



## SC Johnson and the Greenlist™ Challenge

In the spring of 2006, Scott Johnson, vice president of Global Environmental and Safety Actions at S.C. Johnson & Son, Inc., wondered how he could maximize the impact of the company's soon-to-be-patented Greenlist process. Having worked at SC Johnson for more than 20 years, primarily in marketing and new product development roles, Mr. Johnson now found himself working as an advocate for sustainable enterprise. In fact, his primary responsibility was to increase the number and scope of projects the company undertook with a social and environmental (as well as financial) payoff. The company's Greenlist process was a leading example of such projects. Greenlist is a tool the company developed to reduce the environmental footprint of its products.

Having successfully developed the Greenlist process, Mr. Johnson and his team faced several challenges. First, they still needed to generate buy-in from key members of the organization, especially those working in the company's marketing and brand management functions. As a Consumer Packaged Goods (CPG) company, SC Johnson relied on the effective branding and marketing of its products to a mass consumer base. Many marketers were reluctant to use environmental positioning for their products. The key concern was that such a positioning would have niche appeal but would limit the mass appeal of a product. Another organizational concern pertained to SC Johnson's scientists who work in the company's Research, Development & Engineering (RD&E) function. Since chemical formulation was the basis for the company's product development, staff scientists questioned whether Greenlist would limit their creativity in developing new products. One sign of hope, however, was that the RD&E staff had already adopted Greenlist when reformulating existing products.

Another challenge Mr. Johnson faced was to track whether Greenlist would help the company meet its stated environmental goals. Greenlist ensures SC Johnson products contain materials that are the best available for the environment without compromising the final product's performance, aesthetics, or cost. It was clear Greenlist could have a

---

This case was prepared by May Matthews, under the supervision of Professor Stuart Hart at the Johnson School at Cornell University. It is intended to serve as a basis for class discussion rather than to illustrate the effective or ineffective handling of an administrative situation. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form by any means without permission by the ACS Green Chemistry Institute®. These materials were developed through a cooperative effort of the American Chemical Society's Green Chemistry Institute and the U.S. Environmental Protection Agency (EPA) Office of Pollution Prevention and Toxics' Design for the Environment Program. Partial funding was provided by the EPA through Cooperative Agreement #X8-83077701-0. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the EPA. Any mention of trade names does not imply endorsement by the EPA.

positive environmental impact when products were reformulated, but it had yet to be integrated into SC Johnson's new product development process. While Mr. Johnson was able to point to many success stories pertaining to Greenlist—including a reformulation of Windex, which eliminated 400,000 pounds of volatile organic compounds (VOCs) and increased the product's cleaning power by 30 percent without incurring a cost increase—it was difficult to calculate whether Greenlist provided the company with a competitive or financial benefit. Clearly defined metrics that tracked the impact of Greenlist would allow Mr. Johnson to articulate the benefits this tool had on the company's financial position as well as to its stakeholders.

During 2005, the team of scientists who developed the Greenlist process filed an application to patent it. In December of 2005, the company received positive feedback from the U.S. Patent and Trademark Office, and they speculated that an official award would soon be made. Another milestone (that occurred in 2005) was the announcement that the company had established a partnership with the U.S. Environmental Protection Agency (EPA) under the agency's Design for the Environment (DfE) program. This partnership, the first for any major CPG company, focused on efforts to develop products and to implement technologies that benefit human health and the environment. The partnership recognized SC Johnson's past efforts and encouraged the company to further investigate how to improve the health and environmental profiles of SC Johnson products. The DfE award reflected well upon Greenlist and the impact it was having at the company.

