

Performance Track Leading Practices

Using an Environmental Screening Process to Develop Sustainable Products

Costs and Benefits of This Practice

Costs	Savings and Other Benefits
<p>\$200,000* - Cost of ingredient scoring for 100 ingredients in J&J Consumer Company's personal care line, representing 70 percent of the volume of material used worldwide.</p> <p>Additional time for formulators to adjust to the new ingredient profiles for products.</p> <p>*as of Jan. 2009</p>	<p>Improved market position.</p> <p>Anticipates tighter restrictions on chemical use around the world.</p> <p>Reduced product liability; increased value to customers.</p> <p>Opportunities for product innovation.</p> <p>Lower costs by reducing raw material profile.</p>

PERFORMANCE TRACK FACILITY

Johnson & Johnson Consumer Companies, Inc.,*
Skillman, New Jersey

*Johnson & Johnson Consumer & Personal Products Worldwide,
Division of Johnson & Johnson Consumer Companies, Inc

GOAL CATEGORY

Alternate Goal¹: Developed an Environmental Safety Scoring Process

RELATED INDICATORS

Downstream: Products
Materials Use
Toxic Discharges to Water

OVERVIEW

Regulations that control discharges to the aquatic environment do not currently restrict raw materials used in many consumer products, including cosmetic and over-the-counter drugs. Use or disposal of these products may result in the discharge of potentially environmentally hazardous chemicals. However, some Performance Track facilities have taken voluntary steps to reduce the downstream environmental impacts of their products by phasing out potentially harmful raw materials and ingredients.

As an alternate goal under its Performance Track membership, the R&D headquarters of the Johnson & Johnson Consumer & Personal Products Worldwide, a division of Johnson & Johnson Consumer Companies, Inc, developed an environmental safety screening process that analyzes product ingredients for environmental hazards. The process was designed to identify, measure, and reduce ingredients within the company's product lines that could potentially pose environmental hazards after being washed off the skin and released into the wastewater stream. The screen is part of Johnson & Johnson's corporate sustainability goal of advancing product stewardship and represents an effort by senior management to drive improvements by scoring environmentally preferred ingredients in product formulations.



¹ Because Performance Track requires reporting on a facility-wide basis and this facility is an R&D headquarters, the environmental benefits of this process will affect performance indicators throughout J&J Consumer Products' worldwide operations. For this reason, the environmental screen is considered an alternate goal under Performance Track.

HOW THE ENVIRONMENTAL SAFETY SCREEN WORKS

Johnson and Johnson's decision support tool evaluates ingredients using a customized environmental hazard screening process that scores ingredients and makes substitution recommendations based on rankings within ingredient groups. The environmental preferability score, assigned a value between 0 and 100, is defined mainly by an ingredient's potential environmental persistence, bioaccumulation, and toxicity characteristics. Other issues, such as endocrine disruption and the potential to form photochemical smog, are also accounted for in the score. The tool lets the product design team identify the inherent hazard potential of ingredients, irrespective of exposure levels, in order to eliminate the use of low-scoring ingredients.

The environmental preferability score is developed using data from sources such as EPA's ECOTOX database and models such as Estimation Programs Interface software, a Windows-based suite of physical/chemical property and environmental fate estimation models developed by EPA and Syracuse Research Corporation.

This score is being integrated into a corporate-wide computer system for use by J&J formulators worldwide. J&J has scored its top 100 ingredients, which make up 70 percent of the material used worldwide in its consumer product lines. The facility's goal is to phase out less-preferred ingredients that have lower scores in new product development, and to roll out a product scoring system that aggregates information from the ingredient screen into product level evaluation. The findings will be incorporated into formula development at J&J facilities around the world, with a goal of reducing and eventually eliminating less-preferred ingredients from the company's personal care products.

IMPLEMENTATION

An information management tool to conduct environmental scoring can be part of an internal R&D initiative, or it can be contracted out to firms that specialize in environmental risk assessment. Another option is to partner with EPA's Design for the Environment Program (DfE). DfE's Formulator Program [<http://www.epa.gov/dfe/pubs/projects/formulat/index.htm>] uses the technical expertise of its workgroup of EPA scientists to compare ingredients in the same functional class and identify those ingredients with the safest hazard profile. The program is developing DfE screens for safer chemical ingredients in order to share this capability and make it easier for industry to formulate safer products.

BENEFITS OF THE PROCESS

A refined scoring system ensures that managers can monitor and control a product's environmental impact by extending producer responsibility to the downstream stage; i.e., when residues from consumer products are transported into aquatic ecosystems after purchase and use. The screening framework allows product developers to make informed ingredient substitution decisions, and the benefits can be marketed to the growing segment of customers who seek products with a low environmental footprint. This process also prepares facilities for the advent of stricter regulations on chemical use around the world. Other benefits include reducing the raw material profile within product lines, which can lead to long-term operational cost savings and a more efficient supply chain.

Performance Track encourages innovative processes like the environmental safety screen as a tangible way for facilities to benchmark and improve their operations. Any approach to environmental safety assessment should use a scoring system that determines environmental risk levels according to recognized standards. Once the scoring process is active as a decision support tool, product designers can systematically measure and improve ingredients, making concrete steps toward reducing the environmental impacts of their products. Frank Konings, vice president of Global Markets R&D at Johnson & Johnson Consumer Companies, Inc., emphasizes the value of corporate and facility level commitment for this type of environmental improvement: "Robust product stewardship moves us to make changes before legislation might force us to do so, enabling us to weigh environmental impacts alongside cost and performance, and make better choices." (2008 Johnson & Johnson Corporate Sustainability Report, p. 17)

RESOURCES FOR MORE INFORMATION

- ★ EPA's Design for Environment Screens for Safer Chemical Ingredients [<http://www.epa.gov/dfe/pubs/projects/gfcp/index.htm>] helps manufacturers to identify safer chemical ingredients for cleaning products and other functional ingredient classes.
- ★ EPA's ECOTOX Database [<http://cfpub.epa.gov/ecotox/>] provides information on the toxicity of single chemicals to aquatic and terrestrial life.