Federal Court | Cour fédérale

Date: 20170419

Docket: T-2051-10

Citation: 2017 FC 350

Ottawa, Ontario, April 19, 2017

PRESENT: The Honourable Mr. Justice Fothergill

BETWEEN:

**THE DOW CHEMICAL COMPANY,
DOW GLOBAL TECHNOLOGIES INC. and
DOW CHEMICAL CANADA ULC**

Plaintiffs/Defendants by Counterclaim

and

NOVA CHEMICALS CORPORATION

Defendant/Plaintiff by Counterclaim

PUBLIC JUDGMENT AND REASONS

(Confidential Judgment and Reasons issued on April 7, 2017)

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I. Overview

[1] In these reasons, I refer to the plaintiffs Dow Chemical Company, Dow Global Technologies Inc and Dow Chemical Canada ULC collectively as “Dow”. I refer to the defendant Nova Chemicals Corporation as “Nova”.

[2] On September 5, 2014, Justice O’Keefe found that Dow’s Canadian Patent No. 2,160,705, “Fabricated Products Made From Ethylene Polymer Blends” [the ’705 Patent], was valid and infringed by Nova (*Dow Chemical Company v Nova Chemicals Corporation*, 2014 FC 844 [*Dow v Nova*]). These conclusions were affirmed by the Federal Court of Appeal on September 6, 2016 (*Nova Chemicals Corporation v Dow Chemical Company*, 2016 FCA 216 [*Dow v Nova* (FCA)]).

[3] Justice O’Keefe heard only the liability phase of the action. Pursuant to his judgment, Dow was entitled to damages under s 55(2) of the *Patent Act*, RSC 1985, c P-4, and to elect either an accounting of Nova’s profits or all damages sustained by reason of Nova’s infringement of the ’705 Patent under s 55(1) of the *Patent Act*. The quantum of the award was to be assessed by reference preceded by discovery if requested.

[4] This reference was commenced by requisition accompanied by Dow’s Statement of Issues on October 20, 2014. Nova filed its Revised Response to Statement of Issues on April 22, 2016. Particulars were exchanged by the parties. Dow made its election in respect of the recovery of Nova’s profits on June 24, 2016 pursuant to an Order of this Court dated June 10, 2016.

[5] These proceedings also concern questions pertaining to disputed grades pursuant to the Order of Justice Hughes dated March 30, 2016 (2016 FC 361).

[6] By agreement of the parties, these reasons address only the assumptions and other considerations that inform the calculations of damages and profits. The parties' accountants will calculate the sums owed by Nova to Dow based on the conclusions reached by the Court in this stage of the reference.

[7] The assumptions and other considerations that are to inform the calculations of damages and profits payable by Nova to Dow are those included in the judgment that follows these reasons.

II. Introduction to Polyethylene

[8] Polyethylene is a common form of plastic. Its commercial uses include grocery bags, food wraps and films, beverage bottles, heavy-duty sacks, plastic pipes, pails and crates. Polyethylene is manufactured using different processes, usually involving solution, gas phase or slurry reactors. Solution reactors may be single reactor or dual reactor systems.

[9] Some polyethylene products are made with ethylene that has been copolymerized with other hydrocarbons, typically butene, hexene, or octene. These are referred to as comonomers.

[10] Catalysts play an important role in the production of polyethylene, because they permit the formation of polymers under milder conditions. Catalysts create reactive sites that facilitate

the linking of thousands of small ethylene molecules into long, large polyethylene molecules. A "single-site catalyst", which generates reactive sites that are all the same, produces a molecular weight distribution of the polymer that is approximately 2. A "multi-site catalyst", which generates reactive sites that perform differently from one another, produces a molecular weight distribution of the polymer that is approximately 3.5 or more.

[11] Polymer blends with a narrow molecular weight distribution exhibit desirable properties such as high impact strength and toughness. However, they may be more difficult to process into films.

[12] High-density polyethylene [HDPE] tends to be rigid and is used to manufacture products such as plastic pipes, pails or crates. Commodity HDPE products are referred to generally as "pail and crate". Commodity HDPE is characterised by its relatively low cost and low profit margin.

[13] HDPE may be contrasted with low-density polyethylene [LDPE]. LDPE tends to be more flexible than HDPE, and is used to make plastic films such as those used in bread bags.

[14] Over time, LDPE has evolved into linear low-density polyethylene [LLDPE]. The structure of LLDPE differs from LDPE, resulting in improved properties. Examples of LLDPE products include DOWLEX, made by Dow, and SCLAIR, made by Nova. Both products are made in a single reactor using a "Ziegler Natta" [ZN] catalyst. DOWLEX and SCLAIR may be described as "conventional" LLDPE products, and have been on the market for many years.

[15] A more recent innovation is metallocene linear low-density polyethylene [mLLDPE]. ELITE, manufactured by Dow, and SURPASS, manufactured by Nova, are both mLLDPE products. They may be distinguished from conventional LLDPE products such as DOWLEX and SCLAIR by their superior performance characteristics, particularly in relation to their strength and ease of processability.

III. Patent in Issue

[16] Dow filed its application for the ’705 Patent on April 19, 1994. The ’705 Patent was published on November 10, 1994, but was not issued until August 22, 2006. The ’705 Patent expired on April 19, 2014, and was in effect for approximately eight years.

[17] In *Nova v Dow* (FCA), the Federal Court of Appeal described the ’705 Patent as follows:

> [5] The patent is directed primarily to polyethylene used to make “film” products, i.e. sheets of plastic, like plastic garbage bags and food wrapping. Some film applications do not have demanding strength requirements, but others do. One solution for these demanding applications was to make thicker “films” so that they are stronger. That requires the use of more plastic, however, leading to higher costs and more waste when the plastic film is disposed of.
>
> [6] The patent identifies the need to develop polymers that can be formed into thinner films with improved strength properties […]
>
> [8] The claimed invention and Dow’s commercial embodiment of it (ELITE) allows for source reduction to make thicker films thinner, but just as strong. Whereas prior art efforts to create improved polymers and polymer blends were largely trial and error, Dr. Lai (one of the inventors) testified at trial that Dow’s researchers took a different approach to identify the optimal blend based on polymer density, molecular weight, and strain hardening (the latter being a property wherein a material becomes harder as it

> is stretched). This work is disclosed in the ’705 Patent, including the creation of the slope of strain hardening coefficient (SHC) to identify polymers of interest. […]
>
> [9] Each of the 46 claims of the ’705 Patent is directed to a blend having at least these two components, with each component having certain requirements, depending on the particular claim. […]

IV. Procedural History

A. *United States Proceedings*

[18] Prior to the litigation in Canada, Dow sued Nova in respect of its sales of SURPASS in the United States under two U.S. patents that correspond to the Canadian ’705 Patent. The U.S. litigation was commenced in 2005, and resulted in a jury verdict dated June 15, 2010. Dow was awarded US$76 million in damages and interest for lost sales and reasonable royalties resulting from Nova’s sales of SURPASS in the U.S. up to December 31, 2009. That decision was upheld by the U.S. Federal Circuit (Jury Verdict dated June 15, 2010, U.S. Proceeding CA No 05-737 (JJF) (US Dist Ct, Del); *Dow Chemical v Nova Chemicals,* 2010-1526 (CAFC); *Dow v Nova*, Civ No 05-737-LPS (DI 760) (US Dist Ct, Del)).

[19] Dow was denied an injunction in the U.S. litigation. As a result, a “supplementary damages” trial was conducted in April and May 2013 based on the jury’s finding of infringement. This resulted in a further decision granting Dow US$30 million in damages and interest for lost ELITE sales and reasonable royalties resulting from Nova’s sales of SURPASS in the U.S. until the expiry of the U.S. patents on October 15, 2011 (*Dow v Nova*, 2014-1431, 2014-1462 (CAFC); *Dow v Nova*, CA No 05-737 (LPS), Order of Final Judgment (US Dist Ct, Del)).

[20] The supplementary damages award was subsequently overturned on appeal to the U.S. Federal Circuit due to a change in the U.S. law of insufficiency. This particular insufficiency argument was not raised in the Canadian litigation.

[21] Dow does not seek damages or an accounting of profits in respect of the U.S. sales of Nova's SURPASS that were the subject of the U.S. proceedings.

B. *Liability Phase*

[22] The liability phase of the current proceedings was summarized by the Federal Court of Appeal in *Nova v Dow* (FCA) as follows:

> [10] Dow filed a Statement of Claim on December 9, 2010, alleging that Nova was infringing the '705 Patent. Nova counterclaimed on the grounds of invalidity and unjust enrichment, but eventually dropped its unjust enrichment claims. In its opening statement at trial, Dow restricted the litigation to only eight composition claims, being claims 11, 29, 30, 33, 35, 36, 41 and 42; Nova similarly restricted its invalidity counterclaim to these same claims. As a result, the Judge erred in holding that Claim 15 was valid and infringed; Dow dropped its allegations in relation to that claim, and reference to it in paragraph 1 of the Judgment should be deleted.
>
> [11] […] The Judge found that all the claims at issue were valid, and that Nova infringed these claims by manufacturing in Canada and distributing, offering for sale, selling or otherwise making available film-grade polymers under the name SURPASS.

C. *Motion re Disputed Grades*

[23] Subsequent to Justice O'Keefe's judgment in the liability phase, but prior to the Federal Court of Appeal's decision in *Nova v Dow* (FCA), Dow brought a motion before this Court for an order:

> A. Declaring that: "The phrase "film-grade polymers under the name SURPASS", as found in paragraph 1 of the trial judgment of Justice O'Keefe, dated May 7, 2014 includes within its scope and meaning the film-grade SURPASS polymers: FPs016-A, EX-FPs016-A01, EX-FPs225-A01 and FPs417-A"; and
>
> B. Requiring Nova to disclose and produce all relevant documents pertaining to these film-grade SURPASS polymers.

[24] Justice Hughes agreed with Nova that Dow had failed to amend its Statement of Claim to include the additional film-grade SURPASS polymers [the disputed grades], despite Nova's disclosure of three of the disputed grades in the U.S. proceedings in February 2012. He also found that Rule 399 of the *Federal Courts Rules*, SOR/98-106, did not apply because Dow was aware of the disputed grades prior to trial. He disposed of Dow's motion as follows (2016 FC 361 at paras 31 to 34):

> [31] At the hearing, I asked Defendant's Counsel whether there was any prohibition against the Plaintiffs to prevent them from starting a new action in which the four designated films sought to be included in the reference could be put in issue in such a new action. Presumably, *res judicata* would apply to Justice O'Keefe's findings as to claim construction, validity and at least certain matters as to infringement. Nova could raise defences as to non-infringement at least in respect of FPs417-A film and defences as to *res judicata*, abuse of process, limitation and prescription.

> [32] A new action is a waste of the resources of this Court. While I agree with the Defendant in respect of its arguments as set out in paragraphs 1 and 2 above, I do not believe that a just, most expeditious and least expensive determination of the issues between the parties justifies forever precluding the Plaintiffs from putting before the Court the four further films as designated. Nor should it preclude the Defendant from raising defences that it believes to be proper.
>
> [33] The parties have been through extensive discoveries and a trial. There have been many facts adduced and many findings of the Trial Judge. They should not be wasted.
>
> [34] I will permit the Plaintiffs, effective the day they filed this motion, January 20, 2016, to further Amend their Statement of Claim to include, in Appendix A, films designated as FPs016, FPs117, FPs225, and FPs317. The Defendant may amend its Defence in response thereto. All previous discoveries and evidence adduced at trial may continue to be used and evidence adduced on this motion before me, can be used by the parties as if it had been given on discovery. In addition they may have such further discovery as reasonably necessary.

V. Evidence

A. *General Observations*

[25] The witnesses who were called to testify in this reference were generally credible. The expert witnesses presented impressive qualifications, and all witnesses testified in a manner that was forthright and responsive to the questions asked. My reasons for preferring some witnesses' testimony over that of others are explained in the analysis that follows.

B. *Preliminary Objections*

[26] To their credit, the parties largely agreed on the qualifications of the expert witnesses who were called to testify in this reference. The one exception was Dr. Eric Kelusky.

Dr. Kelusky testified as a fact witness during the liability phase before Justice O'Keefe, and he also testified as a fact witness in this reference. Dow did not object to his testimony as a fact witness in either phase of the proceedings.

[27] However, Dow took the position in this reference that Dr. Kelusky lacked the necessary impartiality to be received by this Court as an objective expert. Dr. Kelusky's opinion evidence concerned the steps that Nova would hypothetically have taken to bring its SURPASS line of products to market if it had waited until the '705 Patent expired in 2014. He was permitted to provide his expert testimony subject to this Court's ruling on the objection, which the Court took under reserve.

