9, 15)

Both parties agree that the royalty rate of 1.755% awarded by the jury should be applied to the period up through July 30, 2010, the date on which the Court denied Dow's request for a permanent injunction to halt further sales of NOVA's SURPASS. The parties disagree as to the appropriate royalty rate for the remainder of the Supplemental Damages Period. NOVA asserts that the jury's 1.755% royalty rate should apply for the entire Supplemental Damages period. (D.I. 750 at 34) Dow contends, instead, that the 1.755% should be increased nearly six-fold to a 10% royalty rate. (D.I. 748 at 26) The Court is not persuaded to adopt either proposed royalty rate.

In exercising its discretion based on the particular facts proven here, the Court concludes that an appropriate royalty rate for the period of July 31, 2010 through October 15, 2011 is 2.11%, which is a 20% increase over the jury's rate of 1.755%. The Court reaches this conclusion based primarily on the evidence that no material changes took place between the 2002 to 2009 period and the Supplemental Damages Period other than NOVA changed from being an alleged infringer to being an adjudicated infringer, a factor that would have reduced NOVA's relative bargaining power in the hypothetical negotiations after trial. The Court has also factored in that former Judge Joseph J. Farnan, Jr., who presided over the 2010 jury trial, denied Dow's motion for a permanent injunction.

C. Damages for Infringing Sales of XJS

In addition to reasonable royalties from NOVA's sales of infringing SURPASS products, Dow is entitled to reasonable royalties on the sales of infringing XJS products. During the Supplemental Damages period, NOVA sold approximately 12.5 million pounds of infringing XJS products.

(PTX2572 at D-10) Dow requests \$68,212 for the period prior to July 30, 2010, which is adjusted to reflect the jury's award (at a rate of 1.755%). (D.I. 748 at 25; PDEM_SD2437) On the remaining sales during the Supplemental Damages period, the Court applies the same 2.11% royalty rate as above. Since NOVA had a net revenue of \$3,715,761 on XJS resins between July 30, 2010 and October 15, 2011 (PTX2572 at D-10), the additional royalties for this period are \$78,403. Therefore, the total amount of royalties for the infringing XJS sales between January 1, 2010 and October 15, 2011 is \$146,615.

D. The Court Will Not Award Enhanced Damages

Dow requests enhanced damages for NOVA's willful post-judgment infringement during the sixteen months between when the Court denied Dow's request for a permanent injunction and the expiration of the patents-in-suit. Dow argues that the Court may enhance a supplemental damages award upon a finding that the adjudicated infringer's continued infringement in the face of an adverse jury verdict and judgment was willful. The Court, however, agrees with NOVA that the grant of NOVA's motion for summary judgment of no willfulness effectively decided this issue in NOVA's favor. (D.I. 674)

The Court is not persuaded it should revisit the question. Dow's reliance on *SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365 (Fed. Cir. 2013), is unavailing. *SynQor* shows that a Court may award enhanced damages even in the absence of a prior finding of willful infringement.

Here, rather than no finding at all regarding willfulness, there is a finding of *no* willful infringement.

E. Interest

The parties appear to be in agreement that Dow is entitled to prejudgment interest, at the prime rate compounded quarterly, for the Supplemental Damages Period, with the exception of December 11, 2012 through April 13, 2013 (due to the Court's continuance of trial at Dow's request). (D.I. 711 at 3; D.I. 748 at 30) The parties appear to further agree that Dow is entitled to postjudgment interest as authorized by 28 U.S.C. § 1961. (D.I. 748 at 30; DI 750 at 2)

II. NOVA's Motion for Stay of Entry and Execution of Judgment

NOVA requests the Court stay entry of judgment, or at least stay execution of judgment, until after completion of the ongoing reexaminations of the patents-in-suit. NOVA argues that it risks substantial and irreparable harm by paying the supplemental damages being awarded by the Court, as the PTO may eventually invalidate the patents-in-suit. NOVA has already paid the damages awarded by the jury in the 2010 trial and does not contend that it would be permitted to recover that payment even if the PTO invalidates the patents-in-suit. Rather, NOVA distinguishes the supplemental damages, on the grounds that there is a fundamental distinction between an executed judgment and an as-yet unexecuted judgment. NOVA further argues that, at a minimum, the Court should require NOVA to place funds in escrow sufficient to pay the amount of supplemental damages being awarded, which would purportedly not cause any prejudice to Dow.

NOVA's arguments implicate potentially difficult questions. If the patents-in-suit are invalid, NOVA cannot infringe them, and should not have to pay Dow anything further. But as

of today the patents-in-suit remain valid, and they will be so until at least after any PTO proceedings are completed and any appeal to the Federal Circuit is completed (or the time for such appeal expires without any appeal being filed). Additionally, and weighing heavily against granting the requested stay, NOVA waited until very late in this litigation to initiate the reexaminations and to seek a stay. NOVA filed its petitions for reexamination of the patents-in-suit on December 17, 2012, more than seven years after this case was filed and more than two years after the jury's verdict on infringement and invalidity. Under the circumstances, the Court believes the most appropriate exercise of its discretion is to deny the requested stay.

The Court has discretion to stay litigation pending reexamination. *See Smarter Agent, LLC v. Mobilerealtyapps.com, LLC*, 889 F.Supp.2d 673, 674 (D. Del. 2012) (citing *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1426-27 (Fed. Cir. 1988)). In considering a stay request, the Court must weigh the competing interests of the parties by considering: "(1) whether a stay will simplify the issues and trial of the case, (2) whether discovery is complete and a trial date has been set, and (3) whether a stay would unduly prejudice or present a clear tactical disadvantage to the non-moving party." *Smarter Agent*, 889 F.Supp.2d at 674. The Court has considered these factors and find they disfavor a stay: given that trial is completed and the Court has ruled on the parties' disputes, no decision from the PTO could have any simplifying effect; the proceedings in this Court are essentially completed, while the reexaminations are ongoing; and a stay would unduly prejudice Dow, which has litigated this case for close to a decade, and prevailed at two trials and on appeal, and is entitled to be paid damages as compensation for all the harm it has suffered.

The Court will deny NOVA's motion for a stay.

CONCLUSION

For the foregoing reasons, Dow's request for lost profits and reasonable royalty damages will be granted. Dow's request for enhanced damages will be denied. NOVA's request for a stay of entry and execution of judgment will be denied.