

## **DESIGN FOR THE ENVIRONMENT**

Design for the environment (DfE) programs incorporate environmental considerations into the design of manufacturing processes and finished products. WasteWise partners prevent millions of pounds of waste each year by redesigning manufacturing processes and products to be more energy and material efficient. Lifecycle analysis is one tool partners use to assess the environmental impact of their products, from materials choice through manufacturing, distribution, use and finally disposal.

### **Allergan's March Toward Sustainable Development**

Seven years ago, Allergan realized that its production processes were creating a lot of waste. Realizing that this practice was environmentally and economically unsound, Allergan developed a three-part waste reduction strategy to combat this issue.

First, Allergan examined ways to reduce or eliminate the amount of materials flowing out of the manufacturing facilities as waste instead of product. To do so, Allergan identified the waste streams generated at each facility and then identified options for either reducing, eliminating, or reusing them. In some cases, Allergan found a way to reuse materials in the production process, for instance, regrinding plastic resins for reuse in the manufacture of new bottles. For some other items, the company was able to locate markets either for sales as commodities or for offsite recycling.

Next, Allergan looked at production processes to determine what caused process rejects. Previously, Allergan assumed that rejects were an inherent in the process and, therefore, could not be eliminated. According to Michael Whaley, director of environmental health, "Our understanding of the cause of rejects was based on anecdotal information rather than actual measurements." For example, the company thought that the cause for line rejects for filling processes at one facility was labeling. After close examination of the process, however, Allergan found that line rejects were caused by primarily by filling level defects and cap defects in addition to labeling. This information allowed the facility personnel to identify ways of eliminating these production problems thus reducing waste generation.

As a result of its manufacturing process changes, Allergan achieved a significant reduction in product rejects at the packaging portion of the process. In 1997, the company eliminated 805,000 pounds of primary and secondary packaging, a 12 percent increase over 1996 reductions!

The third step in Allergan's strategy was to incorporate waste prevention into the design phase of products. The company developed a method for designers of new products to use that consider environmental attributes, in addition to other design criteria. The Allergan Environmental Product Design Criteria, created by an interdisciplinary team, helps prevent the creation of waste and lessen Allergan product impacts on the environment. The Criteria included methods for environmentally evaluating product materials, such as using nonhazardous materials in place of hazardous ones, and improving packaging attributes such as ensuring the recyclability of packaging materials and using recycled content materials.

Though the benefits of its Environmental Product Design Criteria are obvious, Allergan further solidified the evidence of its success by developing a quantitative scoring system to measure the results. Comparisons of three newly-designed products with existing products (i.e., designed prior to the establishment of the criteria) revealed a marked decrease in its newer products'

environmental impact. While the existing product scores ranged from 20 to 60 out of a possible 100, all of the newly designed products rated between 67 and 70 out of 100! In addition, all three of the new products evaluated scored 10 out of a possible 10 for packaging material recyclability. Results like these prove that Allergan product designers have become increasingly aware of the need for Allergan to take 'extended responsibility' for its products.

While Allergan's success at incorporating environmental design into its processes and products is certainly laudable, Whaley emphasizes that, "The company was successful in its endeavors due to the integrated approach and the support from the manufacturing, marketing, R&D, regulatory affairs employees. Both elements were absolutely essential". Contact Michael Whaley at 714 246-5942 for more information.