



Environmental Stewardship Awards

Crown Equipment Corporation, New Bremen

In 2008, Crown Equipment Corporation received a Governor's Award for Outstanding Achievement in Environmental Stewardship. The award recognizes Ohio companies and organizations committed to environmental compliance and reducing pollution.

Crown manufactures electric lift trucks used in transporting materials and goods in warehouses, distribution centers and manufacturing environments. It has 8,300 employees worldwide, including over 1.5 million square feet of manufacturing facilities in New Bremen, Ohio.

Comprehensive Environmental Sustainability Program

Crown has a strong sustainability commitment, with a multi-faceted approach that integrates customer value, community partnership, employee involvement, innovative product design and engineering, and vertical integration.

Crown's involvement in pollution prevention dates back many years, with the start of the company's Comprehensive Environmental Sustainability Program. The program encompasses a broad range of recycling and reuse activities, brownfield redevelopment, energy management, product development initiatives, and other environmental projects. Noteworthy examples include the powder coating operations and their zero-discharge chrome plating process. Crown is especially proud of its efforts to develop a fuel cell powered vehicle which could change the way material handling equipment is powered.

Crown's basic environmental management system was followed by the implementation of an ISO 14000 certification program. The company tracks all aspects of its environmental program, initiatives, and progress. Crown identifies new environmental metrics each quarter. Crown is using the employee developed "job jar" to put new items on the list of environmental initiatives. Crown's continuous improvement is ingrained into the culture of the organization, meaning all employees, managers and senior management look for ways to improve the company's operations.

Comprehensive Reuse and Recycling Program

Crown's reuse and recycling program includes reuse of plastics, wood, machines coolants, renewed manufacturing of components, powder coat paint, gloves and rags, and the reuse of lift trucks. Crown recycles oil and oily wastewater, lamps and bulbs, batteries, computers, empty containers, circuit boards, cardboard, paper/magazines, cans/bottles, shot blast dust, wood waste, and all scrap metal.

Crown Equipment is recognized for:

- A Comprehensive Environmental Sustainability Program, which includes a pollution prevention program, reuse and recycling program, brownfields redevelopment, energy management and product development initiatives.
- A zero discharge plating facility and the powder coating operation - two examples of large capital investment projects that have been successful environmental projects.
- A Brownfield redevelopment program, which has shown continued redevelopment of contaminated sites for manufacturing facilities annually, and has doubled the manufacturing area over the last eight years without building a new facility.

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The company's accomplishments in 2006 included:

- Recycling/reclaiming 3,349 tons of solid waste and 15,219 tons of scrap metal
- Renewing 7,040 motors and 5,484 drive units
- Saving 1.4 million kWh of electricity
- Recycling 45 tons of water-based paint and 261 tons of machine coolants
- Recycling 99,950 gallons of oil and oily wastewater, and 200,000 lbs. of non-solvent cleaners
- Reducing hazardous waste by 45,350 lbs. through implementing a zero discharge chrome plating

Crown has developed an extensive program to rebuild electric motors, drive units and electronic modules for reuse to its customers. Crown's purchased packaging also contains recycled content.

Brownfield Redevelopment

Brownfield development is an integral part of Crown's growth strategy. Since 1998, Crown added over one million square feet of manufacturing space without building new facilities. Many of the brownfield sites purchased were remediated by the company before occupancy. One example is its Plant 12, which, prior to renovation, was a dairy processing plant. After redevelopment, it is now a customer presentation center.

Energy management

Crown utilizes a campus-wide energy management system. It completed several projects, including an energy efficient air compressors retrofit, energy efficient lighting retrofits, a compressed air leak program, welding/ventilation reductions in its Celina Plant. The plant has also conducted a one-2-five energy analysis by Ohio's Energy Office to explore further energy saving opportunities.

Powder Coating Improvements and Zero Discharge Chrome Plating

Up until 2000, Crown's water-based coatings contained chromium as a rust inhibitor, resulting in the generation of hazardous waste sludge from the water curtain painting operations. During the 1990's, Crown recycled this paint waste material into usable products. Through extensive testing, Crown was able to remove the chromium from the paint, rendering 300,000 pounds of the paint sludge non-hazardous.

The company investigated alternative coating strategies and identified powder paint as a better environmental alternative in addition to increasing the quality of the finished product. Crown installed a powder system to replace a large water curtain painting operation, eliminating 200,000 pounds of the sludge per year. Crown converted two of the existing six water wash booths to dry filter, eliminating an additional 28,000 pounds per year of paint sludge. During 2007, Crown was converting another water wash booth to dry filter booth as part of this continued environmental improvement program in the Crown coating operations.

Crown's zero discharge plating operation has eliminated hazardous waste rinse water and 45,350 pounds per year of hazardous waste sludge. The plating design incorporated all counter flow rinsing into the process tanks, and along with evaporation, results in a zero discharge facility. Additionally, the purification system for the process baths has extended the life of the baths such that the baths are only de-sludged once a year and all chrome solutions are never disposed. All rinse tanks are also never disposed.

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Product Development Initiatives

Perhaps the largest environmental benefit is from Crown's products. Crown manufactures only electric lift trucks and there are no air emissions from its vehicles. This provides a cleaner indoor environment and reduces the oxides of carbon, nitrogen and particulate in these environments. With the development of fuel cell-powered vehicles, Crown hopes to have an even larger environmental impact in the material handling industry.

Crown manufactures the majority of its products at its Ohio facility, enabling the company to better control the environmental impacts of its manufacturing processes. No other lift truck manufacturer can claim this advantage, as they outsource much of their product and have no control over outside job shops.

Crown manufactures its products with life cycle impacts in mind. Lift trucks are built using material that can ultimately be recycled when the truck is obsolete. Before this happens, however, Crown has an extensive refurbishment program where used lift trucks are purchased back from customers, refurbished and resold to new customers. This program has many avenues, including Crown's normal sales and distribution network, its "Movemore" line of used trucks and finally lift trucks that have been used extensively are offered for sale on E-bay. Crown also has a procedure for recycling the lift trucks when they have exceeded their useful life. Crown's designs facilitate the removal and recycling of the components of the trucks. An "End of Life Cycle Procedure" was established to handle this process.

For more information

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If you would like additional information about Ohio EPA's environmental stewardship award program, contact the Office of Compliance Assistance and Pollution Prevention (OCAPP) at 800-329-7518, or visit OCAPP's website at <http://epa.ohio.gov/ocapp/ohioe3.aspx>.