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Encouraging Environmental Excellence Bronze Level Recognition

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Ohio EPA recognized two organizations that successfully met the criteria for the Bronze Level of the Encouraging Environmental Excellence (E3) Program. Below is a summary of their efforts.

Masco Cabinetry's Plant # 3 – Orwell: Masco Cabinetry's Plant # 3 in Orwell manufactures three nationally recognized cabinetry brands, KraftMaid, Merillat and QualityCabinets, and the DeNova countertop brand. It pioneered the built-to-order or "semi-custom" segment of the cabinet industry for kitchen and bath, growing from a small cabinet shop to the largest cabinet manufacturer in the world.

Masco Cabinetry is being recognized for their use of renewable solvent, their ISO14001 environmental management system, employee involvement program, their upper management commitment and continuous improvement efforts. Masco Cabinetry currently sends a portion of their spent solvent waste stream off-site to be renewed. The solvent waste stream is generated from line flushing related to color changes in the finishing process and is distilled off-site, then brought back to original specifications if needed. The renewed solvent is returned in bulk to the Orwell facility to be reused. Over the last five months they have sent 42,522 lbs. of waste solvent out to be renewed which accounted for approximately 15% of the waste stream. The renewed solvent has performed very well in their process. Masco Cabinetry plans to expand this program to 74,600 lbs. annually which would account for approximately 25% of the waste stream. The process allows us Masco Cabinetry to reduce the amount of virgin material purchased and reduce waste sent out for disposal. They have reduced overall costs by approximately \$11,000.00 annually.

Masco Cabinetry is ISO 14001 certified and has a robust system in place for managing environmental performance. Monthly meetings are held with key members of their team and action items are generated and tracked from their opportunity log. The Orwell facility completes several standard work instruction audits on a monthly basis pertaining to environmental aspects and tracks all forms of waste created at the plant.

The company requires daily meetings with all production employees. The meetings are conducted on the shop floor at Operational Improvement Team (OIT) boards by department supervisors. Topics covered are Safety, Environmental, Quality and Production. The boards have opportunity logs used for recording and tracking employees' suggestions and/or concerns related to Safety, Environmental, Quality and Production. Safety and Environmental talks are also conducted at the boards. ISO auditors also ask employees questions on Standard work instructions on a monthly basis. Employees have the opportunity to give feedback to all standard work instructions and often help improve the process. Masco Cabinetry generates ideas from holding Kaizen events throughout the year and involves team members from different levels throughout the organization. Team members also participate in KATA and 5S activities.

Masco Cabinetry has a corporate Environmental Policy that is supported by all levels of management and employees. They also have an Environmental OIT board that tracks all Environmental goals and progress. If an environmental goal is missed, there is a requirement to produce a countermeasure and corrective action that is

reviewed by Executive and Plant Managers on a monthly basis. Environmental audits are also conducted on a daily, weekly and monthly basis with the full support of the management team.

Masco Cabinetry has quarterly awards for Tomorrows Thinking Today (TTT) environmental projects. Each quarter all of Masco Cabinetry's plants are required to submit between one and three TTT projects. The projects' results are reviewed with executive management and plant level managers. The idea is to share best practices across the organization related to environmental stewardship. The Orwell facility has been recognized over the years for reducing energy and CO₂ by installing energy efficient lighting, ultrasonic leak testing of compressed air systems and hazardous waste reduction by renewing solvent.

Kyklos Bearing International, LLC (KBI) – Sandusky: KBI's designs, validates and manufactures automotive bearing assemblies and other precision components. The 1.3 million square foot facility located on 133 acres in Erie County employs 650 employees, supplying primarily the automotive industry for nearly 70 years.

KBI is being recognized for their air emissions reductions, solid waste recycling and reduction, hazardous waste minimization, byproduct reuse and recycling, environmental management system and employee involvement activities. KBI reduced air pollutants from 118 tons to 5 tons annually since 2008. This was completed by increasing the use of alternative energy sources including natural gas, heat pumps, and recuperative energy systems that also eliminated the need for a Title V air permit.

Landfilled solid waste was identified as an environmental management system (EMS) "significant aspect" several years ago. As a result of reduction and recycling activities, landfilled solid waste was reduced from 1,283 tons to 138 tons annually since 2008. Materials diverted from landfill and recycled included wastes such as grind swarf, commingled ("blue bag"), steel dust, oil absorbents, wastewater plant filter solids, cardboard, and other packaging wastes.

Hazardous waste generation was reduced from 1,772 to 586 kilograms annually since 2008 through a combination of material substitutions and process changes. A metal coating "black oxide" process was substituted with an aluminum/iron based conversion compound. The improved "grey oxide" process chemicals eliminated the caustic waste and significantly reduced energy demand. Improved spray application methods used for maintenance coatings and manual methods (roller, brush, etc.) were implemented, effectively reducing the quantities of waste paint and clean-up solvent. Low VOC water based coatings were also substituted for solvent based paints, also reducing the amounts of hazardous waste generated.

KBI contracts with key byproduct business partners to identify and recover virtually all byproducts for reuse and/or recycling. These byproduct business partners help ensure that recovered materials are of acceptable quality and return the highest revenue from the secondary markets. The facility was recognized by the State of Ohio for this business strategy, being awarded the 2002 "Take Pride Ohio" Recycle Ohio Corporation award. KBI byproducts are recovered from a variety of manufacturing and support activities. Some of the more significant and innovative solid wastes being recovered for recycling or reuse on the premises include: 4.9 million pounds of steel turnings, 297 thousand pounds of components scrap, 424 thousand pounds of steel punchings, 1.2 million pounds of grind swarf and 56 thousand pounds of steel dust among numerous other items.

Metalworking fluids such as grinding coolants, machining fluids, alkaline cleaners, and aqueous rust inhibitors are critical to KBI processes and finished product quality. All metalworking fluid systems are designed to maximize the reuse of the chemical compounds, being continuously recirculated from reservoirs equipped with media filters designed to remove solids and extraneous oils.

In 2009, KBI installed a cooling tower water makeup feed from a nearby storm water retention pond, including a media filter and an overflow system designed for freeze protection. This storm water makeup system eliminates the need for 3.5 million gallons of city water annually for the 4,000 GPM evaporative cooling tower.

KBI demonstrates and documents continuous improvement activities related to environmental stewardship using our environmental management system (EMS), which has been 3rd part certified to the ISO14001 standard since 2002. KBI employees must be aware how their individual job activities and responsibilities affect the environment. One primary method of involvement is ongoing training and education. All employees and contractors are required to complete a series of online courses at least annually, designed specifically for KBI's EMS.

KBI uses a formal Design for the Environment process to assess the environmental impacts associated with new and revised products and manufacturing processes. This activity formalizes the "up-front" engineering decision making and review processes so as to minimize impacts to the environment.

For more information about the E3 program and the three levels of recognition, visit www.epa.ohio.gov/ohioE3.aspx or call (800) 329-7518.