Project Name:	Flavornet (LOSS)	**Start Date:**	2017-02-09
Project Number:	1706	**Completion Date:**	2017-10-31

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Sterol solubility (mg/oz)	10	40	Yes
Shelf life (months)	12	12	Yes
Suspension fall out (%)	60	2	Yes

The appellant had filed 12 years of successful SR&ED tax claims.

[2] In computing its income, the appellant claimed qualified SR&ED expenditures of $225,136 and investment tax credits ("ITCs") of $78,798 for the taxation year ending June 30, 2010 and qualified SR&ED expenditures of $45,638 and ITCs of $15,973 for the taxation year ending October 31, 2010.

[3] The amounts initially claimed by the appellant were in respect of seven projects. Some of these projects continued over both of the taxation years in dispute. The projects were identified at the hearing by the project identification numbers given to them by the appellant. The projects originally at issue were projects 705, 801, 802, 803, 804, 805 and 806. However, since the appellant elected to proceed under the informal procedure, it decided to narrow the scopeof the appeal to two of the projects, 705 and 806. The appellant thus chose to waive any amount exceeding $25,000 for each taxation year at issue.

[4] The sole issue in this appeal is whether the appellant's activities with respect to projects 705 and 806 constituted SR&ED within the meaning of the definition of SR&ED in subsection 248(1) of the Act.

II. FACTS
[5] The appellant was incorporated in 2000. Initially, its business consisted of selling flavours to the baking industry and salty snack seasonings to the snack food industry.3 Later, that portion of the corporation was sold to third parties, and the company entered the energy drink business.4 It was this later development that led to the appellant's work on developing a beverage with plant sterols and other health-food ingredients.

[6] Gregory Schmalz is the appellant's founder, president and sole shareholder. Mr. Schmalz holds a Bachelor of Science degree from the University of Waterloo. He has had a lengthy career in the flavour and fragrance industries. Mr. Schmalz testified that the work in question was performed by him and his assistant, Chris Melling.5 Mr. Schmalz was unable to confirm whether Mr. Melling had any educational background in science. However, he testified that he did not believe this to be the case.

[7] At the hearing, Mr. Schmalz was the only witness for the appellant. Ms. Azza Hassanein—a research and technology manager with the Canada Revenue Agency (the "CRA") who evaluated the SR&ED claims made by the appellant—testified as the sole witness for the respondent. No experts were called by either party to testify at the hearing.

[8] Mr. Schmalz explained that the appellant's purpose with respect to project 705 (the "Plant Sterols Beverage Project") was to develop a beverage containing a mixture of 800 milligrams of plant sterols in a two-ounce format. Plant sterols are a natural cholesterol-reducing substance found in plant cell membranes. The U.S. Food and Drug Administration recognizes that a daily dose of 800 milligrams of sterols may reduce cholesterol and lessen the risk of heart disease, and it permits products to advertise their cholesterol-reducing properties if they contain the prescribed amounts of sterols. The appellant's intention was that the two-ounce beverage be marketed for its cholesterol-reducing properties.

[9] With respect to project 806 (the "Partial Hot Fill System Project"), Mr. Schmalz explained that the appellant developed a pasteurization system that focused on pasteurizing only the active ingredients by pumping these ingredients in a side kettle and then pumping back the mixture into a larger tank. This method, according to Mr. Schmalz, was novel in that it was different from the hot fill method used by the industry. The two projects were interrelated in the sense that they were components of the same beverage production process and in the sense that the appellant hoped that the Partial Hot Fill System's pasteurization process would aid in the dispersion of the desired amount of sterols in the two-ounce format, as required for the success of the Plant Sterols Beverage Project.

Field of Science/Technology:

Food and beverages (2.11.01)

Project Details:

COMMERCIAL CO

Project Name:	Flavornet (LOSS)	**Start Date:**	2017-02-09
Project Number:	1706	**Completion Date:**	2017-10-31
Intended Results:	Develop new materials, devices, or products		
Work locations:	Commercial Facility, Research Facility		
Key Employees:	Gregory Schmaltz (Food Science - BSc. (1987) / President of Flavournet)		
Evidence types:	Records of resources allocated to the project, time sheets; Design of experiments; Project records, laboratory notebooks		

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

[18] The issue, however, is that sterols are hydrophobic in nature, meaning that they do not dissolve well in water. The difficulty presented by the project was the development of a method of dispersing in two ounces of liquid an 800-milligram concentration of plant sterols. The appellant was aware that Cargill Corporation had a patent and had succeeded in dispersing plant sterols in orange juice, but Cargill was only able to disperse 400 milligrams in an eight-ounce serving.11 Therefore, the appellant was trying to develop a beverage in which the concentration of sterols was eight times higher than the concentration found in the orange juice product developed by Cargill.

