



A FAMILY COMPANY

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## **SC Johnson Case Study**

### **The Greenlist™**

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*Greenlist™ is an innovative raw material classification system created by SC Johnson. This pioneering process, called Greenlist™, has measurably improved SC Johnson's environmental sustainability while winning praise for its success from environmental leaders worldwide.*

#### **The Challenge**

When an SC Johnson team established by Chairman and fifth-generation family member Dr. H. Fisk Johnson decided to improve the company's already admirable environmental track record, they took a look at the big picture.

SC Johnson's goal was to make a significant and sustained improvement in the company's impact on the global environment. But how could they be most effective in doing so? "How could the business be made even more environmentally sustainable?"

#### **The Opportunity**

That's when it dawned on them—that the way to further improve SC Johnson's environmental impact was by being selective in the materials the company purchased to manufacture its products.

As one of the world's leading manufacturers of products for household cleaning, home storage, air care, personal care, and insect control, SC Johnson buys a lot of ingredients. SC Johnson hit upon the idea of classifying and screening the ingredients used in every product the company manufactures, and using that information to make measurable improvements in the company's ecological footprint.

By shifting the company's product ingredients and packaging to the most environmentally-responsible materials possible, the company would make its products cleaner, greener, and easier on the planet, improving the company's environmental sustainability. At the same time, the company could use its buying power to encourage its suppliers to produce more environmentally-sustainable ingredients.

SC Johnson realized that the company's efforts would ripple up and down the products' lifecycle—from raw material purchases, to production, packaging, and consumer use—and perhaps even beyond. SC Johnson's mission was not only to safeguard the health and safety of SC Johnson's consumers, the people who work there, and the communities where they live, work and play. They also hoped that by influencing the company's suppliers, competitors, and even regulators, SC Johnson could help set standards of excellence in environmental performance for the entire consumer products industry.

### **Devising a System**

But how could the company's thousands of product ingredients, purchased from suppliers in every corner of the globe, be made even more environmentally sustainable? Such an effort would require a comprehensive approach. And before any strategy could be implemented, the company needed a meaningful yet manageable technique for assessing an ingredient's ecological impact.

Figuring that out wasn't easy, and company scientists struggled with the challenge. What criteria to use? What sort of rating system would be meaningful yet usable and understandable? How can comparisons be made across different types of ingredients for different types of products? For instance, how could the environmental footprint of shaving gel propellant be compared with an insect control agent? How could materials be assessed without undertaking an exhaustive and costly battery of laboratory tests? These were some of the questions with which SC Johnson staff had to contend.

### **The Solution -- Greenlist™**

Staff scientists honed the system to a series of criteria that would produce a "score" for ingredients. The system was dubbed Greenlist™, and it has since become a process that may represent the single most important contribution of SC Johnson to protecting the natural environment.

Greenlist™ classifies all the ingredients that go into SC Johnson products according to their impact on the environment and human health. The result is a process that gives SC Johnson chemists around the globe instant access to data on the environmental rating of their product ingredients in any proposed product reformulation.

### **The Greenlist™ Process**

Greenlist™ rates materials according to their environmental impacts. In this way, materials can be measurably compared with one another for environmental and human health characteristics.

Devising a system that provided useful data about a wide range of materials—from product packaging, to fragrances, insecticides, and propellants—was challenging. So Greenlist™ designers proposed the development of screening criteria specifically tailored to each product function. The Greenlist™ rating system establishes four to seven unique criteria for each raw material category. In each case, the criteria must be meaningful, discriminating, and readily available.

Currently, Greenlist™ rates surfactants, solvents, propellants, insecticides, resins, and packaging. Company scientists have developed draft criteria for fragrances, and have approved criteria for chelants (water softening agents).

In order to develop quantifiable goals and measure the company's progress, environmental managers had to gather baseline data on materials purchased from manufacturers in dozens of countries. They started with six categories accounting for 80 percent by volume of raw materials purchased. SC Johnson and company suppliers worked to fill-in the data gaps, to ensure the data's accuracy.