Because SC Johnson manufactures and sells such well-known brands as Pledge<sup>®</sup>, Windex<sup>®</sup>, Scrubbing Bubbles<sup>®</sup>, Glade<sup>®</sup>, Raid<sup>®</sup>, Off!<sup>®</sup>, Edge<sup>®</sup>, and Ziploc<sup>®</sup>, this recognition was particularly important. Upon announcement of the partnership, two products—Scrubbing Bubbles<sup>®</sup> Trigger Bathroom Cleaner and Scrubbing Bubbles<sup>®</sup> Shower Shine<sup>®</sup> Daily Shower Cleaner—were designated “partnership products,” which meant the products could display the U.S. EPA's “Design for the Environment” logo and the claim, “Formulated in Partnership with the Design for the Environment Program.” This partnership demonstrated the Company's willingness to lead by example as well as its desire to engage with stakeholders, including national governments, to ensure its sustainability initiatives had maximum impact. Specifically, the Memorandum of Understanding between SC Johnson and the U.S. EPA states: “SCJ and DfE are aligned in their ways of assessing and evaluating the potential health and environmental effects of consumer cleaning products, SCJ through its Greenlist process and DfE through its comparative ingredient assessments.”<sup>1</sup>

The recent recognition the company received about Greenlist, as well as the upcoming patent award, prompted Mr. Johnson to consider how he might now leverage Greenlist even further to achieve maximum sustainable value impact. Should he encourage SC Johnson to license Greenlist to its vendors, competitors, and/or consultants? Could Greenlist be expanded to include a clearer consumer value proposition? How might the program reinforce the company's long-term strategy for sustainable enterprise and

---

<sup>1</sup> SCJ press release.

development? These and other issues were on the agenda for an upcoming meeting with the Chairman and CEO of S.C. Johnson & Son, Inc., H. Fisk Johnson.

## Company Overview

S.C. Johnson & Sons, Inc., is a 119-year old company with more than \$6.5 billion in sales; it employs approximately 12,000 people globally and sells products in more than 110 countries. Recognized as a leading CPG manufacturer, SC Johnson prides itself on its dedication to innovative, high-quality products as well as its long-term commitment to both the environment and the communities in which it operates. In recent years, SC Johnson also had been recognized by both *Fortune* and *Working Mother* in the United States, as well as in many international publications, for its dedication to its employees and workplace excellence.

Founded by Samuel Curtis Johnson in 1886 as a parquet flooring company, five generations of Johnsons have led the company. By turn of the 20<sup>th</sup> century, the company, then known as Johnson Wax, had become a leader in the floor wax business. In 1927, the company codified its commitment to corporate social responsibility when H.F. Johnson, Sr. stated: "The goodwill of the people is the only enduring thing in any business. It is the sole substance ... the rest is shadow." This bold statement became the foundation for the company's values which were ultimately captured in the company's credo: "This We Believe."<sup>2</sup>

From this beginning, the company has grown into one of the world's largest makers of consumer chemical products. By early 2006, SC Johnson was a major, multinational corporation with operations on six continents—international sales were estimated to account for 60 percent of its annual revenues. The immediate Johnson family owns approximately 60 percent of the company, while other family descendants own about 40 percent. In addition to SC Johnson, the family also owns four independently controlled companies, all of which were headquartered Racine, Wisconsin. Included in this portfolio of companies are: Johnson Financial Group, Johnson Outdoors, Inc., and Johnson Diversey, Inc.

Johnson Diversey is a privately held business that was initially incorporated as S.C. Johnson Commercial Markets, Inc., and was a wholly owned subsidiary of SC Johnson. In 1999, the company split from SC Johnson in a tax-free spin-off. Then, in 2002, Johnson Professional Holdings acquired DiverseyLever, an institutional and industrial cleaning and sanitation business that was a subsidiary of Unilever PLC and Unilever N.V. Following the acquisition, the company's name was changed to JohnsonDiversey. At present, the family owns a two-thirds interest while Unilever acquired a one-third interest in the combined company. The professional business manufactures and sells cleaning products for the food service, floor care, housekeeping, and laundry industries

---

<sup>2</sup> SC Johnson Home Page, Our Philosophy. [http://www.scjohnson.com/family/fam\\_com\\_phi.asp](http://www.scjohnson.com/family/fam_com_phi.asp) (accessed March 3, 2009).

as well as a number of institutional clients, including educational and healthcare facilities. During fiscal year 2005, the professional business had net sales of \$2.9 billion.