[28] Immediately following his retirement from Nova, Dr. Kelusky was engaged as a consultant to assist Nova's litigation counsel in this matter. His contract began in 2010 and was still in effect when he testified in this reference. He also assisted with the U.S. litigation in his capacity as a Nova employee. His only involvement in the polyethylene industry since his retirement was in his role as a consultant for this litigation. He was not involved in Nova's business decisions or product development after 2010.

[29] Dr. Kelusky was deposed in the U.S. proceedings as Nova's corporate representative. He was involved in providing answers on discovery in this litigation, and also in the experimental testing that was done on behalf of Nova. He was present at the trial before Justice O'Keefe, and he interacted regularly with Nova's counsel, particularly with respect to technical issues. Justice

Hughes noted in his Order dated March 30, 2016 at paragraph 15 that Dr. Kelusky gave "very careful answers" to questions posed during the discovery process.

[30] Nova maintains that Dr. Kelusky is almost uniquely qualified to address how Nova would have prepared to launch its SURPASS line of products if it had awaited the expiry of the '705 Patent in 2014. He worked at Nova during the actual launch of SURPASS in 2002, and no other witness called in these proceedings could offer a comparable perspective. Nova complains that Dow did not object to Dr. Kelusky's expert report until five weeks after its receipt, despite the requirement in Rule 55(2) that objections to proposed expert evidence be made as soon as possible. Dow responds that it raised its objection to Dr. Kelusky's report prior to the deadline agreed by the parties.

[31] Nova argues that it would be prejudiced if Dr. Kelusky's testimony were rejected. Nova says that any concerns regarding Dr. Kelusky's allegiance to Nova should affect only the weight accorded to his testimony.

[32] In *White Burgess Langille Inman v Abbott and Haliburton Co*, 2015 SCC 23 [*White Burgess*], the Supreme Court of Canada held at paragraph 10 that expert witnesses have a duty to the court to give fair, objective and non-partisan opinion evidence. They must be aware of this duty and able and willing to carry it out. If they do not meet this threshold requirement, their evidence should not be admitted. Once this threshold is met, however, concerns about an expert witness' independence or impartiality should be considered as part of the overall weighing of the costs and benefits of admitting the evidence.

[33] The Supreme Court provided the following additional guidance in *White Burgess* at paragraph 49:

> This threshold requirement [to give fair, objective and non-partisan opinion evidence] is not particularly onerous and it will likely be quite rare that a proposed expert's evidence would be ruled inadmissible for failing to meet it. The trial judge must determine, having regard to both the particular circumstances of the proposed expert and the substance of the proposed evidence, whether the expert is able and willing to carry out his or her primary duty to the court. For example, it is the nature and extent of the interest or connection with the litigation or a party thereto which matters, not the mere fact of the interest or connection; the existence of some interest or a relationship does not automatically render the evidence of the proposed expert inadmissible. In most cases, a mere employment relationship with the party calling the evidence will be insufficient to do so. […] Similarly, an expert who, in his or her proposed evidence or otherwise, assumes the role of an advocate for a party is clearly unwilling and/or unable to carry out the primary duty to the court. I emphasize that exclusion at the threshold stage of the analysis should occur only in very clear cases in which the proposed expert is unable or unwilling to provide the court with fair, objective and non-partisan evidence. Anything less than clear unwillingness or inability to do so should not lead to exclusion, but be taken into account in the overall weighing of costs and benefits of receiving the evidence.

[34] Having considered Dr. Kelusky's testimony, I am satisfied that he recognized and accepted his duty to give fair, objective and non-partisan opinion evidence to the Court. His answers to questions were forthright and responsive, both during examination in chief and in cross-examination. I have no hesitation in qualifying him as an expert to testify in these proceedings. The weight to be given to his testimony is another matter, and this is discussed at the appropriate juncture below.

[35] Both parties also objected to certain portions of the expert reports filed on behalf of the opposing party. Many objections were raised in the course of the witnesses' testimony and were ruled on accordingly. In these reasons, I have based my conclusions on evidence that I found to be both admissible and probative. I have disregarded evidence that, in my view, exceeded an expert witness' qualifications, and I have placed no weight on viewpoints that were unsupported by the evidence or unduly speculative. My reasons for accepting some evidence and opinions, and rejecting others, may be found in the analysis that follows.

C. *Fact and Expert Witnesses*

[36] This overview of the fact and expert witnesses called by the parties is based on the helpful summary provided by Nova in its closing submissions.

[37] The following fact witnesses testified on behalf of Dow:

- *Mr. Christopher (Kip) Thomson* retired from Dow in 2013. Prior to his retirement, Mr. Thomson held a number of positions in sales and marketing, including product manager for food and specialty packaging applications. Mr. Thomson testified about the qualification of Dow's products with its customers, film manufacturing, film properties, competition in the marketplace and licensing at Dow.

- *Mr. Gregory Bunker* is Senior Global Marketing Director for Dow's health and hygiene business. He has held a number of technical and marketing roles at Dow, including marketing director for Dow's food and specialty packaging market segment. Mr. Bunker testified about competition in the film marketplace, in particular with Exxon's EXCEED, and customer qualification.

[38] The following expert witnesses testified on behalf of Dow:

- *Mr. Ross Hamilton* was qualified as an expert in the quantification of damages and profits in commercial and intellectual property disputes. Mr. Hamilton offered his opinion on the quantification of Nova's profits from the manufacture and sale of the infringing SURPASS products.

- *Mr. Thomas Dunn* was qualified as an expert in the timing for the development of polyethylene resins, the qualification of polyethylene resins for use in flexible packaging products, processes and use by converters of polyethylene resins, and flexible packaging products and processes. He has been inducted into the U.S. National Packaging Hall of Fame. Mr. Dunn testified about the development and qualification steps that Nova would need to complete before SURPASS products could be sold, and the timing of those steps in the hypothetical "but-for" world.

- *Dr. Gregory Leonard* was qualified as an expert economist specializing in applied microeconomics, the study of the behaviour of consumers and firms and econometrics. He offered his opinion on the quantification of damages, including reasonable royalty rates in patent infringement matters. Dr. Leonard addressed the reasonable royalty rate payable to Dow, the length of time it would have taken Nova to “ramp up” sales of SURPASS products after expiry of the ’705 Patent and the mechanism for measuring pre-judgment interest. In his reply report and testimony, Dr. Leonard responded to Dr. Heeb’s report, as well as certain aspects of Dr. Soriano’s and Dr. Kelusky’s reports.

- *Dr. João Soares* was qualified as an expert in polymer science and polymer engineering, the characterization of polymers, polymer compositions, including synthesis, analysis, testing, production and mathematical modeling. Dr. Soares testified about the scope of the claims in the application for the Patent as published in 1994 and the processability characteristics of ELITE and SURPASS.

[39] The following fact witnesses testified on behalf of Nova:

- *Dr. Eric Kelusky* joined DuPont Canada in 1984, where he was responsible for DuPont’s polyethylene research centre. After Nova acquired DuPont Canada in 1994, he was Director of Polyethylene Research and responsible for Nova’s polyethylene research and development programs. In 2002, he became Vice-President for Advanced SCLAIRTECH [AST] Development, where he was responsible for the commercialization and profitability of AST products, including SURPASS. From late 2006 until his retirement in 2010, he was the Vice-President of Technology for Nova. Since then he has been a consultant for Nova. Dr. Kelusky testified about Nova’s acquisition of DuPont’s catalyst technology, the development and commercialization of the SURPASS polymers at issue, the prior U.S. litigation, the product slate of the PE2 plant in Joffre, Alberta, product nomenclature, PE2 capital costs, and research and development costs associated with Nova's SURPASS products.

- *Dr. Daryll Harrison* has been employed at Nova since 1988, when he started as a polymer research scientist. In 1996, he became leader of the New Polymers Catalyst Group, a group of scientists who developed catalyst technology for the polyethylene business. He has since held the positions of Director of Polyolefins Research and Development and Vice-President of Technology. He is currently Vice-President of the 1NOVA Program Management. He testified about the development and commercialization of the Emerald catalyst and SURPASS, as well as Nova's product development capabilities since 2002.

- *Ms. Debra Van Holst* is the Director of Logistics for Nova. She has worked for Nova and its predecessor, DuPont Canada, for approximately 28 years, with 20 years in Nova's polyethylene business. She testified about the history of the SCLAIR brand at Nova and DuPont, the capacity and product slate management of the PE2 plant, the identification of off-grades produced at the PE2 plant, as well as overall demand in the polyethylene market.

- *Mr. Mark Kay* joined Nova as a market manager in 1999. He is the Market Group Leader for Performance Films at Nova, a group which manages sales of applications such as heavy-duty shipping sacks, food packaging, as well as specialty shrink wrap. From 2005 to 2011, he was the Distribution Sales Leader at Nova and dealt with distributors and brokers involved in reselling Nova's polyethylene and polystyrene products in North America. He testified about the PE2 plant's product slate, opportunities and demand for Nova's SCLAIR performance film and pail and crate grades, the marketing and sales of offgrade products produced at the PE2 plant, processability, and competition in the marketplace.

- *Mr. John Hotz* is Vice President, Corporate Strategy at Nova. He joined Nova in 2000 as Vice-President of the polyethylene business, and was responsible for profits, losses and product management. He testified about the early PE2 product slate, PE2 sales, opportunities and relationships with Nova's customers, competition with Exxon and Dow, early pricing strategy for SURPASS grades, and the market for pail and crate grades.

- *Mr. Larry MacDonald* was Nova's Chief Financial Officer from 2002 until he retired in 2009. He worked at Nova or its predecessors for 30 years. He testified about the corporate and business history of Nova, the ethylene business and Nova's corporate structure.

- *Mr. Rocky Vermani* has worked at Nova or its predecessors for over 25 years. Since 1990, he has held positions in Nova's technology licensing business. He was the General Manager of licensing from 2004 to 2011. Between 2006 and 2011, he was also responsible for Nova's polyethylene export business. From 2011 to 2014, he was the director of Nova's ethylene business. Since 2014, he has been Nova's Vice-President of Olefins Products, where he has overall responsibility for managing Nova's ethylene business.

[40] The following expert witnesses testified on behalf of Nova:

- *Dr. Eric Kelusky* was qualified as an expert in Nova's capabilities to develop and commercialize new polyethylene products and qualification at Nova's customers, particularly for SURPASS. Dr. Kelusky testified about the potential "but-for" development and sales of SURPASS film products following expiry of the '705 Patent, taking into account Nova's historical capabilities for developing, testing and introducing SURPASS products, and its practices in selling and qualifying them with customers.

- *Dr. Randal Heeb* was qualified as an expert on the economic value of intellectual property rights, including economic issues related to the assessment of damages and profits and the calculation of reasonable royalties in intellectual property disputes. He is an economist with the consulting firm of Bates White, LLC. He has been a Senior Faculty Fellow at the Yale School of Management, where he taught MBA courses, including the economics of licensing related to the use of intellectual property and the efficiency and profitability of such licences.

- *Dr. Charles Speed* was qualified as an expert in polymer science, polymerization techniques, process development, the characterization and testing of polymers and compositions, product application development including blending and film blowing, and product analysis. He has over 40 years of experience in polymer technology with ExxonMobil Chemical Company and as a consultant. He retired from ExxonMobil as its Chief Scientist for Polyethylene Products. Dr. Speed explained polymer technology and discussed the scope of the claims of the patent application as published on November 10, 1994, whether the patent teaches improved processability and which of Nova's off-grade products were made with only a ZN catalyst.

- *Mr. Errol Soriano* was qualified as an expert on the quantification of financial damages and profits, the evaluation of business interests and forensic accounting, including in the context of intellectual property disputes. He is a Managing Director at Duff & Phelps, a Chartered Professional Accountant, Chartered Business Valuator, and Certified Fraud Examiner. He has testified in approximately 45 damages and accounting of profits cases in Canada. He has authored books and educational materials for the Institute of Chartered Professional Accountants and the University of Toronto. Mr. Soriano testified about the quantification of Nova's profits from the manufacture and sale of the infringing SURPASS products.

VI. Issues

[41] The following issues are addressed in these reasons for judgment:

A. Whether the disputed grades and off-grades should be included in the calculation of damages and the accounting of profits.