### **Putting Greenlist™ to Work**

Let's take a look at how the system works in the case of one of the six categories. For the category of surfactants, a key ingredient in many soaps and detergents that allows liquids to better penetrate clothing and other surfaces, Greenlist™ ratings include the following four criteria:

- 1) aquatic toxicity
- 2) biodegradability
- 3) European Union environmental classification
- 4) acute human toxicity

Based on the results in each of the four categories, the ingredient receives a score of 3, 2, 1, or 0, with 3 representing "Best," 2 for "Better," 1 for "Acceptable," and 0 for "Restricted Use" (see Figure "sample Greenlist™ scorecard"). Next, the scores are averaged.

Then the average score is adjusted for "Other Significant Concerns," such as possible endocrine disruption, carcinogenicity, reproductive toxicity, EPA's "PBT Profiler" classification, and other environmental criteria. Any characterization will reduce the material's rating by one class, reducing its overall rating, for example, from 2 to 1.

The "Other Significant Concerns" criteria builds inherent flexibility into the Greenlist™ rating system, explains SC Johnson toxicologist John Weeks. "We don't wait until toxicity has been proven to be concerned." With the flexibility of the "Other Significant Concerns" criteria, staff can downgrade—a material's Greenlist™ score to reflect additional concerns (the rating cannot raise a material's score—only lower it).

Any material having a Greenlist™ rating of "0" is considered a "Restricted Use Material." Such a rating means that its use in any SC Johnson product requires direct approval from top management—an authorization that Greenlist™ managers are reluctant to approve because of the company's high internal standards set for reducing its material footprint.

<b>Surfactant Criteria Snapshot Chemical Green Card</b>				
	<b>Aquatic Tox</b>	<b>Ult. Biodegradable</b>	<b>EU- Enviro Classification</b>	<b>Acute Human Tox</b>
<b>Best (3)</b>	<b>Class 3, Preferred</b> • LC50/EC 50 > 1mg/L • 3 or more species tested	<b>Class 3</b> • Readily biodegradable (OECD 301) • >60% win 10 days	<b>Class 3 (Best)</b> • Aquatic tox 100mg/L	<b>Class 3</b> • LD50 >2000 mg/kg
<b>Better (2)</b>	<b>Class 2</b> • LC50/EC 50 > 1mg/L • 1/2 species tested	<b>Class 2</b> • >60% win 28 days	<b>Class 2 (Better)</b> • No adverse classification • Readily biodegradable • Aquatic tox >1mg/L	<b>Class 2</b> • LD50 between 500 -2000 mg/kg
<b>Acceptable (1)</b>	<b>Class 1</b> • LC50/EC50 < 1mg/L	<b>Class 1</b> • <60% win 28 days	<b>Class 1 (Acceptable)</b> • Any EU classification (N1R50; N1R50-53; N1R51-53; R52-53, R52 or R53)	<b>Class 1</b> • LD50 < 500 mg/L

Figure: sample Greenlist™ scorecard

These scores are then made available to SC Johnson chemists/formulators online around the world, giving them the data they need to select the best-rated ingredient to fulfill any particular function—such as a particular type of surfactant.

When data was not immediately available for a material, raters gave ingredients a default Greenlist™ rating of 1 until further data collection allowed an improved score.

A key to the scoring system is its way of awarding higher scores to better materials.

### **Encouraging Greenlist™ Success**

Top management has incorporated several mechanisms to ensure that Greenlist™ is adopted by staff throughout the company. Employee compensation is often directly influenced by how an employee or team performs on their Greenlist™ objectives.

But perhaps equally important is that Greenlist™ receives solid, committed support from top management. SC Johnson employees point proudly to the fact that Chairman Fisk Johnson, a chemist himself, takes a personal interest in making sure Greenlist™ succeeds.

### **Results**

In 2001, SC Johnson introduced Greenlist™ and established a goal of 8 percent improvement by fiscal year 2002/03. SC Johnson exceeded its goal to reduce environment-impacting ingredients across all SC Johnson brands by improving its environmental classification score by 12.5 percent from the baseline year of 2001.