Johnson Outdoors Inc., another company in the Johnson family portfolio, was incorporated in Wisconsin in 1987. At present, the company employs 1,300 permanent employees and is controlled by Helen P. Johnson-Leipold, daughter of the late Samuel Curtis Johnson (she also serves as chairwoman of Johnson Financial Group). Johnson Outdoors manufactures and markets outdoor recreation products in four key product areas: marine electronics, outdoor equipment, watercraft, and diving. Under its Minn Kota brand, the company sells battery-powered motors for boating. The marine electronics segment generated \$145 million in net sales during fiscal year 2005. The company's second largest business segment (in FY2005) was the watercraft division, which generated \$80 million in net sales. Through the watercraft segment, the company markets kayaks, canoes, paddles, oars, specialty watercraft, recreational sailboats, personal flotation devices, and small thermoformed recreational boats under several brand names, including: Old Town, Carlisle Paddles, Ocean Kayak, Pacific Kayak, Canoe Sports, Necky, Escape, Extrasport, Waterquest, and Dimension. Finally, the company's two smallest segments (in FY2005) were the diving and outdoor equipment segments, which generated \$79 million and \$75 million respectively. The company manufactures underwater diving products for both technical and recreational divers, under the SCUBAPRO and UWATEC brand names. Finally, the products sold by the Company's outdoor equipment business include Eureka! military, commercial and consumer tents, sleeping bags and backpacks, and Silva field compasses and digital instruments.

The fourth company in the Johnson family portfolio is Johnson Financial Group. Founded as Johnson Bank, the company has expanded into a diverse financial services company with approximately \$3.4 billion in assets. In addition to deposit and lending services, the company offers insurance, asset management, and mutual funds. The group offers international banking services through its Banque Franck Galland & Cie subsidiary, which is based in Switzerland. At present, Johnson Financial Group is the holding company for Johnson Bank. The company has more than 50 branch locations and operates primarily in Wisconsin and Arizona. Samuel Curtis Johnson founded Johnson Bank in 1970.

Sam Johnson's leadership is remembered with particular fondness at SC Johnson. When he took the leadership reins in the early 1950s, the company was a profitable \$30 million floor wax company. By the time his son, Fisk, became chairman in 2000, the company had become a \$6 billion juggernaut with a wide range of insect control, cleaning, and home care products. Not only did the company experience tremendous growth while Sam Johnson served as CEO, but it also remained dedicated to the spirit of innovation, known internally as "Product Plus," as well as a steadfast commitment to the environment. For example, after introducing water-based aerosols in the 1950s, the company voluntarily took steps to reduce their negative environmental impact. In 1975, SC Johnson voluntarily removed chlorofluorocarbon (CFC) propellants from its aerosol products worldwide. This phase-out occurred prior to the U.S. government's ban on

CFCs. More recently, the company completed the development and implementation of a landfill gas-powered turbine co-generation project that delivers 6.4 megawatts of electricity and nearly 40,000 pounds per hour of plant steam to the company's Waxdale manufacturing facility in Racine, Wisconsin. This co-generation project allowed SC Johnson to cut in half its usage of coal-generated utility electricity along with its associated emissions of carbon dioxide and other pollutants.

Following in his father's footsteps, Chairman and CEO Fisk Johnson is dedicated to innovation and the principles of sustainability. Under his leadership, the number of SC Johnson's pilot projects aimed at shifting the company's corporate social responsibility efforts to the more strategic paradigm of "sustainable enterprise" has grown significantly. In addition to Greenlist, for example, SC Johnson also has undertaken initiatives targeting the Base of the Pyramid (BOP) market. Specifically, the company sought to leverage its expertise in pest control to reduce and/or eliminate insect-borne diseases in poor communities. In South Africa, for example, the company partnered with the government and NGOs to develop a consumer marketing program aimed at educating consumers on how to identify malarial fever and use pest control products to significantly reduce instances of the disease. Additionally, the company established a relationship with Cornell University's Center for Sustainable Global Enterprise and is currently completing a trial project based upon the center's Base of the Pyramid Protocol.<sup>3</sup> The protocol is a method for developing environmentally sustainable and mutually beneficial business relationships in the world's poorest communities.<sup>4</sup>