B. The manner in which the damages payable to Dow pursuant to s 55(2) of the *Patent Act* should be calculated.

C. The manner in which the profits payable to Dow pursuant to s 55(1) of the *Patent Act* should be calculated.

D. The applicable rates of pre-judgment interest.

E. The manner in which currency conversion should be applied to the amounts payable to Dow as damages or profits.

VII. Disputed Grades

[42] The disputed grades comprise four grades of SURPASS that Dow says are identical or nearly identical to those that were specifically pleaded in its original Statement of Claim: FPs417-A, FPs016-A, EX-FPs016-A01 and EX-FPs225-A01. Nova concedes that, based upon Justice O'Keefe's analysis in *Dow v Nova*, the disputed grades infringe the '705 Patent.

Accordingly, the only matters to be resolved are Nova's defences of *res judicata*, abuse of process, limitations and prescription.

[43] Dow says that the only difference between the disputed grades and the grades that have been found to infringe is their slightly different product names. Dow argues that Nova can be neither surprised nor prejudiced by the inclusion of the disputed grades in the calculation of damages and profits: Nova knew or ought to have known that the disputed grades infringed the '705 Patent in the same manner as the grades that were specifically pleaded in Dow's original Statement of Claim. Nova would have presented its arguments of non-infringement and invalidity in precisely the same way if the disputed grades had been included from the beginning.

[44] Nova responds that the disputed grades were added to Dow's Statement of Claim by an amendment effective as of January 20, 2016. Nova argues that the disputed grades are barred by the doctrine of *res judicata*, particularly cause of action estoppel. Nova also pleads abuse of process and limitations. Section 55.01 of the *Patent Act* provides that no remedy shall be awarded for an act of infringement committed more than six years before commencement of the action. Nova maintains that all sales of the disputed grade EX-FPs225-A01 occurred in 2008 and 2009, which was more than six years before the effective date of January 20, 2016.

A. *Res Judicata*

[45] A plaintiff who asserts a cause of action is ordinarily expected to claim all possible relief at once. Otherwise, there is a danger that plaintiffs will conduct litigation in instalments (*Grandview v Doering*, [1976] 2 SCR 621 at 637-38 [*Grandview*]). Cause of action estoppel

applies not only to points upon which the court was actually required to decide, but to every point which properly belonged to the subject of the litigation, and which might have been brought forward at the time by exercising reasonable diligence (see *Grandview* at 634-39, citing *Henderson v Henderson* (1843), 3 Hare 100, 67 ER 313 at 319 (Ch)).

[46] In Appendix A to its original Statement of Claim, Dow identified 58 SURPASS grades that were alleged to infringe the ’705 Patent. These grades were grouped into three general product categories: FPs016, FPs117 and FPs317. On February 22, 2012, Dow amended its claim to include a fourth product category and a corresponding grade: FPs225-A. This brought the total number of pleaded grades to 59.

[47] Dow complains that in the liability phase of the trial before Justice O’Keefe, Nova intentionally concealed information regarding the disputed grades and their relationship to the SURPASS grades that had been pleaded. Nova refused to answer any questions that did not relate to one of the SURPASS grade names that had been specifically included in Appendix A to the Statement of Claim, despite the fact that the broader product categories had also been pleaded.

[48] Justice Hughes made the following observation in his Order dated March 30, 2016 (2016 FC 361 at para 15):

> The attitude of the parties throughout this litigation appears to be hostile, particularly on the part of the Defendant. Justice O’Keefe dealt with this in his costs Order. A transcript of part of the Plaintiffs’ Examination for Discovery of the Defendant held on October 31, 2011, has been put in the motion record before me […]. It shows that the Defendant’s Counsel was resisting giving

> answers in respect of any film product not listed in Appendix A to the Statement of Claim, and very careful answers were given with respect to those that were listed such as saying that it did not make a product called FPs317 but admitted that it did make a product called FPs317-A.

[49] Nova redacted all references to the disputed grades from the documents it produced during the liability phase, including passages comparing the disputed grades to the pleaded grades. Dow maintains that some relevant documents were not produced at all.

[50] During the supplemental damages phase of the U.S. litigation, and after completion of Dow's discovery of Nova in the Canadian action, Nova produced updated sales information that referenced three of the four disputed grades. Dow acknowledges that EX-FPs225-A01 was referenced in the documents that were produced in the initial phase of the U.S. litigation, but maintains that this grade was not in issue in those proceedings.

[51] There is good reason to conclude that the disputed grades are already encompassed by Justice O'Keefe's judgment in *Dow v Nova*:

(a) FPs417-A was introduced by Nova in May 2010 as a "higher melt index [MI] version of FPs317-A", a grade included in Appendix A to Dow's original Statement of Claim. Nova's internal documents characterized FPs417-A as "a minor variant" of FPs317-A, and described the two as "virtually identical".

(b) Nova's MI specifications for FPs317-A and FPs417-A overlap. In the case of FPs317, the acceptable MI range is between 3.35 and 4.65. In the case of FPs417, the acceptable MI range is between 3.8 and 5.0. Aside from the change in the target MI for the two products, the FPs317-A and FPs417-A specification sheets are identical, including in respect of all of the reported tensile film properties.

(c) According to Dr. Kelusky's examination for discovery, Nova did not test the film properties of FPs417-A for the purposes of the data sheet, but assumed that they would be identical to FPs317-A. Dr. Kelusky admitted that FPs317-A and FPs417-A could have been labelled with the same grade designation (*i.e.*, FPs417-A), based on Nova's nomenclature convention. Since July 28, 2011, Nova has re-graded material originally made as FPs417-A with the FPs317-A designation. Nova has also re-designated lots of FPs317-A as FPs417-A.

(d) EX-FPs016-A01 and FPs016-A are identical. The "EX" prefix merely identifies a grade as experimental, even though it may be sold commercially. Sales of EX-FPs016-A01 began in October 2010. Between June and August 2011, Nova stopped using the "EX" designation and began using the name FPs016-A.

(e) FPs016-A differs from grades that were included in Appendix A of Dow's original Statement of Claim (FPs016-C and FPs016-D) only by virtue of the "additive package" which is combined with the FPs016 base resin after production in the reactors. The FPs016 base resin was specifically pleaded and found to infringe the '705 Patent.

(f) EX-FPs225-A01 is identical to, and the experimental precursor of, FPs225-A, which was specifically included in Appendix A to Dow's original Statement of Claim.

[52] It has previously been held in the patent context that pleadings of infringement encompass variants that are not substantially different from one another, and to require a separate infringement claim on each variant would result in never-ending litigation (*CSI Manufacturing & Distribution Inc v Astroflex Inc* (1993), 52 CPR (3d) 483 (FCTD) at para 31). Moreover, Justice O'Keefe found in *Dow v Nova* that "film-grade polymers under the name SURPASS" infringed the '705 Patent. It would be inconsistent with the intent and clear implication of that judgment to exclude infringing grades of SURPASS solely on the ground that were sold under slightly different names by the infringing party.

[53] This Court was faced with a similar circumstance in *Xerox v IBM* (1977), 43 CPR (2d) 60 (FCTD). The Statement of Claim in that case identified the infringing device as an "IBM Copier I", and judgment in the liability phase was granted accordingly. In the subsequent reference on damages, the Court considered whether the defendant's newer product, the Copier II, was sufficiently similar to the infringing device to merit its inclusion in the damages phase. This Court held that the trial judgement was not confined to a single type of machine, but applied to any similarly-infringing IBM copier.

[54] Nova characterises Dow's argument that the disputed grades are already encompassed in Justice O'Keefe's judgment in *Dow v Nova* as a collateral attack on Justice Hughes' Order dated

March 30, 2016. Nova notes that in paragraph 30, Justice Hughes accepted Nova's argument that:

> [Nova] did disclose three additional films in the context of the United States proceedings in February, 2012. Dow was aware of this disclosure and had access to it in the context of the Canadian proceeding but did nothing. The Order of Prothonotary Milczynski of March 11, 2011 made it quite clear that Appendix A of the Statement of Claim was to list the specific products at issue, and if any other products come to light, the Statement of Claim could be amended as the Plaintiffs did on February 22, 2012.

[55] Justice Hughes also agreed with Nova's contention that the omission of the disputed grades from Justice O'Keefe's judgment in *Dow v Nova* could not be rectified pursuant to Rule 399. However, he did not make any definitive findings on the merits of Nova's potential defences of non-infringement, *res judicata*, abuse of process, limitation and prescription. He held only that Nova should be given an opportunity to advance these defences (at para 31).

[56] Nova also relies on Justice Russell's Order dated June 23, 2016 (2016 FC 706) at paragraphs 38 to 39 and 75 to 76. However, these excerpts only describe aspects of Justice Hughes' ruling. They do not purport to expand or otherwise alter them.

[57] Nova has conceded infringement. In my view, Justice Hughes' conclusion that Nova should be given an opportunity to advance defences of *res judicata*, abuse of process, limitation and prescription does not preclude a finding by this Court that they do not apply because the disputed grades are already encompassed by Justice O'Keefe's judgment in *Dow v Nova*.

[58] In the alternative, assuming without deciding that cause of action estoppel is available to Nova as a defence, there are aspects of Nova's conduct that militate against accepting the equitable defence in these circumstances. The Court retains a residual discretion not to apply *res judicata* if this would produce an outcome that is not fair and just (*Danyluk v Ainsworth Technologies Inc*, 2001 SCC 44 at para 80). Here, the evidence establishes that Nova sought to conceal the disputed grades during the liability phase of this action, by redacting all references to the disputed grades in relevant documents and by offering "very careful answers" on discovery. There is a danger that denying Dow a remedy for the admitted infringement of the '705 Patent on the ground of *res judicata* would have the effect of sanctioning and rewarding Nova's obfuscatory tactics.

B. *Abuse of Process*

[59] Although Nova pleaded abuse of process in its Amended Statement of Defence dated April 22, 2016, it made no submissions regarding this defence in its closing submissions. Abuse of process may be established where the proceedings are oppressive or vexatious, and violate the fundamental principles of justice underlying the community's sense of fair play and decency (*Toronto (City) v CUPE, Local 79*, 2003 SCC 63 at para 35 [*Toronto (City)*]).

[60] Re-litigation, in and of itself, is not a sufficient basis for a finding of abuse of process; an additional serious element, such as unjust harassment, is required (*Dhaliwal v Canada (Minister of Citizenship & Immigration),* [2001] FCJ No 1943 at para 6). It is a remedy to be applied sparingly and only in the clearest and most obvious cases (*Glenko Enterprises Ltd v Keller*, 2008 MBCA 24 at para 56). The overriding concern is a balance of fairness and finality (*British*

Columbia (Workers' Compensation Board) v Figliola, 2011 SCC 52 at paras 25 and 34; *Toronto (City)* at paras 37-38).

[61] I find that the disputed grades are already encompassed by Justice O'Keefe's judgment in *Dow v Nova*. In the alternative, I conclude that it would not be fair and just to give effect to the equitable defence of *res judicata*, given Nova's deliberate concealment of information pertaining to the disputed grades in the course of discovery. For similar reasons, I am satisfied that granting Dow remedies for the disputed grades, which are admitted to infringe the '705 Patent, would not be oppressive or vexatious, and would not violate the community's sense of fair play and decency.

C. *Limitations and Prescription*

[62] Nova raises a limitations defence only with respect to EX-FPs225-A01. Dow acknowledges that Nova ended its sales of this disputed grade prior to January 20, 2010, *i.e.*, more than six years before the effective date on which Dow added the disputed grades to its claim. However, Dow pleaded the same product under its commercial name FPs225-A before the limitation period expired on February 22, 2012. Given that the two products are identical, I cannot accept Nova's argument that it should benefit from a limitations defence merely because it sold the pleaded grade FPs225-A under a slightly different name.

VIII. Damages

A. *Reasonable Royalty*

[63] Subsection 55(2) of the *Patent Act* provides as follows:

55(2) A person is liable to pay reasonable compensation to a patentee and to all persons claiming under the patentee for any damage sustained by the patentee or by any of those persons by reason of any act on the part of that person, after the application for the patent became open to public inspection under section 10 and before the grant of the patent, that would have constituted an infringement of the patent if the patent had been granted on the day the application became open to public inspection under that section.	55(2) Est responsable envers le breveté et toute personne se réclamant de celui-ci, à concurrence d'une indemnité raisonnable, quiconque accomplit un acte leur faisant subir un dommage entre la date à laquelle la demande de brevet est devenue accessible au public sous le régime de l'article 10 et l'octroi du brevet, dans le cas où cet acte aurait constitué une contrefaçon si le brevet avait été octroyé à la date où cette demande est ainsi devenue accessible.

[64] Dow and Nova agree that the proper measure of damages under s 55(2) of the *Patent Act* is a reasonable royalty for Nova's use of Dow's patented technology from the time SURPASS was launched in 2002 until the '705 Patent was issued in 2006. Dow accepts that it may be barred by limitations from claiming a reasonable royalty prior to 2004, and the relevant period for which compensation is sought is therefore December 9, 2004 to August 21, 2006.