III. APPELLANT'S POSITION
[24] The appellant's position is that the expenditures relating to the Plant Sterols Beverage Project and Partial Hot Fill System Project were made as part of "experimental development" within the meaning of the definition of SR&ED found in subsection 248(1) of the Act and thus the claimed SR&ED expenditures were qualified SR&ED expenditures and entitled the appellant to the related ITCs. The appellant argues that the Cargill patent represents the standard practice. In Mr. Schmalz's view, no one had been able to disperse such a large quantity of plant sterols in two ounces of liquid. Therefore, there was technological uncertainty as to whether 800 milligrams of plant sterols could be dispersed in such a small quantity of liquid.

The most significant underlying key variables are:

ingredients, temperatures, shearing methods, emulsifier integration

Technology or Knowledge Base Level:

Benchmarking methods & sources for citings:

Benchmark Method/Source	Measurement	Explanatory notes
Internet searches	10 Articles	Various articles cited but not considered in court
Patent searches	1 patents	Cargil patent identified as benchmark

Activity #1-1: Research as described TCC judgment (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Analysis / simulation:	122 alternatives
Trials:	8 runs / samples

[19] The appellant conducted various tests. For example, it used different heating temperatures, mixed the sterols with different ingredients to determine if the sterols would disperse better and completely, and tested different emulsifiers in conjunction with NutraFlora, which is a soluble fibre. As the project evolved, other health food ingredients ("nutraceuticals")—such as cocoa, green tea extract, and berries—were added to the mixture, both to enhance the health properties of the overall product and to aid in the dispersion of the sterols.

[20] Mr. Schmalz also explained that the appellant tested different mixing methods, for example, high-shear mixing, and mixing with a mechanical pump. Although, it is difficult to completely disperse 800 milligrams of sterols in two ounces of liquid, the appellant succeeded in dispersing 85% of the plant sterols; but there were still sediments that made the beverage unacceptable for market purposes.

B. Project 806-Partial Hot Fill System
[21] At the hearing, Mr. Schmalz explained that the objective of the Partial Hot Fill System Project was to develop a system that has the capability of pasteurizing two different liquid concentrates, subsequently diluting them and then filling them into a dual-chambered bottle at 25 degrees Celsius. According to Mr. Schmalz, the appellant's system differs from the industry-standard "hot fill" pasteurization system, which involves packaging the liquid when hot in special heat-resistant plastic or glass

bottles.

[22] Mr. Schmalz explained that the process in the Partial Hot Fill System begins with the addition of a small amount of sterilized water to the plant sterols and other nutraceutical ingredients—which produces what he described as a “slurry”. That mixture is then pasteurized by being pumped into the small side kettle, which is connected to the main tank, and heated to 50 degrees Celsius.13 The next step is to pump back the pasteurized mixture from the side kettle into the larger tank and to dilute it with sterile water, at which point the product is at room temperature and ready for bottling.

[23] According to Mr. Schmalz, he was seeking to develop an alternative to the traditional hot fill process in order to save energy and packaging costs, since plastic bottles are less expensive than glass bottles.14 In addition, it was also hoped that the heating process used in the Partial Hot Fill System would assist with the dispersion of the sterols and other nutraceuticals in the two ounces of water, thereby contributing to the realization of the Plant Sterols Beverage Project (i.e., the dispersal of the prescribed dosage of sterols in the two-ounce format).

Results:

- Sterol solubility: 22 mg/oz (40% of goal)
- Shelf life: 12 months (100% of goal)
- Suspension fall out: 38 % (37% of goal)

IV. RESPONDENT’S POSITION (CRA)

[27] The respondent argues that the activities undertaken by the appellant do not constitute eligible SR&ED within the meaning of the definition of SR&ED in subsection 248(1) of the Act.