## The Greenlist Process

To fully understand what Greenlist is, it may be easier to explain what it is not. Two common misconceptions about the process exist. First, Greenlist is not an actual list of ingredients that the company bars its RD&E staff from using when developing or reformulating products. Second, Greenlist is not a list of "green" products that have a unique or enhanced environmental profile. Instead, Greenlist is a process. Created by a team of SC Johnson staff scientists, including Fred Martin, David Long, and John Weeks, Greenlist leverages the values of "green chemistry" while also catalyzing the development of products with a noticeably reduced environmental footprint. Greenlist is the tool SC Johnson uses internally to calculate an environmental "grade" for the products it makes and sells.

The Greenlist process is best described as a series of steps. First, raw materials are assigned to a class of usage, ranging from surfactants<sup>5</sup> to chelants.<sup>6</sup> Then, a particular

---

<sup>3</sup> Samuel Curtis Johnson II established the S.C. Johnson Professorship at Cornell in 2003 and gave an additional endowment gift to launch the Center for Sustainable Global Enterprise at Cornell's Johnson School of Management.

<sup>4</sup> Base of the Pyramid Protocol Web site. [www.bop-protocol.org](http://www.bop-protocol.org) (accessed March 10, 2009).

<sup>5</sup> The term surfactant is a contraction of "**surface active agent**". Surfactants play an important role in many products, including detergents and other cleaning agents. Typically, the surfactant functions to cut grease and/or to wet surfaces when included in a detergent.

ingredient is assessed based on a variety of environmental and human health criteria and a “score” is assigned to each ingredient. When a product is formulated, the scores of each ingredient are then combined, with an adjustment for the relative presence of each chemical component in the product, which results in the final grade of a given product.

Key to understanding the process is to consider how each raw material is scored. Each ingredient receives a numerical grade of 0, 1, 2, or 3, with zero representing a designation of “restricted use,” 1 for “acceptable,” 2 for “better,” and 3 for “best.” Importantly, the process can make rating distinctions on the basis of how a particular ingredient will be used in the final formula. For example, a phosphate could receive a 0 score when used as a detergent because concerns exist regarding the water toxicity of phosphates and it is likely a detergent containing phosphate will end up in water. However, it may be possible to use a phosphate in a different product in such a way that it receives a higher score because this particular formula will not be disposed of in water. Greenlist is, therefore, unique from other rating systems because the scoring criteria are specific to both the raw material as well to its in-formula use. No particular ingredient bears a “scarlet letter;” instead, it evaluates each ingredient from the standpoint of its ultimate use.

In addition to the numerical scores, ratings can be adjusted for “other significant” concerns,” which often reflect potential human health or environmental issues. This criterion allows the rating system to be disciplined yet flexible. Most importantly, it allows SC Johnson to be proactive in addressing emerging scientific knowledge. For example, the specific level of toxicity for a particular raw material does not have to be scientifically proven before its Greenlist score is impacted. In the event preliminary data are published indicating that a certain raw material is a possible carcinogen, SC Johnson can react to this information by noting it in the “other significant concerns” criterion. Doing so will lower the overall Greenlist score of the raw material and will signal to SC Johnson’s RD&E staff that concern regarding this ingredient exists and that its use should be carefully considered. A key feature of the process is the ability to quickly modify the criteria included in the database, thereby facilitating a rapid response to regulatory concerns and to new scientific evidence. The result is a comprehensive database that allows SC Johnson’s scientific staff to access the environmental and human health profile of all ingredients used in a proposed or existing product.

Once the raw materials have been scored, the company’s RD&E staff can access a database with this information and can use it when creating product formulas. Greenlist can, therefore, impact the formulation process in many ways. When two possible formulas have been identified for a new product, Greenlist gives the formulator a basis for comparison; specifically, within certain cost constraints, the formula with the higher Greenlist score is preferred. Additionally, using Greenlist to score an existing product may help clarify whether reformulation is necessary. In that case, the company sets a goal to raise the product’s Greenlist score, thereby catalyzing reformulation. Thus,

---

<sup>6</sup> A chelant describes an agent that removes or *grabs* a chemical or impurity from a solution.