[65] The reasonable royalty is to be determined using a hypothetical negotiation between Dow and Nova for a licence authorizing Nova's use of the patented technology. The object of the exercise is to identify the royalty rate that would result from a negotiation between a willing licensor and a willing licensee (*AlliedSignal Inc v DuPont Canada Inc*, [1998] FCJ No 190 (TD) at para 199, aff'd [1999] FCJ No 38 (CA) [*AlliedSignal* (FC)]; *Jay-Lor International Inc v Penta Farm Systems Ltd*, 2007 FC 358 at para 125 [*Jay-Lor*]).

[66] The hypothetical negotiation occurs on the eve of the first infringement on January 1, 2002. The negotiation encompasses numerous factors, but is primarily focused on Nova's anticipated profits from the sale of products using Dow's patented technology (*Jay-Lor* at paras 128 and 150).

[67] Dr. Leonard and Dr. Heeb, the experts called on behalf of Dow and Nova respectively, agreed on the framework to be applied to the hypothetical royalty negotiation. The boundaries of the hypothetical negotiation are Dow's "minimum willingness to accept" [MWTA], having regard to the anticipated impact of Nova's sales of SURPASS on Dow's sales of ELITE, and Nova's "maximum willingness to pay" [MWTP], having regard to the profit that Nova would expect to gain from sales of SURPASS. This is the bargaining range of the negotiation. The difference between Dow's MWTA and Nova's MWTP is referred to as the "gains to trade" (*i.e.*, the joint benefit of the hypothetical licence), which must be divided between the parties in a reasonable manner.

B. *Dow's Minimum Willingness to Accept*

[68] Dr. Leonard and Dr. Heeb agreed that Dow's MWTA would be the profits that Dow expected to lose from licensing its technology to Nova, *i.e.*, the proportion of Nova's sales of SURPASS that would be diverted from Dow's sales of ELITE [diversion ratio]. Dow would seek to recoup its profits on those lost sales.

[69] Dr. Leonard conducted a review of the mLLDPE market in 2002, and concluded that the diversion ratio should be conservatively estimated at 50%. Dr. Heeb, using a logit simulation model, concluded that the diversion ratio would be 22%.

[70] SURPASS and ELITE are close substitutes for each other, both in terms of their properties and their processability. They are both mLLDPE products, and occupy a distinct segment of the polyethylene market. They are direct competitors. Conventional LLDPE products, such as Dow's DOWLEX and Nova's SCLAIR, are in a different market segment and compete primarily with other products in the same segment. Nova and its customers both understood SURPASS to be a "drop-in" for ELITE, which Justice O'Keefe observed in the liability phase was a driving feature behind its design (*Dow v Nova* at para 252).

[71] Exxon's EXCEED also competes in the mLLDPE category, and is considered a market leader. It is known for its strength, but its processability has sometimes been perceived as a weakness. ELITE and SURPASS are both promoted as products that offer a superior combination of properties and processability compared to EXCEED.

[72] Exxon's EXCEED tends to be less expensive than SURPASS and ELITE. Customers who value the improved processability of ELITE and SURPASS are willing to pay a premium, while customers for whom processability is less important are likely to remain loyal to EXCEED.

[73] Based on these market dynamics, Dr. Leonard concluded that if SURPASS had not been available in 2002, then most of its customers would likely have purchased ELITE as the only other product offering the same characteristics. Between 2002 and 2006, ELITE and SURPASS were sold in the same limited market, with most of their customers in common.

[74] Dow takes the position that during the period for which a reasonable royalty is sought, nearly 100% of SURPASS sales would have come at the expense of ELITE sales. This is confirmed by Nova's internal documents, which portrayed ELITE and SURPASS as the sole competitors in a premium market segment, distinct from both conventional LLDPE and Exxon's EXCEED. Dow therefore maintains that the 50% diversion ratio proposed by Dr. Leonard is a conservative estimate.

[75] Dr. Heeb's diversion ratio of 22% was derived from a logit simulation model. Dr. Heeb postulated that if Nova's SURPASS were not available from 2002 to 2006, then those sales would have been diverted to a range of different alternative products based on the prices and market shares of selective market participants. Dr. Heeb admitted that he was forced to make assumptions about the pricing of alternative products and the respective market shares of other manufacturers, and to rely on questionable data provided by industry consultants, because these data are closely-guarded trade secrets and are often difficult to obtain.

[76] In my view, Dr. Heeb's logit simulation model suffers from a more fundamental flaw. He assumed that all of the alternative products he included in his simulation model were interchangeable and equally competitive. This failed to account for the fact that ELITE and

SURPASS are the closest substitutes for each other, and many customers who purchase SURPASS would consider replacing it only with ELITE. Dr. Heeb even included some conventional LLDPE products in his simulation model, such as SCLAIR – which is made by Nova. But these are not plausible substitutes for SURPASS in most applications.

[77] Dr. Heeb's logit simulation model assumed that the price of Dow's ELITE would increase in the absence of Nova's SURPASS, while the price of Nova's SCLAIR would decrease. He concluded that approximately 45% of SURPASS sales would be diverted to the conventional LLDPE product SCLAIR, while only 22% would be diverted to Dow's ELITE. These assumptions were inconsistent with the evidence that mLLDPE products form one distinct market segment, while conventional LLDPE products form another.

[78] In closing argument, counsel for Nova candidly admitted that Dr. Leonard "got the better of" Dr. Heeb with respect to his logit simulation model. I agree. For the reasons explained above, I prefer the analysis of Dr. Leonard. His estimate of a 50% diversion ratio is conservative, and I have no hesitation in adopting it.

[79] Dr. Leonard and Dr. Heeb also differed in their opinions regarding the parties' expectations of ELITE's profitability in the hypothetical negotiation. Both used Dow's historical profit margins for ELITE as a proxy for the parties' expectations in 2002. However, Dr. Heeb included profit margins for 2001, a recession year in which Dow realized the lowest profit margins for ELITE in the product's history (1.4%).

[80] Dow launched ELITE in 1997, and at the time of the hypothetical negotiation in 2002, historical profit margins would be available for only a four year period: 1997 to 2001. Dr. Heeb's decision to include the unusually low profit margin for 2001 had the effect of reducing the average profit margin for ELITE from 17.7% to 12.5%. This may be contrasted with the average ELITE profit margin of 21.6% for the period 1997 to 2011, which included two recession years. Dr. Leonard excluded 2001 from his calculation and arrived at an average historical profit margin for ELITE of 17.7%. This accords more closely with what actually happened in the years following the hypothetical negotiation. Applying the 50% diversion ratio, Dr. Leonard estimated Dow's MWTA to be 8.8%.

[81] Again, I prefer Dr. Leonard's analysis to that of Dr. Heeb. The inclusion of 2001, a recession year, in the assessment of the parties' expectations regarding ELITE's profit margin at the time of the hypothetical negotiation artificially deflates the average. Excluding 2001 produces an average profit margin for ELITE of 17.7%. This is roughly consistent with, although somewhat lower than, 21.6%, *i.e.*, the actual profit margin for ELITE over the period 1997 to 2011, which included two recession years. Dr. Leonard's estimate of Dow's MWTA of 8.8% is conservative, and I have no hesitation in adopting it.

C. *Nova's Maximum Willingness to Pay*

[82] Both parties agree that Nova's maximum willingness to pay is the profit that Nova would expect to earn on SURPASS compared to the next best non-infringing alternative [NIA]. The NIAs proposed by Nova are primarily pail and crate grade products.

[83] Dr. Heeb assumed that at the time of the hypothetical negotiation, Nova would expect to be at full capacity at all times, and all SURPASS sales would therefore be replaced, at a minimum, by sales of pail and crate grades. He then used Nova's actual profit margins from its sales of the NIAs over the period 2002 to 2008 as a proxy for the expected profitability of the NIAs in the hypothetical negotiation.

[84] According to Dr. Leonard, if NIAs are taken into account, one must consider the amount of time that Nova was actually at capacity during the period 2002 to 2006. He calculated this to be only 37% of the time. He also said that for the periods when Nova was at full capacity, it would be necessary to determine the ratio of SURPASS profit margins to NIA profit margins per reactor hour.

[85] In his reply to Dr. Leonard's report, Dr. Heeb accepted this approach in principle. However, he disagreed with Dr. Leonard's estimate of how often Nova would expect its plant to be at full capacity, and his use of the lowest margin product as a proxy for the profitability of Nova's NIAs. According to Dr. Heeb, if Dr. Leonard used data from 2002 to 2008 (a full business cycle) and applied the correct margins per reactor hour, then the ratio of the NIAs' profit margins to those of SURPASS would more than double.

[86] In my view, the evidence supports Dr. Heeb's assertion that in 2002, the parties would assume that Nova could use the PE2 plant flexibly to replace all infringing products with NIAs. I discuss Nova's operation of the PE2 plant and its business objective of maintaining full capacity below in the context of profits. I am more persuaded by Dr. Heeb's margin ratio than I am by the

one proposed by Dr. Leonard. Applying these assumptions, Dr. Heeb concluded that Nova's MWTP would be lower than Dow's MWTA.

[87] If Nova's MWTP is lower than Dow's MWTA of 8.8%, then there is no bargaining range between the parties. As Dr. Heeb stated, "[s]ince a bargain is compulsory in this hypothetical negotiation, the reasonable royalty rate is simply Dow's MW[T]A". Dr. Leonard did not dispute this approach. There is therefore no need to consider the division of gains to trade.

[88] Even if NIAs are not taken into account, then according to Dr. Heeb, Nova's MWTP is still lower than 8.8%. Accordingly, Nova's proposed NIAs have no bearing on the determination of the reasonable royalty.

[89] I therefore conclude that the appropriate rate for the reasonable royalty payable by Nova to Dow for the period 2004 to 2006, regardless of whether or not the pail and crate NIAs are taken into account, is 8.8%.

D. *Nova's Additional Arguments*

[90] Nova advanced numerous additional arguments that the reasonable royalty payable to Dow should be reduced. None of these was persuasive, and they may be dealt with briefly.

[91] Nova asserted that Dow's MWTA should be reduced because "competition can expand a market by increasing product availability and having an additional sales force from Nova would draw in more customers than Dow could on its own. Dow would see that Nova could sell more

easily than Dow to Nova's existing customers of other products. Dow might realize it could still sell all it could make and, in addition, receive a royalty from Nova for the expanded market." This speculative assertion was not discussed by any of the expert witnesses who testified in these proceedings. It is therefore unsupported by evidence, and I do not accept it.

[92] Nova criticized Dr. Leonard's assessment of Nova's MWTP on the ground that he largely ignored Nova's licence negotiations for SCLAIRTECH. Mr. Vermani, who was responsible for Nova's licensing agreements, testified that Nova valued its AST (used to make the infringing products) only moderately more than SCLAIRTECH. Mr. Vermani suggested that Nova's MWTP should therefore be in the range of 1% to 2%. However, the evidence establishes that SURPASS and ELITE occupy a distinct market segment from conventional LLDPE products such as Nova's SCLAIR. Neither Dow nor Nova has ever licensed ELITE or SURPASS technology, and I am unable to infer anything regarding the value of a hypothetical licence for ELITE technology based on the royalty obtained by Nova for licensing SCLAIRTECH. Furthermore, this is not the basis upon which either Nova's or Dow's experts assessed the reasonable royalty payable to Dow for Nova's infringement of the '705 Patent during the relevant period.

[93] Nova invoked the doctrine of comity to argue that this Court should respect the decision of the U.S. jury to apply an effective royalty rate of 1.755% to calculate Dow's damages resulting from Nova's infringement of the equivalent U.S. patent over a similar period. It provided no authorities to support its position. I am not persuaded that comity applies to the U.S. jury award, which did not address the question of a reasonable royalty *per se* (hence Nova's use

of the term “effective royalty”), and applied different law in a different jurisdiction (see *Morguard Investments Ltd v De Savoye*, [1990] 3 SCR 1077 at para 29).

[94] At the commencement of this reference, Nova informed the Court that when Dow’s application for the ’705 Patent was published in 1994,

> […] it did not have any claim that included within its scope a homogeneously branched <u>linear</u> ethylene α-olefin interpolymer with an SHC limitation. All of the claims Dow asserted were directed to a <u>linear</u> homogeneously branched component A (as found in SURPASS), with a specified SHC (which the trial judge found to be the inventive concept). The only claim in the published application that referenced SHC is Claim 4, but its Component A is <u>substantially linear</u> rather than <u>linear</u>. [Emphasis original]

[95] However, Dr. Speed, the expert witness called by Nova to substantiate this assertion, acknowledged in cross-examination that he had not been aware that Claim 4 of Dow’s application was amended on June 2, 1995 to include a homogeneously branched linear ethylene α-olefin interpolymer with an SHC limitation. This was seven years before Nova began infringing the ’705 Patent.