[28] With respect to project 705, the Plant Sterols Beverage Project, the respondent argues that there were no technological uncertainties and no technological advancements since the appellant was using a methodology and techniques that were based on existing technology.

[29] In addition, the respondent argues that the evidence established that the appellant did not understand the concept of a hypothesis. Therefore, no clear hypothesis was formulated and the overall procedure followed by the appellant did not accord with the established principles of the scientific method.

[30] With respect to project 806, the Partial Hot Fill System Project, the respondent argues that the evidence did not establish that the project was developed during the years under appeal. In addition, she argues that the documents submitted by the appellant at trial generated even more confusion, relating to what project was under review for SR&ED purposes.

Conclusion:

[74] With respect to the formulation of a hypothesis, as with the Plant Sterols Beverage Project, the appellant did not formulate one, that is, it did not formulate an assumption to be tested in order to remove the technological uncertainty. In addition, there was no technological advancement since the appellant used means known to the industry to develop its system.

[75] The burden is on the appellant to establish that a project constitutes SR&ED within the meaning of subsection 248(1) of the Act. Project 806 was presented in a manner that was so confusing that it was impossible for me to determine if that project had to do with the dual-chambered bottle or the Partial Hot Fill System during the years under appeal. In any event, I am of the view that the Partial Hot Fill System did not meet the requirements for qualifying as SR&ED within the meaning of subsection 248(1) of the Act.

VI. CONCLUSION

[76] The respondent asked for costs under subsection 10(2) of the Tax Court of Canada Rules (Informal Procedure). I am of the view that the circumstances do not warrant costs.

[77] The appeal is dismissed with respect to project 705—the Plant Sterols Beverage Project—and Project 806 for the taxation years ending June 30, 2010 and October 31, 2010, since these projects undertaken by the appellant did not constitute SR&ED within the meaning of subsection 248(1) of the Act. There will be no award of costs.

Significant variables addressed: emulsifier integration, ingredients, shearing methods, temperatures

Documentation:

- Uploaded to RDBASE.NET: 2015-2330(IT)I Flavor Net Inc.pdf (314KB)

Activity #1-2: Questions on witness credibility (Fiscal Year 2017)

Methods of experimentation:

[10] Before starting my analysis of the appellant’s SR&ED projects, I would immediately emphasize that, as noted by the respondent, there is a discrepancy between the testimony of Mr. Schmalz with respect to the appellant’s SR&ED projects 705

and 806 and the description of these projects by the appellant in its T6616 form for both years under appeal. The T661 is a compulsory form that a taxpayer is required to file with its income tax return when claiming SR&ED expenditures and related ITCs. The T661 requires a taxpayer to describe the purpose of the SR&ED project, the activities undertaken, the technological risks, the uncertainties and advancements, and the approach followed. The CRA relies on the T661 to determine whether the activities of a taxpayer constitute SR&ED within the meaning of the definition of SR&DE in subsection 248(1) of the Act.

[11] With respect to project 705—the Plant Sterols Beverage Project—the respondent noted that the T661 of the appellant does not mention that the appellant was to develop a two-ounce shot in which the mixture would contain 800 milligrams of plant sterols. I agree with the respondent that the description in the T661 is vague. It is stated that the appellant's aim is to develop a health supplement in the form of a beverage using plant sterols. That said, since Ms. Hassanein, the technical reviewer at the CRA, stated in her testimony that she was aware at the time of her review that the purpose of project 705 was to[12] With respect to project 806, at the hearing, Mr. Schmalz testified that the appellant's purpose was to develop a Partial Hot Fill System. However, the description in the appellant's T661 with respect to project 806 for both years is focussed on the filling of a dual-chambered bottle. In the T661 for the year ending June 2010, project 806 is described as follows:

A dual chambered bottle with twin caps had never before been attempted to be filled by Flavour.Net Inc. Syncronization [sic] of the twin tank, pump, piping, filler reservoirs and filling heads was of the utmost importance. Through our trials it was shown that such a filling system can be designed that enables the benefits of the dual chambered bottle to be used in a variety of applications. By integrating a steam kettle as a mixing vessel for liquid concentrates success was achieved in duplicating hot fill results from the system. Significant effort was expended on the design of this unique filling system which is currently in use filling health supplement products. Further uses will be tested in the future.7