Greenlist allows SC Johnson to evaluate the environmental footprint and human health impact of its products in a systematic way.

To further reduce the ecological footprint of the company's products, as reflected by increasing the aggregate Greenlist score weighted by the total material used, SC Johnson decided to stop using some materials altogether. Having identified several chemicals rated "restricted use," SC Johnson made the voluntary decision to phase out these ingredients from its products. For example, the company uses a large volume of packaging material to encapsulate its products. As a Greenlist goal, the company decided to stop using chlorine-based packaging materials, such as PVC and chlorine-bleached paperboard. Eliminating the use of these packaging materials was important because they can result in the release of dioxins into the environment. By the end of 2002, SC Johnson ceased using both of these materials globally, which resulted in the elimination of 1705 metric tons of PVC bottles and approximately 100 metric tons of chlorine-bleached paperboard.

Since 2001, SC Johnson's efforts to reformulate products and to ban certain ingredients using Greenlist criteria have resulted in the increased use of "better" and "best" materials by more than 13 million kg. Furthermore, the Company has eliminated more than 11 million kg of restricted-use materials. In 2001, 9 percent of the raw materials used in SC Johnson's products were rated "better" or "best." By 2005, that number had jumped to 28 percent. Clearly, Greenlist could have a strong and positive impact on reducing the company's environmental footprint.

Before Greenlist could become standard operating procedure at SC Johnson, however, employees needed to be socialized and educated about the process. Initially, the company chose to apply it only to the product reformulation process, which ensured the process was performed routinely. Because SC Johnson regularly reformulates its products to improve performance, incorporate new technology, or improve packaging, Greenlist was introduced into the product development process with a minimal amount of disruption. Having achieved several reformulation successes, additional Greenlist goals were then established.

In early 2005, the company took the next step toward embedding Greenlist into the Company's product development process. Specifically, Greenlist was incorporated into the criteria used to evaluate new products. For a new product to be commercially viable, it must now meet cost and performance criteria, as well as certain environmental criteria, as defined by Greenlist. In addition to meeting these hurdles, any new product also must identify how its Greenlist score can and will be improved after the initial product launch. To further support this initiative, annual goals are established for products and progress is rigorously measured.

## **Greening the Supply Chain**

Having successfully created and implemented a method through which SC Johnson could evaluate the environmental footprint and human health impact of its products, Mr.

Johnson and his team then needed to consider how they could leverage Greenlist's impact even further. Mr. Johnson believed that patenting and licensing Greenlist could benefit the company. Indeed, he had already collaborated extensively with SC Johnson's suppliers to engage them in applying the principles of green chemistry in their practices. One example of this was the establishment of an award for those vendors who worked in partnership with SC Johnson to realize its sustainability goals.

For example, the Italian chemical manufacturer Endura SpA created a method to produce synthetic piperonyl butoxide (or PBO), a chemical synergist<sup>7</sup> that is often found in insecticide products, including some of the Raid brand products. This innovation created an alternative to sourcing PBO from safrole, which is typically found in rainforest plants such as the sassafras tree. The decision to source synthetic PBO is an environmentally superior solution since safrole is typically derived from endangered plants of the Lauraceae family (such as *Ocotea pretiosa* Ness (Mez.), *Cinnamomum petrophilum*, *C. mollissimum*, and *Sassafras albidum*). Using a synthetic source is not always the environmentally preferred option, however. For example, SC Johnson also works with farmers in Kenya to source pyrethrins (the active ingredient found in some Raid products) from the pyrethrum flower. In this case, sourcing the natural pyrethrins creates livelihoods for thousands of small farmers and displaces the use of synthetic pyrethrins made from petroleum feedstocks.

Ultimately, Greenlist can serve to reduce the complexity and diversity of ingredients used by the company. Over time, the company will likely buy more of certain ingredients—especially those rated “better” or “best.” Greenlist therefore makes “the rules of the game” very transparent to its suppliers: to be a supplier to SC Johnson, vendors will need to develop or provide more “better” and “best” materials.