[96] Nova maintained that Dow’s delay in prosecuting its patent application from 1994 to 2006 should be a relevant factor in the Court’s determination of what compensation is “reasonable”. However, this was premised on Nova’s assertion that none of the published claims of the ’705 Patent prior to its issuance were infringed by Nova. This turned out not to be true.

[97] Finally, in closing submissions, counsel for Nova advanced an entirely new argument that the parties to the hypothetical licence negotiation in 2002 would have anticipated that the term of

the licence would be just four years, *i.e.*, from 2002 until 2006, when the ’705 Patent was issued. In this alternative “but for” world, Nova would seek to licence Dow’s patented technology only until the ’705 Patent came into force, at which time Nova would cease its production of SURPASS until the ’705 Patent expired in 2014. Nova did not adduce any evidence to support this new theory. Nor was this the basis upon which either Nova’s or Dow’s experts assessed the reasonable royalty payable to Dow for Nova’s infringement of the ’705 Patent during the relevant period.

E. *Products Subject to Reasonable Royalty*

[98] Dow and Nova agree that the adjusted net revenue arising from Nova’s infringement of the ’705 Patent should be based on Nova’s Comprehensive Sales Report (also referred to as the Detailed Sales Transaction Listing), *i.e.*, gross sales revenues plus billed surcharges less billed price reductions, rebates and cash discounts. They also agree that reasonable compensation should be calculated by multiplying Nova’s adjusted net revenues by the royalty rate that this Court finds to be appropriate.

[99] Nova accepts that infringing grades and infringing off-grades should be included in the calculation of the reasonable royalty. It is common ground between the parties that the disputed grades were not sold during the royalty period. However, Nova maintains that what it describes as the “non-infringing ZN off-grades” should be excluded from the calculation of the reasonable royalty payable to Dow.

[100] I am satisfied that the infringing off-grades are those included in Justice O'Keefe's judgment in *Dow v Nova*. On appeal, Nova did not challenge the inclusion of the off-grades in Justice O'Keefe's judgment. To exclude the so-called "non-infringing ZN off-grades" from the calculation of damages and profits would amount to a collateral attack on the judgment of Justice O'Keefe. The evidence offered by Nova in this reference to support its assertion that certain off-grades cannot infringe the '705 Patent because they involve a change in catalyst should have been presented to Justice O'Keefe. That evidence is, in any event, unreliable. Purchasers of Nova's off-grades are not indifferent to their properties and processibility. This is why they are given a specific designation by Nova. Off-grades are often mixed with other grades, and their performance characteristics matter to Nova's customers. For all of these reasons, it is appropriate to include all of the off-grades identified in Justice O'Keefe's judgment in the calculation of the reasonable royalty.

F. *Pre-judgment Interest*

[101] In *Dow v Nova*, Justice O'Keefe made the following order with respect to pre-judgment interest on the reasonable royalty payable by Nova to Dow (at para 283):

> The plaintiffs shall be entitled to pre-judgment interest, not compounded, on the award of reasonable compensation for the acts of the defendant under subsection 55(2) of the *Patent Act* and damages (if elected), at a rate of interest to be calculated separately for each year since infringing activity began at the average annual bank rate established by the Bank of Canada as the minimum rate at which it makes short-term advances to the banks listed in Schedule I of the *Bank Act*, SC 1991, c 46. However, such award is conditional upon the reference judge not awarding interest under paragraph 36(4)(f) of the *Federal Courts Act*, RSC 1985, c F-7.

[102] Dow seeks a higher rate of pre-judgment interest than the average annual bank rate. Dow argues that pre-judgment interest for the reasonable compensation period should be calculated using its annual cost of borrowing on a simple basis.

[103] Nova says that Dow has been silent with regard to s 36(4)(f) of the *Federal Courts Act*, RSC 1985, c F-7, and the applicable rate is therefore the bank rate. In the alternative, Nova complains that Mr. Hamilton's conclusions regarding the appropriate rate of pre-judgment interest are unsupported by evidence. Dow replies that its Statement of Issues refers to paragraph 4 of the judgment of Justice O'Keefe and s 36(4)(b) of the *Federal Courts Act*. Dow says that this is a typographical error, and was intended to be a reference to s 36(4)(f). Dow also maintains that Nova has been aware of its position regarding s 36(4)(f) of the *Federal Courts Act*, and its position that Dow's borrowing rate is the appropriate metric, since at least as early as the initial expert report of Mr. Hamilton, which Nova received on July 15, 2016.

[104] Mr. Hamilton stated in his initial expert report that he "reviewed Dow's publically available financial statements for the years ended 2001 to 2015 and noted that Dow had outstanding long term debt ranging from approximately US$9.5 billion to US$24.3 billion and the weighted average annual debt cost associated with these borrowings ranged from 5.1% to 6.3%". Mr. Soriano did not address pre-judgment interest for the reasonable compensation period in his expert reports, beyond noting that he had been instructed by counsel to apply the bank rate.

[105] The evidence relied upon by Mr. Hamilton to support his conclusions consisted of Dow's publically available financial statements. Nova did not challenge the accuracy of his calculations or the legitimacy of his analysis in its expert reports or in cross-examination. Adopting a conservative approach, I find that the appropriate rate of pre-judgment interest for damages payable under s 55(2) of the *Patent Act* is 5%, not compounded.

IX. Profits

[106] In *Dow v Nova*, Justice O'Keefe held at paragraph 283:

> 2. The plaintiffs are entitled to elect after due inquiry and full discovery, either an accounting of profits of the defendant or all damages sustained by reason of infringement by the defendant of the above mentioned patent. Such damages or accounting of profits will be assessed by reference preceded by discovery if requested.
>
> […]
>
> 5. In the event that the plaintiffs elect an accounting of profits, pre-judgment interest shall be determined by the reference judge.

[107] Dow has elected an accounting of Nova's profits derived from the infringing products.

A. *General Principles*

[108] An accounting of profits is an equitable remedy within the discretion of the trial judge. Once an accounting is granted and elected, the Court's role is to assess the actual profits made by the defendant as a result of the infringement. A plaintiff is entitled only to that portion of the infringer's profit that is causally attributable to the invention (*Teledyne Industries Inc v Lido Industrial Products Ltd*, [1982] FCJ No 1024 at 207-209 (TD) [*Teledyne*]; *Monsanto Canada Inc*

v Schmeiser, 2004 SCC 34 at para 101 [*Schmeiser*]; *Monsanto Canada Inc v Rivett*, 2009 FC 317 at para 27 [*Rivett*]).

[109] The remedy of an accounting of profits is restitutionary in nature, not punitive (*Schmeiser* at para 101; *Lubrizol Corp v Imperial Oil Ltd*, [1997] 2 FC 3 at para 15 (CA) [*Lubrizol*]; *AlliedSignal Inc v DuPont Canada Inc*, [1995] FCJ No 744 at para 81 (CA)). As Justice Zinn stated in *Rivett* at paragraph 22, "it is the wrong-doer who is being restored, through a disgorgement of profits, to the position that he would have been in had he not done the illegal act."

B. *Revenues from Sales*

[110] The plaintiff bears the burden of proving the defendant's sales or revenues from the infringement. Mr. Hamilton and Mr. Soriano, the expert witnesses called on behalf of Dow and Nova respectively, were in significant agreement regarding the values of the revenues. Both stated that their conclusions differed only because of the assumptions they were asked to make by their instructing counsel.

C. *Disputed Grades and Infringing Off-grades*

[111] For the reasons explained above, the revenues attributable to Nova's infringement of the '705 Patent extend to those earned from the disputed grades and the infringing off-grades.

D. *Springboard Profits*

[112] If Nova had not infringed the ’705 Patent, then it would have taken Nova some time following the patent’s expiry to attain the same level of sales of the infringing products that Nova enjoyed in April 2014. Dow says that Nova’s infringement of the ’705 Patent provided it with a “springboard” into the market and, as a result, Nova continued to profit from its infringing activity after the expiry of the ’705 Patent. Dow says that it is entitled to receive these “springboard profits” from April 20, 2014 to December 31, 2015.

[113] In *AstraZeneca Canada Inc v Apotex Inc*, 2015 FC 671 at paragraph 7 [*AstraZeneca*], Justice Barnes acknowledged the potential for springboard damages in a patent action:

> In my view, springboard damages are nothing more than a type of loss no different than any other claim to damages. They must be proven or disproven with evidence. There is accordingly no need to refer to springboard damages or to any other particular form of damages at the liability stage.

[114] In *Bayer Cropscience KK v Charles River Laboratories Preclinical Services Edinburgh Ltd & Albaugh Inc*, [2010] CSOH 158 [*Bayer Cropscience*], the Scottish Court of Session held that springboard relief should be available in an accounting of profits as well as in damages. Lord Malcolm cited the earlier decision of the Patents Court in *Gerber Garment Technology Inc v Lectra Systems Limited and Another*, [1995] RPC 383, aff’d [1997] RPC 443, which spoke of an infringer establishing a “bridgehead” or “springboard” for sales before the expiry of a patent. He continued at paragraph 9:

> Given that it is well understood that an account of profits and an inquiry as to damages both proceed on a common principle of legal

> causation […], I can identify no good reason why this conclusion should not apply to both forms of remedy. […] [I]t would be very odd if springboard claims were available for damages, but not for the alternative remedy of an accounting of profits made by the wrongdoer.

[115] Nova argues that the possibility of springboard damages may be recognized in Canadian jurisprudence, but no Canadian court has awarded springboard profits following the expiration of a patent. Nova maintains that by accepting the payment of a royalty as reasonable compensation, and by electing an accounting of profits, Dow is deemed to have condoned Nova's infringement of the '705 Patent, and Nova is deemed to have carried on its infringing business as Dow's agent. According to Nova, when Dow's patent expired in 2014, the agency relationship ended and Nova's activities no longer infringed. There is therefore no need to account for any profits earned by Nova following expiry of the '705 Patent. Any benefit that Nova may have derived from having a "springboard" into the market following the patent's expiry has been fairly purchased by the payment of a reasonable royalty and/or an accounting of profits.

[116] Nova's contention that the payment of a royalty and disgorgement of profits amount to condonation of an infringer's activities finds some support in Canadian jurisprudence. In *Ductmate Industries Inc v Exanno Products Ltd* (1987), 16 CPR (3d) 15 at paragraph 15 (FCTD), Justice Reed held as follows:

> An accounting of profits proceeds on the basis that the defendant is being treated as the plaintiff's trustee. In the text written by T. A. Blanco White entitled *Patents for Inventions* (4th ed., 1974) at p. 430 it is explained as follows:
>
> > An account of profits (under which the defendant's business, so far as it relates to infringements of the patent

> concerned, is treated as having been carried on on behalf of the patentee). ...

And, in *Fisher and Smart on Patents* (1914) at p. 228:

> ... In electing to take such profits the plaintiff condones the infringement, and adopts what was done by the defendant, who may in the enquiry be regarded as the agent or trustee of the plaintiff. (*American Braided Wire Co. v. Thompson*, [1890] 7 R.P.C. 138.).

[117] In *Beloit Canada Ltd v Valmet-Dominion Inc*, [1997] 3 FC 497 at para 100 (CA), the Federal Court of Appeal said the following:

> The equitable remedy of an account was granted against the infringer of a patent, copyright or trade mark, on the premise that the infringer acted as the agent of the owner of the right and was therefore obliged to account for the profits earned through the infringement. Accordingly, the owner of a patent who claimed an account of profits was considered to have condoned the infringement and could not claim damages in addition to the account.

[118] Dow objects that Nova did not plead condonation in its Statement of Issues, and should not now be permitted to advance this argument. Dow also asserts that notions of agency and condonation are a legal fiction, and no approval of an infringer's conduct is intended. Dow relies on *Cala Homes (South) Ltd v Alfred McAlpine Homes East Ltd*, [1996] FSR 36 at 41-42, in which Justice Laddie of the English High Court of Justice said the following:

> By parity of reasoning, the plaintiffs say that electing an account does not involve them in ratifying or condoning the infringement. They have simply elected between two types of remedy available under section 96(2) [of the *Copyright, Designs and Patents Act 1988*, 1988, c 48] for invasion of their rights. Whether or not they are entitled to an account under section 96(2) and statutory

> additional damages under section 97(3) is to be determined by considering whether those two forms of relief are mutually inconsistent, not by pretending that the plaintiffs approved of the defendant's activities and therefore cannot complain of their flagrancy. In my view the plaintiffs are right.