[13] In addition, in the appellant's submissions to the CRA, dated and signed by Mr. Schmalz, project 806 is described by the appellant as relating to the dual-chambered bottle:
Never before has Flavor.Net Inc. undertook [sic] to design a filling unit that can simultaneously fill two separate liquids into a dual chambered bottle and heat treat the liquid.8

[14] At the hearing, Ms. Hassanein testified with respect to project 806 that the appellant had described that project, as the filling of the dual-chambered bottle. Accordingly, it was the filling of the dual-chambered bottle that Ms. Hassanein reviewed for SR&ED purposes. Her written reports on project 806 confirm her testimony. In the report dated August 19, 20119 with respect to the taxation year ending June 30, 2010, Ms. Hassanein wrote as follows

regarding project 806:
This project was to design a filling unit that can simultaneously fill two separate liquids into a dual chambered bottle and heat-treat liquid. Natur can develop a unique filling system to fill a single bottle with two chambers and two caps creating a physical reminder to take a dose from each side. As well a capability for heat treating of the liquid to ensure microbial safety will need to be designed.
[15] The filling of the dual-chambered bottle and the Partial Hot Fill System are distinct projects; this was confirmed by Mr. Schmalz during the hearing.10

[16] Furthermore, the respondent submitted that I should not allow project 806 since it was far from clear from the documents filed in evidence at the hearing that the Partial Hot Fill System was developed by the appellant during the taxation years under appeal.al health supplements can require twice daily dosing.

Results:

[41] Furthermore, I am also not convinced by Mr. Schmalz's testimony regarding the state of knowledge regarding, and the technology available for, the dispersion of sterols at the time the project was undertaken. Mr. Schmalz referred throughout his testimony to a 2002 U.S. patent obtained by Cargill Inc. for a product in which 400 milligrams of sterols were mixed with orange juice in an eight-ounce format, which patent was entered into evidence as Exhibit A-4. According to Mr. Schmalz, this product reflected standard industry practice at that time.23 This patent was the sole evidence of any search conducted by the appellant, at the outset of the project, with regards to existing methods for dispersing plant sterols.

[42] In cross-examination, Mr. Schmalz was unable to recall the details of any searches undertaken. As I have said, the Cargill patent was the only specific evidence supplied by the appellant of any searches it undertook at the outset of the project. In cross-examination by counsel for the respondent, the following comments were made in reference to the Cargill patent:

Q. You call this a standard practice. Are there other patents that deal with plant sterols and the way to disperse them or dissolve them in water or liquid, or is that the only one?

A. I don't know. Easy answer.

Q. Did you conduct a search to see if there were other patents dealing with

A. I am sure we did at the time and I couldn't tell you the results of that because I don't remember.

Q. So what makes you think-- what makes you say that this is the standard practice if you don't know what the other ones

A. Because it led to commercialization in the marketplace of plant sterol infused orange juice brands. It led to Cargill setting up, in their ingredient division, sales of things like frozen blocks of pulp infused with plant sterols Q. Okay. So you may have conducted a search on other patents but today you're not able to tell us
A. That's right.
Q. whether there are other patents?
A. That is correct.

[43] In her testimony, Ms. Hassanein stated that, at the time of her review of the appellant's project 705, there were multiple patents related to dispersing plant sterols in different products under different conditions.

[44] For these reasons, I conclude that the appellant has not succeeded in discharging its burden of establishing technological uncertainty since it was using methods and techniques that were available in the industry.

[45] While this finding alone is sufficient to dispose of the appeal with respect to the Plant Sterols Beverage Project,24 I will nevertheless proceed to apply as well the other criteria in Northwest Hydraulic Consultants Ltd. to the work undertaken by the appellant.

Conclusion:

Documentation:
Uploaded to RDBASE.NET: 705 project description.pdf (235KB)

Activity #1-3: 5 questions (Fiscal Year 2017)

Methods of experimentation:

See paragpraphs 35 to 62 of Tax Court Ruling

Compare to Appellant closing Arguments & evidence

Results:

Conclusion:

Documentation:
Uploaded to RDBASE.NET: Flavornet 5 questions in closing arguments.pdf (94.3KB), Flavornet Tax Court Position 5 Questions.pdf (188KB)