By 2006, Greenlist had clearly helped SC Johnson in many ways. The process allowed the company to anticipate and stay ahead of regulatory change; it elevated the reputation of the company in the public sector; and it gave the company the credibility to coach its vendors and suppliers on environmental performance. Mr. Johnson wondered what the impact of patenting the Greenlist process would be. While doing so would protect the intellectual capital associated with the process and ensure that others use the method in full, rather than in an altered or modified form, it was still not clear how best to disseminate Greenlist. Should Greenlist be licensed to the company's vendors and competitors? If so, would it be appropriate for SC Johnson to do the licensing, or should a third party be involved? Finally, would the company's competitive advantage suffer if it shared Greenlist with others?

## Marketing to Consumers

Mr. Johnson also struggled with the fact that the company's marketing department failed to embrace Greenlist as strongly as the RD&E staff. He understood its concern,

---

<sup>7</sup> Synergists are chemicals that lack pesticidal properties but work to enhance the pesticidal properties of other active ingredients.



however, as there was not, as of yet, a clearly identified consumer benefit to Greenlist. He thought about the Energy Star program—consumers were attracted to it because they “get money back” in the sense that future energy bills are reduced as a result of purchasing an Energy Star product. Could Greenlist be used in a similar manner? SC Johnson could easily quantify Greenlist’s impact on reducing waste treatment and pollution, but the company was less certain about what the benefits would be to its target consumers.

Mr. Johnson was optimistic that the company’s partnership with the U.S. EPA and the DfE program could help to overcome this challenge. Products prominently displaying the DfE logo could possibly make additional claims—for example, that they were safer for families and the environment. With the increasing bargaining power of big-box retailers, particularly Wal-Mart, marketers at SC Johnson were required to prioritize cost above all else. Historically, when a product was being restaged or reformulated, cost considerations were paramount and would have trumped possible Greenlist improvements. Retailers had recently shown an interest in socially and environmentally responsible products, however. In particular, Wal-Mart had made several recent announcements that it would expand its sales of organic and environmentally certified products. Was now the time for SCJ to share Greenlist with its customers?

## Looking Forward

Many questions loomed large for Mr. Johnson. What should be done with Greenlist once the patent was awarded? The company believed in leading by sharing. To date, Greenlist had been shared with the U.S. EPA, Environment Canada, the Chinese EPA, industry associations, universities, and the company’s vendors. By sharing Greenlist, many companies would have a tool that could facilitate the use of environmentally preferred raw materials in their products. SCJ was still learning how to best use Greenlist itself, however. Was it too early to share?

Another concern that weighed on Mr. Johnson’s mind: how effective was Greenlist in producing products with the smallest possible environmental footprints? In its current form, Greenlist enabled RD&E staff to continuously improve the environmental profile of the company’s products. While the company’s strategy of continuous improvement had been important, was there opportunity for a more disruptive approach to innovation that leaped directly to the sustainable technologies and materials of tomorrow? SC Johnson prides itself on delivering innovation to consumers, internally described as Product Plus. In 2006, for example, the company launched the Scrubbing Bubbles Automatic Shower Cleaner, a product that hangs from a showerhead and dispenses a cleaning fluid at the touch of a button, thereby eliminating the need to scrub and clean the shower. By combining the company’s expertise in formulating cleaning products with the spirit of innovation through technology, SC Johnson was able to develop a disruptive product that will likely change how consumers clean their bathrooms. Was it possible for Greenlist to facilitate this sort of disruptive innovation in the environmental arena? If not, what was Greenlist’s role in easing the transition to nontoxic, less unhealthful materials and technologies?

As the company looked to the future, it saw important opportunities in the underserved markets of the developing world. Based upon its experiments and pilot tests in Africa, Fisk Johnson committed the company to a bold strategy to pursue the markets of the future at the base of the economic pyramid. Given Mr. Johnson's growing role in this initiative, he wondered how the Greenlist process might serve to facilitate this strategic initiative—or if the initiatives in the BOP might one day instead serve to transform Greenlist.