[119] According to Dow, "the infringer of a patent has to be treated as the plaintiff's trustee and as a defalcating trustee who committed a species of fraud" (citing *Reading & Bates Construction Co v Baker Energy Resources Corp*, [1994] FCJ No 1514 at para 40 (CA) [*Reading & Bates*]).

[120] I am not persuaded that Nova's failure to explicitly plead condonation in its statement of issues precludes it from defending against Dow's claim of springboard profits on this basis. In the same way that Justice Barnes found in *AstraZeneca* that springboard damages are potentially available even if not specifically addressed at the liability phase, the notion of condonation is implicit in any analysis of reasonable royalty or an accounting of a defendant's profits as the patent-holder's agent. Condonation in this context does not connote a form of approval of the infringer's actions. Rather, it is an acknowledgment that the "defalcating trustee" must account fully for the infringement. The purpose of an accounting for profits is simply to give to the plaintiff the profits made by the defendant from the wrongful infringement (*Diversified Products Corp v Tye-Sil Corp*, [1990] FCJ No 952 at para 6 (CA) [*Tye-Sil*]; *Beloit Canada Ltée/Ltd v Valmet Oy*, [1992] FCJ No 825 at para 10 (CA) [*Beloit 1992*]).

[121] Nova must pay Dow a reasonable royalty resulting from Nova's infringement from December 9, 2004 to August 21, 2006. Dr. Leonard and Dr. Heeb both testified that the term of the licence for the purposes of calculating the reasonable royalty runs from the date of first infringement of the '705 Patent until its expiration.

[122] In closing argument, counsel for Nova argued that there is an implicit assumption in the expert evidence of Dr. Leonard and Dr. Heeb that the royalty rate contemplates the expiry of the patent and any resulting springboard period. Counsel for Dow countered that the accounting of profits should be considered in isolation from damages in the form of a reasonable royalty.

[123] Dow is entitled to awards under both ss 55(1) and 55(2) of the *Patent Act*. Even if the royalty rates calculated by Dr. Heeb and Dr. Leonard can be said to include the period following the expiration of the ’705 Patent, the royalty compensates Dow only for Nova’s infringement during the period December 9, 2004 to August 21, 2006. The accounting of profits extends over a much longer period.

[124] An accounting of profits is to be assessed in relation to a “but-for” world in which the defendant has not infringed the plaintiff’s patent. The assumption is that at the time of the patent’s expiry, the defendant had not yet produced the infringing product. I agree with Justice Barnes that springboard damages are nothing more than a type of loss to be proven with evidence, and I see no reason why this principle should operate differently to a plaintiff’s gains in the context of an accounting of profits.

[125] Mr. Dunn testified that in the “but-for” world, Nova would have to complete two steps before it could offer the infringing products for sale. First, Nova would have to develop the products, which would include testing to generate data to demonstrate to customers that the products could be used for specific applications. Second, the products would have to be qualified for use in specific applications by each customer. Mr. Dunn testified that in the “but-for” world

following expiry of the ’705 Patent, and depending upon the application – *e.g.*, food packaging, diapers and hygiene, agricultural films, shrink films, heavy duty sacks, stretch film, household bags and wrap, trash bags and industrial liners – it would have taken Nova between 15 and 36 months to complete both steps.

[126] Dr. Leonard suggested that the time it took Nova to ramp up its sales of the infringing products in 2002 provided some evidence of the time it would have taken Nova to ramp up its sales in the “but-for” world following the expiry of the ’705 Patent. Dr. Leonard said that using the historical sales figures from 2002 was a conservative approach because in 2014, the market was more mature and other mLLDPE products, such as ELITE, would have captured most customers of interest by that time.

[127] Mr. Hamilton calculated the revenues attributed to the springboard period under three different scenarios: (i) a 12 month development period plus the average qualification time for each application; (ii) a 12 month development period together with an additional three month qualification period, plus a ramp up period using the monthly ramp up percentages from Dr. Leonard’s initial report; and (iii) a ramp up period using the monthly ramp up percentages from Dr. Leonard’s reply report.

[128] Dr. Kelusky testified about the manner in which Nova might have entered the mLLDPE market following the expiry of the ’705 Patent. He did not take serious issue with Mr. Dunn’s estimate of the time required to qualify products for different applications. He nevertheless offered the opinion that in 2014, Nova would have reached peak sales of SURPASS more

quickly than it did in 2001, when it began to sell SURPASS. The implication of his testimony was that the ramp up period would have been considerably shorter in the “but for” world. Dr. Kelusky did not offer much in the way of evidence to support this speculative assertion. He ceased to be involved in Nova’s business operations in 2010. His report did not identify the basis for his conclusions regarding the market for mLLDPE in 2014, including his analysis of price-matching for FPs317-A, as well as the costs of raw materials, plant operations or waste disposal. I therefore give his opinion little weight.

[129] Dr. Heeb suggested that Nova’s ramp up rate following expiry of the ’705 Patent should be based on the actual sales of Nova’s experimental and commercial grade products during the 2014-2015 period. He posited that Nova would begin with the aggressive pricing strategy it used for some products in 2006. He assumed that once a product reached its peak monthly sales, it would sustain that level of sales in each subsequent month – an assumption that was not supported by the data. He then applied these rates to Nova’s actual sales of infringing products in the real world after the expiration of the ’705 patent. In my view, Dr. Heeb’s analysis is speculative and unsupported by the evidence. I do not accept it.

[130] I am satisfied that in the “but for” world, where Nova was unable to enter the mLLDPE market until the expiry of the ’705 Patent, it would have taken Nova some time to overcome the long-established presence of Dow’s ELITE products and ramp up its sales to the levels it enjoyed in the real world. I am most persuaded by the third scenario calculated by Mr. Hamilton, using the monthly ramp up percentages found in Dr. Leonard’s reply report. This analysis is based on the historical data of Nova’s actual ramp up periods, and is therefore grounded in reality. It also

takes into account Nova's historical cumulative profit for the first 11 months that it offered the infringing products for sale, and assumes an effective ramp up rate of zero during this initial period. This is a fair and balanced approach.

E. *Deductible Costs*

[131] Once revenues are established, the defendant must prove, in general terms, any costs that are to be deducted (*Tye-Sil* at para 11; *Rivett* at para 67). Any doubt is to be resolved in favour of the plaintiff (*Rivett* at para 67). The general principle applicable in cases of unjust enrichment that substance should come before form applies (*Lubrizol* at para 8, quoting *Dart Industries Inc v Decor Corporation Pty Ltd*, (1993) 179 CLR 101 at 111 (HCA) [*Dart Industries*]).

[132] Both Mr. Soriano and Mr. Hamilton agreed on the approach to deducting variable costs. Both experts relied on Nova's Comprehensive Sales Report to determine the variable cost of raw materials (excluding ethylene), packaging, freight, duties and external commissions. Both experts used the same methodology to determine the variable cost of "Utilities" and "Other" Variable Costs on the income statements. Both experts also treated "Inventory Adjustments", "Foreign Exchange", and "Other" fixed costs recorded on the AST Income Statements as variable. Each allocated these costs to the infringing products based on their relative proportion of billed volumes.

[133] There are two central disputes between the parties: (1) the appropriate measure of the cost of ethylene used to produce the infringing products; and (2) the deductibility of proportionate capital depreciation and fixed costs relating to the operation of the PE2 plant.

(1) Cost of Ethylene

[134] Nova says that the true economic value of ethylene is its value in a market transaction, regardless of whether the ethylene is produced by Nova or a third party, used to make infringing or non-infringing products, sold to third parties or used by the entity that produced it. Nova therefore argues that the appropriate measure for determining the deductible cost of ethylene is the average third party selling price (*i.e.*, the market price). In the alternative, Nova requests a full cost or absorption approach to its manufacture of ethylene, including a proportion of variable, fixed and capital costs.

[135] Dow says that Nova is entitled to deduct only the costs it actually incurred to obtain the ethylene it used to manufacture the infringing products. Because Nova produced its own ethylene at its E1, E2 and E3 plants located at its facility in Joffre, Alberta, the appropriate measure for determining the deductible cost of ethylene is Nova's variable cost of manufacture. Dow says that Nova's position is premised on being able to sell ethylene to third parties, or sell alternative non-infringing polyethylene products manufactured at the PE2 plant, but Nova has failed to demonstrate that there was other demand for both ethylene and the non-infringing polyethylene. Dow also says that Nova has not established any aspect of the alleged market price it proposes, and that Nova denied Dow meaningful discovery on the issue.

[136] In response to Nova's alternative position, Dow says that Nova should not be permitted to deduct a cost of ethylene that includes its fixed costs for production (*i.e.*, a full cost or absorption approach). According to Dow, this was suggested for the first time in the second

expert report of Mr. Soriano, and the deduction of fixed costs associated with the manufacture of infringing products is not supported by Canadian jurisprudence.

[137] There is no dispute that Nova benefited from an "Alberta Advantage" in the production of ethylene. It produced ethylene at its own facility in Joffre, Alberta at a significant discount compared to the market price of ethylene. That ethylene was then used to produce polyethylene at the PE2 plant.

[138] In an accounting of profits, the aim is to provide the plaintiff with all of the profits made by the defendant resulting from the infringement. For this purpose, one must take the infringer as one finds them (*Schmeizer* at paras 103-105; NV Siebrasse & AJ Stack, "Monetary Relief – Quantum" in Dimock, *Intellectual Property Disputes: Resolutions and Remedies* (Toronto: Thomson Reuters, 2016) at 19-73; see also *Tye-Sil* at para 6; *Athey v Leonati*, [1996] 3 SCR 458 at para 34).

[139] An accounting of profits should be based on actual revenues and costs (*Rivett* at para 92). Here, Nova enjoyed an economic advantage with respect to the cost of ethylene, the benefit of which must now be passed on to Dow. Nova did not pay a market price for the ethylene it used to manufacture the infringing products. While Nova kept separate business records indicating a "transfer price" for ethylene for the Western Olefins business segment, which produced ethylene at the Joffre site, Nova concedes that the ethylene was produced by the same corporation that produced the infringing products: Nova Chemicals Corporation. Nova does not suggest that the "transfer price", *i.e.*, the price recorded on several of Nova's internal statements, is the

appropriate measure of the cost of ethylene. Put simply, Nova's position that the market price should be applied is based upon a theoretical cost that it did not incur.

[140] With a focus firmly on actual revenues and costs, I conclude that Nova should be permitted a deduction for costs associated with the production of ethylene using the full cost or absorption accounting approach. Accordingly, the costs actually incurred by Nova to produce the ethylene that was used to make the infringing products, whether variable or fixed, are appropriately deducted as a variable cost of the infringing products. While Dow complains that the deduction of fixed costs relating to ethylene was raised for the first time by way of "improper sur-reply" in the second report of Mr. Soriano, the appropriate costs to be deducted in an accounting of profits are a question of law for the Court. I am satisfied that any prejudicial effect of Mr. Soriano's second report is outweighed by its probative value.

(2) Fixed Costs and Capital Depreciation

[141] The second dispute between the parties is whether capital costs or depreciation expenses should be applied against the relevant revenues.

[142] There are several recognized means of accounting for profits. These include the "differential profit" approach; the "variable cost", "incremental cost" or "differential cost" approach; and the "full cost" or "absorption" approach. The choice of approach determines the allowable deductions, and whether the Court will consider NIAs.

[143] Under the differential profit approach, the profits that must be disgorged are those earned from the infringement less those profits that would have been earned had the infringer produced an NIA (*Rivett* at para 29). The Supreme Court of Canada has described this method as the "preferred approach" (*Schmeizer* at para 102; see *Apotex Inc v ADIR*, 2017 FCA 23 at para 28 [*ADIR*]). The NIA must be a true substitute or real alternative (*Apotex Inc v Merck & Co, Inc*, 2015 FCA 171 at para 73 [*Merck & Co*]):

[144] Under the incremental cost approach, the profits to be disgorged are the applicable revenue less any variable costs attributable to the invention, and any increased fixed or capital costs attributable to the invention (*Rivett* at para 30).

[145] Under the full cost or absorption approach, the profits to be disgorged are the applicable revenue less applicable variable, fixed, and a proportion of certain fixed and capital costs (*Rivett* at para 32). Justice Zinn remarked in *Rivett* at paragraph 33 that "[i]f the full cost approach has ever been endorsed by this Court, it has not been of late".

[146] In this reference, Nova concedes that there were no "direct non-infringing alternatives" available for the purpose of applying the "differential profits" approach. Furthermore, Nova says its incremental costs are negligible and to apply the "incremental cost" approach would be "manifestly inequitable". Nevertheless, Nova argues that it should be permitted to deduct appropriate variable, fixed and capital costs because in the "but for" world, it would have produced what it calls "indirect non-infringing alternatives".

[147] Nova submits that the test for deduction of fixed costs should be whether "an infringer would have manufactured or sold non-infringing products had it not infringed and would have incurred overheads in supporting that manufacture or sale". In the alternative, Nova says that the PE2 plant operated at full capacity during the relevant time periods, always with a view to maximizing profit.

[148] Dow says that the full cost or absorption approach advocated by Nova has been repeatedly rejected by Canadian courts because fixed costs, which remain constant, are not causally attributable to the infringement. In the alternative, Dow says that Nova must prove the following before fixed and capital costs may be deducted: (i) Nova's manufacturing assets were operating at full capacity; (ii) there was sufficient demand to replace the production of infringing products with alternative products; and (iii) the resulting profits were sufficient to cover the fixed and capital costs in question. Dow says that Nova has failed to prove these conditions.

[149] According to Nova, if it had not made infringing SURPASS products, then it would have used the same PE2 plant capacity to manufacture and sell other products including, as a last resort, pail and crate grades. Nova also claims that it could have manufactured and sold a small volume of non-infringing SCLAIR products as substitutes for specific SURPASS grades used by certain customers. However, these amount to only 4% of the proposed NIAs. Nova says that the profits from all of these non-infringing sales would have been sufficient to cover the non-incremental fixed costs and capital costs allocated to infringing SURPASS products.

[150] Dow complains that Nova objected on discovery to questions pertaining to the Nova's defence of indirect NIAs. Dow also says that the testimony adduced by Nova was high-level and general, and lacked important details: for example, the size of the market in different jurisdictions, competitors in the market, where Nova's products fit into the market, examples of customers with additional demand, or any analysis of the potential impact of additional supply on price.

[151] Despite Nova's reticence to provide particulars on discovery, I am satisfied that Dow was given a fair opportunity to challenge the evidence offered by Nova to support the availability of indirect NIAs. Dow was able to establish that the market for pail and crate grades is complex and may not always be profitable. Nova's former Vice President of Polyethylene, John Hotz, confirmed that in the North American market "[s]ometimes […] customers have enough inventory or there is not enough demand," that "[p]ricing is too fluid", and at times, "there could be virtually no demand." Nova's Market Group Leader for Performance Films, Mark Kay, admitted that there was an adverse effect on price in the North American pail and crate market when Nova had to sell "50 or 100 cars … in a 30 [or 45] day period of time." There is no dispute that Nova would have had to sell more than 50 rail cars per month of additional pail and crate in order to replace all its sales of SURPASS. Mr. Kay also acknowledged that Nova sold pail and crate grades in to the Asian market every year, even though this was Nova's "last resort" once opportunities in North America were exhausted.

[152] Nova's witnesses testified that all grades in the pail and crate market are largely interchangeable, and characterized pail and crate as a "very, very large" "commodity" market.

The product slate for the PE2 plant is diverse and includes “commodity” grades, in part, to ensure the plant is sold out in all but exceptional market conditions. The PE2 plant was in fact sold out from 2006 to 2014, except for a short period during the recession in 2008.

[153] According to Nova’s witnesses, the size of the “commodity” markets would have been sufficient to replace its sales of infringing SURPASS (100-150 million pounds annually) with non-infringing products: (a) the polyethylene market tends to grow with GDP every year; (b) the North American market was about 24 billion pounds annually, including about 1.5 to 2.0 billion pounds of pail and crate grades; (c) the Chinese market was another 30 to 32 billion pounds, including about 15 to 16 billion pounds of crate grades; and (d) Nova was always able to sell all the pail and crate volumes it wanted to sell.

[154] Ms. Van Holst, the Director of Logistics for Nova, testified that the PE2 plant was sold out throughout the period during which she managed it from 2009 to 2014. According to Ms. Van Holst: (a) the PE2 plant is intended to run 24 hours a day, seven days a week, and every hour of reactor uptime and downtime is tracked, and the causes for any downtime are recorded; (b) the “nameplate” capacity of the plant is the maximum sustainable rate that the plant can run; (c) events that cause a loss of reactor time that are “external” to the plant, such as market-driven events, raw material shortages, feedstock issues, or hopper cars, are tracked in the downtime records; (d) there was no reactor downtime at the PE2 plant during the period from late 2009 to 2014 that was caused by market conditions; and (e) the only “commercial losses” recorded at PE2 from 2002 to 2015 were in 2005 (551.6 hours), 2008 (288 hours) and 2009 (25.8 hours).

[155] Dr. Leonard attempted to refute Ms. Van Holst's testimony by adjusting the 2014 name-plate capacity of 1,000 million pounds for PE2 to the production level of 1,057 million pounds reached in 2014, which he then applied retroactively. In my view, this was an artificial exercise that did not take into account the unchallenged description of "nameplate" capacity as the maximum sustainable capacity of the plant.

[156] Dr. Leonard admitted that if his assumption regarding the adjusted capacity utilization figures for the PE2 plant was not accepted or, if the PE2 plant was found to have been fully utilized when it had no commercial losses (all years during the infringement period except 2008 and one day in 2009), then the plant would have been sold out to a sufficient degree to cover all of the fixed costs.

[157] Nova kept detailed records of the operation of the PE2 plant. These records, coupled with the testimony of Ms. Van Holst, demonstrate that Nova sought to keep the PE2 plant running at full capacity. Dow's witness, Mr. Thomson, confirmed that this is a standard practice in the polyethylene industry. During the applicable time frame, Nova produced billions of pounds of polyethylene at the PE2 plant. The evidence establishes that the vast majority of plant downtime was caused by maintenance and external reasons. The downtime due to a lack of commercial demand was negligible.

[158] I am satisfied that if Nova had not manufactured the infringing products, it would have worked assiduously to fill out the PE2 plant with other products: pail and crate or other resins that form part of Nova's "product wheel". I am further satisfied that Nova would have sold these

other products within North America or to Asian markets. It is important to bear in mind Justice Reed's observation in *Tye-Sil* that this category of evidence need not be proved in minute detail (at para 11). I have no doubt that the testimony offered by Nova's witnesses was derived from their direct knowledge and experience.

[159] Dow asks this Court to consider the performance of Nova's B-line plant in Sarnia, Ontario. However, the infringing products were produced only at the PE2 plant in Joffre, Alberta. The PE2 plant offered ease of access to ports on the west coast, and was therefore well-positioned to manufacture products intended for the Asian market. In my view, the performance of the PE2 plant should be assessed based on the evidence of the operation of that facility, not facilities elsewhere.

[160] Mr. Hamilton on behalf of Dow, and Mr. Soriano on behalf of Nova, agreed that if the PE2 plant could be shown to operate at full capacity, then a full cost or absorption approach would be the appropriate costing method from an accountant's perspective.

[161] The Federal Court of Appeal has described *Dart Industries* as a "good overview of the nature, scope and principles governing the remedy of an account of profits" (*Lubrizol* at para 8). In *Dart Industries*, the High Court of Australia outlined the appropriate method to calculate profits equitably where overhead costs attributed to infringing products would otherwise be allocated to the manufacture or sale of other non-infringing products, and where the defendant could not apply what is known in Canada as the "differential profits" approach. The High Court stated that where a manufacturing plant was at full production capacity, it could be inferred by

the evidence that if the defendant had not been manufacturing and marketing the infringing products, then the capacity used to make the infringing products would have been taken up with the manufacture and marketing of alternative products (*Dart Industries* at 113-14; see also *LED Builders Pty Ltd v Eagle Homes Pty Ltd*, [1999] FCA 584 at paras 157-65). The High Court articulated the underlying rational for this approach as follows (*Dart Industries* at 114-15):

> [T]here would be real inequity if a defendant were denied a deduction for the opportunity cost as well as being denied a deduction for the cost of the overheads which sustained the capacity that would have been utilized by an alternative product and that was in fact utilized by the infringing product. If both were denied, the defendant would be in a worse position than if it had made no use of the patented invention. The purpose of an account of profits is not to punish the defendant but to prevent its unjust enrichment.
>
> Where the defendant has forgone the opportunity to manufacture and sell alternative products it will ordinarily be appropriate to attribute to the infringing product a proportion of those general overheads which would have sustained the opportunity. On the other hand, if no opportunity was forgone, and the overheads involved were costs which would have been incurred in any event, then it would not be appropriate to attribute the overheads to the infringing product. Otherwise the defendant would be in a better position than it would have been in if it had not infringed. It is not relevant that the product could not have been manufactured and sold without these overheads. Nor is it relevant that absorption method accounting would attribute a proportion of the overheads to the infringing product. The equitable principle of an account of profits is not to compensate the plaintiff, nor to fix a fair price for the infringing product, but to prevent the unjust enrichment of the defendant.

[162] In *Hollister Incorporated v Medik Ostomy Supplies Limited*, [2012] EWCA Civ 1419, the Court of Appeal for England and Wales considered *Dart Industries*, and agreed that a condition precedent to the application of the full cost or absorption approach is that a business must run at

full capacity (at paras 80-86; see also *Design & Display Ltd v OOO Abbot & Anor*, [2016] EWCA Civ 95 at paras 38-48).

[163] I do not read the Canadian jurisprudence as foreclosing the availability of the full cost or absorption approach in appropriate circumstances. The law governing the accounting of profits consistently warns against punitive awards. Given the circumstances of this case, particularly the distinct manufacturing model of the polyethylene business, it would be punitive not to permit Nova to deduct a proportion of certain fixed and capital costs from the revenues generated by sales of the infringing products.

[164] As the Supreme Court of Canada noted in *Schmeiser*, “[a] comparison is to be made between the defendant’s profit attributable to the invention and his profit had he used the best non-infringing option” (at para 102). The “best non-infringing option” has generally been interpreted to mean a “true substitute” or “real alternative” (*Merck & Co* at paragraph 73). But appellate courts have frequently sought to reduce over-generous awards, including those that neglected to take into account alternative profits (*Schmeiser*; *Collette v Lasnier* (1886), 13 SCR 563 at 576; *ADIR* at para 30). The Federal Court of Appeal recently emphasized that “at bottom is the need to ensure that a patentee only receives that portion of the infringer’s profit that is causally attributable to the invention” (ADIR at para 28).

[165] I therefore conclude that Nova is permitted to deduct a proportional amount of the following costs against the applicable revenues during the period for which the accounting of profits applies: (i) annual capital depreciation expenses for the PE2 plant; (ii) salaries for

employees working at the PE2 plant; (iii) overhead costs for the PE2 plant; (iv) ongoing capital costs for the PE2 plant; and (v) costs categorized by Nova as "Plant, Distribution, Sales & Marketing, Technical, Administration and Research and Development", with the exception of costs related to Research and Development. In my view, each of these costs is properly attributed to the production and sale of the infringing products at the PE2 plant.

F. *Pre-judgment Interest and "Profits on Profits"*

[166] In the liability phase, Justice O'Keefe determined that if Dow were to elect an accounting of Nova's profits, then pre-judgment interest would be determined by the reference judge (*Dow v Nova* at para 283).

[167] Nova says that the applicable rate of interest should be the prime rate plus 1%, not compounded. Nova argues that interest should not be compounded because Dow's delay in bringing its claim for infringement against Nova caused these profits to grow to a "huge amount". If the action had been brought earlier, Nova maintains that it could have redirected its PE2 plant to other products sooner, and made profits that it could have reinvested for its own benefit. Accordingly, an award of compound interest may be considered punitive.

[168] Dow argues that the applicable rate of pre-judgment interest should be the profits made by Nova as a result of reinvesting the profits it gained from the infringement, which it describes as "profits on profits". According to Dow, because Nova did not track the profits made by reinvesting the profits from the infringing products, the applicable rate should be Nova's weighted annual cost of borrowing. Dow says that this is a reasonable proxy for Nova's "profits

on profits". Dow's accounting expert, Mr. Hamilton, analysed Nova's debt management to determine how Nova might have reinvested the profits from the infringing grades, and the financial rate of return earned by Nova on these investments. Mr. Hamilton concluded that Nova's weighted average annual cost of borrowing, ranging from 5.1% to 8.4%, would be a reasonable mid-range approach to estimating the profits that Nova earned on the reinvestment of its infringing profits.

[169] Interest is recoverable in an accounting of profits (*Beloit Canada Ltée/Ltd v Valmet Oy*, [1995] FCJ No 733 at para 37 (CA) [*Beloit 1995*]). The Court must decide the rate of interest to be applied and whether the interest should be compounded or not. The Court's jurisdiction in equity and s 55(1) of the *Patent Act* allow it to award compound interest (*Bank of America Canada v Mutual Trust Co*, 2002 SCC 43 at para 41; *Eli Lilly and Co v Apotex Inc*, 2014 FC 1254 at paras 115-116 [*Eli Lilly*]).

[170] In this case, both experts agreed that Nova's profits should be calculated using annual compounding. This is consistent with the jurisprudence (see *Teledyne* at para 20; *Beloit 1995* at para 37).

[171] In the words of Justice Hugessen, a patentee should recover "*all* the profits, direct and indirect, derived by the infringer from his wrongful infringement" [emphasis original] (*Beloit 1992* at para 10; see *Beloit 1995* at para 37). In *Reading & Bates*, Justice Letourneau held that a defendant "has to account both for the profits and their subsequent use as the plaintiff is entitled to both" (at para 16). Dow emphasizes "and their subsequent use" to advance its position that the

applicable rate of interest should be Nova’s weighted annual cost of borrowing. Dow says where there is no clear evidence of the actual profits on profits, the defendant will be deemed to have benefited from the profits on the infringing sales.

[172] Dow also notes that Nova’s position in this reference is inconsistent with the position it took when Nova was seeking a stay of the costs award pending Nova’s appeal of Justice O’Keefe’s costs decision and judgment on their merits. Nova asserted in an affidavit filed with the Federal Court of Appeal that using the bank rate to calculate Nova’s pre-judgment interest would not make Nova whole, but rather that Nova’s cost of capital based on its long term debt should be considered by the Court. The affidavit states that as of January 2016, Nova’s cost of its long-term debt was between 5 and 5.25%.

[173] The evidence in this reference demonstrates that Nova’s profits from the sales of the infringing products were used for a variety of purposes, including the payment of dividends. However, given Nova’s previous submission to the Federal Court of Appeal and the expert evidence of Mr. Hamilton, I am satisfied that the applicable rate of interest for the period of the accounting of profits should be 5%, compounded.

[174] Both Mr. Soriano and Mr. Hamilton agreed that if the award of interest is compounded, it should take tax effects into account. However, neither expert included these calculations in his report. Mr. Hamilton explained that he did not include tax effects in his calculations because the resulting amounts were not material. He said that in his experience, courts do not consider the tax effects of compounded interest. In *Eli Lilly*, Justice Zinn stated at paragraph 119: “[a]ny

discounting of compound interest by the court on this record would be nothing more than mere speculation.” Given the lack of guidance from the expert witnesses called by both parties, I reach the same conclusion in this case.

X. Currency Conversion

[175] The Court’s judgment in this reference must be expressed in Canadian dollars (*Currency Act*, RSC 1985, c C-52, s 12). Dow maintains that the exchange rate in effect on the date of the judgment should be used for the conversion. Nova argues that the average annual exchange rate for each year of infringement should be used.

[176] According to Dow, Nova retained the profits from its sale of infringing SURPASS products in U.S. currency and did not convert them to Canadian dollars. This Court should therefore convert Nova’s infringing profits from U.S. dollars into Canadian dollars at the time of judgment to ensure that Nova disgorges all of the direct and indirect profits it obtained from the infringement. Otherwise, Nova may retain a windfall from its infringing sales.

[177] Nova submits that the infringing profits, calculated in U.S. dollars, should be converted to Canadian dollars at the applicable exchange rate when they were earned, *i.e.*, annually during the period of the infringement.

[178] In *AlliedSignal* (FC) at paragraph 273, the Federal Court held that “the only practicable” date for currency conversion was the date of judgment. Justice Heald drew a distinction between patent infringement, where there is an ongoing breach, and contract or tort cases, where the

breach arises on a clear, single date. The Federal Court of Appeal agreed that the successful party was entitled to compensation payable in U.S. currency as of the date of the judgment, and observed that "the date of judgment is indeed the most logical date to be used" (*AlliedSignal Inc v DuPont Canada Inc*, [1999] FCJ No 38 (CA) at paras 15-16 [*AlliedSignal* (FCA)]).

[179] Nova argues that Justice Heald in *AlliedSignal* (FC) found the breach-date rule not to be practicable only because there was no date corresponding to the infringement of the patent, which occurred over a period of six years. In that case, the defendant suggested that it would be appropriate to take the mid-point of each year and convert the amount owing per year at that point. However, Justice Heald found this method to be overly cumbersome, particularly compared to the solution of converting the currency as of the date of the judgment (at para 273). The Federal Court of Appeal affirmed his choice as one within the referee's discretion, noting "by the conversion, the plaintiff will be awarded the Canadian money required to obtain the full compensation it was found entitled to in U.S. currency" (*AlliedSignal* (FCA) at para 16).

[180] Nova relies on jurisprudence arising in the context of actions for breach of contract or recovery of a foreign judgment for the proposition that the breach-date rule is the approach to be followed in this Court (citing *Kuehne + Nagel Ltd v Agrimax Ltd*, 2010 FC 1303 at paras 19-20 and 22; *NV Bocimar SA v Century Insurance Co of Canada*, [1984] FCJ No 510 at paras 50-51 (FCA), rev'd on other grounds, [1987] 1 SCR 1247; *Schweizerische Metallwerke Selve & Co v Atlantic Container Line Ltd*, [1985] FCJ No 1039 at para 8 (FCA)). Nova says that, in principle, there is no reason to distinguish a single breach from a continuous breach. Each sale of the infringing SURPASS products constituted a breach of the patent. Nova therefore maintains that

there was no continuous breach over the eight year term of the patent, but rather many discrete breaches accruing day to day, each of which is well documented.

[181] Nova therefore takes the position that converting its profits to Canadian dollars on the date of the judgment is not the only practical solution. While it might not be practical to calculate Nova's profits in U.S. dollars and convert them to Canadian dollars for each sale over an eight year period, Nova says that it is practical to examine its profits on an annual basis.

[182] An accounting of profits is an equitable remedy, and it is the actual amount of profits realized which must be paid (*Teledyne* at 209). In this case, I am not overly concerned with whether Nova's infringement of the '705 Patent should be characterized as a continuous breach over an eight year period, or a series of discrete breaches to be examined annually. My primary focus is the evidence of the manner in which Nova's profits from its sales of SURPASS were received, and the currency in which those profits were subsequently used or retained.

[183] There is no dispute that the infringing grades were primarily shipped to Nova's customers in the United States, and the majority of Nova's revenues from the infringing grades, even in respect of sales that were made in Canada, were realized in U.S. dollars. Mr. MacDonald, Nova's former Chief Financial Officer [CFO], confirmed that the vast majority of Nova's polyethylene invoicing is done in U.S. dollars.

[184] Nova notes that it has substantial operations in Canada. Nova's Western Olefins, Corunna Olefins and Polyethylene operations are all in Canada. The Western Olefins business sells

ethylene to third parties in Canadian dollars, with the exception of one contract with a major oil company. Nova's costs, including ethane feedstock, utilities, fixed plant and distribution, research and development and administration, are predominantly in Canadian dollars. The PE2 plant's expenses are also predominantly in Canadian dollars, including ethylene until 2008, utilities, fixed plant costs, some fixed distribution, technical, research and development, administration and portions of the $825 million used to build the PE2 plant. During Mr. MacDonald's tenure as CFO, Nova converted substantial amounts of U.S. dollars into Canadian dollars to satisfy its Canadian dollar obligations, in the range of $800 million to $1 billion per year.

[185] Nova says that it is not possible to trace which funds were converted from U.S. dollars into Canadian dollars in order to pay Nova's ongoing Canadian dollar obligations. Nova combined the profits from the infringing SURPASS grades with all of its other money. The money was used for a variety of purposes, including building cash balances, paying down debt, paying dividends, converting to Canadian dollars to satisfy its Canadian dollar obligations and investing in capital expenditures. Nova argues that it is impossible to say whether or how the money that was generated from selling SURPASS was retained by Nova, and it therefore cannot be determined whether Nova retained the profits it made from the infringement in U.S. dollars.

[186] Dow points to the following evidence that Nova's profits on the infringing grades were received in U.S. dollars and largely retained or expended using that currency:

(a) As of October 1, 2008, the functional currency of Nova's Canadian operations was confirmed to be U.S. dollars. The U.S. dollar functional currency was chosen based on the assessment that the primary economic environment in which the company and its principal subsidiaries operate is the United States. The majority of sales of the infringing grades at issue in this reference took place after this date.

(b) As of 2009, Nova reviewed its significant purchase and sale contracts and, where possible, negotiated payments to be made in U.S. dollars in order to decrease the currency exposure for Nova's working capital balances. For example, in one agreement dated November 2009 between Nova and a major chemical company, there was a requirement that payments be made in U.S. dollars.

(c) Since 2009, transfers of ethylene from Nova's Western Olefins Division to Nova's Polyolefins Division have been in U.S. dollars.

(d) The majority of Nova's debt is held in U.S. dollars.

(e) Nova's parent company uses U.S. dollars as its functional currency.

[187] Nova maintained significant cash balances between 2006 and 2015. The cash balances increased from approximately $74 million in 2008 to $942 million in 2015. Nova did not provide the Court with a breakdown between U.S. and Canadian dollars, although it could easily have done so.

[188] The burden is on Nova to demonstrate that the profits it made from the infringing grades were converted into Canadian dollars, at what times and in what amounts. While I accept that

some of the profits may have been used to acquire goods or services payable in Canadian dollars, Nova has provided no particulars. The preponderance of the evidence demonstrates that Nova retained the profits from the infringing grades primarily in U.S. dollars. Nova presumably used those profits to make investments in U.S dollars, pay down U.S. dollar debt, pay dividends to its parent company in U.S. dollars, among other things.

[189] The evidence supports the conclusion that Nova's profits from the sale of the infringing grades were received and primarily retained in U.S. dollars. Nova has presented little evidence to the contrary. I am therefore satisfied that Nova's profits should be converted to Canadian dollars as of the date of the judgment.

XI. Conclusion

[190] By agreement of the parties, these reasons address only the assumptions and other considerations that inform the calculations of damages and profits. The parties' accountants will calculate the sums owed by Nova to Dow based on conclusions reached by the Court in this stage of the reference.

[191] The parties are at liberty to apply to the Court for determination of any matters that may arise in the course of calculating the damages and profits that are owed by Nova to Dow.

[192] Costs will be determined at the conclusion of the reference.

XII. Postscript

[193] Following issuance of the Confidential Judgment and Reasons on April 7, 2017, the parties were directed to inform the Court whether the document contained confidential information, and whether any portions should be redacted or modified before the Judgment and Reasons were issued to the public. Nova identified some information in paragraphs 84 to 87 and 92 as commercially sensitive. The corresponding paragraphs in the Public Judgment and Reasons have been modified to accommodate these concerns. In addition, an error in paragraph 88 has been corrected.

JUDGMENT

THIS COURT'S JUDGMENT is that:

1. The disputed grades and all of the off-grades identified in Justice O'Keefe's judgment in *Dow v Nova* are to be included in the calculation of both damages and profits payable by Nova to Dow.

2. The rate of the reasonable royalty for the period December 9, 2004 to August 21, 2006 is 8.8%.

3. The rate of pre-judgment interest for damages under s 55(2) of the *Patent Act* is 5%, not compounded.

4. The accounting of profits includes a "springboard period" from April 20, 2014 to December 31, 2015 using the monthly ramp up percentages found in Dr. Leonard's reply report dated November 14, 2016.

5. Against the revenues derived from the sales of the infringing products for the period August 22, 2006 to December 31, 2015, Nova is entitled to deduct variable costs as agreed by the parties and the following additional costs:

(a) the costs Nova actually incurred to obtain the ethylene used to manufacture the infringing products, after deducting costs to produce the ethylene using a full cost or absorption accounting approach;

(b) a proportional amount of the following costs:

- annual capital depreciation expenses for the PE2 plant;
- salaries for employees working at the PE2 plant;
- overhead costs for the PE2 plant;
- ongoing capital costs for the PE2 plant; and
- costs categorized by Nova as "Plant, Distribution, Sales & Marketing, Technical, Administration and Research and Development", with the exception of costs related to Research and Development.

6. The rate of interest for the period of the accounting of profits is 5%, compounded annually.

7. The award of damages and profits payable by Nova to Dow is to be converted to Canadian dollars as of the date of this Judgment.

8. The parties shall exchange calculations of damages and profits payable by Nova to Dow pursuant to this Judgment within fourteen (14) days, and shall inform the

Court whether there are any matters that require resolution within fourteen (14) days thereafter.

"Simon Fothergill"

Judge

FEDERAL COURT

SOLICITORS OF RECORD

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