

EcoMission: Changing the Environmental Footprint of the Foundry Industry

HA International will help the North American foundry industry improve its environmental footprint by developing and marketing consumable products with distinct and meaningful environmental advantages. Our EcoMission logo bears the terms Sustainability, Performance and Value to demonstrate our recognition that these products must not only have improved environmental attributes, but also must yield high quality castings at an overall cost that allows our customers to compete and succeed in the global marketplace.

We established five distinct criteria to ensure that our EcoMission products provide meaningful environmental advantages. An internal panel used input from industry experts and an informal customer survey to develop these criteria. A product line must meet at least three of the five EcoMission criteria to meet our Sustainability threshold for EcoMission designation.

Water-Based or Renewable Components

To meet this EcoMission criterion, a product must be formulated using one or more water-based or renewable components. Water based products inherently help to reduce emissions during use, eliminate product toxicity associated with solvent components, and reduce demands on the petroleum sector. Water-based products tend to have lower life-cycle environmental impacts (such as carbon footprints), than solvent-based products. Similarly, products formulated with renewable components encourage development of renewable resources, tend to reduce the environmental footprint of products as compared to products formulated with non-renewable components, and reduce dependence on extractive resources.

Some of our water-based product lines include ALpHASET, BetaSet and TechniKote. Our Custom Coat E-Series resin-coated sand is formulated with a water-based liquid resin component, directly replacing petroleum-based solvents typically used to produce liquid resins. Renewable components used in our product formulations include biodiesel oils, which are used as direct substitutes for petroleum-based oils in our Biocure products, and ethanol used to formulate our EZ Lite coatings. Ethanol directly replaces isopropanol, the more conventional, petroleum-derived solvent for alcohol-based coatings.



Utilizes Recycled Components

Products formulated with recycled components reduce the rate of natural resource depletion, encourage development of industrial recycling networks, and tend to reduce the carbon footprint of our products. In order to meet this EcoMission criterion, products must be formulated using one or more substantial components that are sourced from recycled stock instead of virgin material.

Examples of recycled product feedstocks we employ in the formulation of our products include methanol and phenol recovered from resin production waste streams, and zircon recovered from foundry waste streams.

Low VOC

Volatile organic compounds, or VOC's, are product components that evaporate during use and are emitted into the atmosphere where they contribute to air pollution, specifically smog formation. Low VOC products help our customers reduce the environmental impacts of their operations, including both the direct environmental effects and the regulatory burdens associated with these emissions. In some cases, changing to low VOC products can help a foundry to operate profitably by avoiding the need to add costly and inefficient end-of-pipe environmental control devices.

For a product line to meet this EcoMission criterion it must either contain or emit at least 20% less VOC than the competing conventional product, or it must be essentially free of VOC content.

Examples of EcoMission product lines that meet this criterion through reduced VOC emissions include Biocure resins, and Custom Coat E-Series resin coated sand. ALPHASET, EZ Kote, and TechniKote meet this criterion by containing essentially no VOC component. These products have substituted water for the solvents normally used in the competing conventional products.

Low HAP

Hazardous Air Pollutants (HAP's) are a list of 188 air pollutants specifically targeted for significant reduction by Congress and USEPA through the Clean Air Act Amendments of 1990. HAPs generally have the potential to cause health effects when significant levels are emitted from industrial sources. Reducing the HAP content of foundry consumable products is a longstanding internal goal of HA International, and in addition to the obvious environmental advantages, helps our customers to comply with tough permitting requirements. In some cases, eliminating HAPs or converting to low-HAP products can help a foundry avoid being regulated as a major source of HAP emissions. In other cases, converting



www.ha-international.com



to a low-HAP product can help foundries to operate profitably by avoiding requirements to install and operate costly and inefficient end-of-pipe environmental control devices.

For a product line to meet this EcoMission criterion it must either contain or emit at least 20% less HAP than the competing conventional product, or it must be essentially free of ingredients designated as hazardous air pollutants. All of our EcoMission products meet the low-HAP criterion.

Low Odor

The most frequently cited topic when we talk to our customers about environmental problems is odor. As residential areas have moved closer, many foundries have been under increasing pressure to reduce the odors associated with their operations. Often, discontent from odor issues escalates into public pressure, and that pressure has contributed to the closure of several large foundries. Reducing the odors associated with foundry operations helps the North American foundry industry to sustain its operations and provide jobs to Americans. Reduced odors helps to make foundries better neighbors.

Odors, being subjective, are inherently difficult to quantify, so we use practical, informal methods to assess the odor-causing potential of our products. We observe them in use. We study the odor-causing components of our products, and we select new components based on the reduced potential to cause odors. Each of our EcoMission products is designed to produce noticeably less odor than the competing conventional technology.

In our ALPHASET, EZ Kote, and TechniKote product lines we have replaced the petroleum solvent carriers used in the competing conventional products with water, resulting in significant odor reductions during use. Our Biocure and BioSet products employ low odor, low volatility biodiesel solvents in place of petroleum based solvents, because those petroleum solvents typically exhibit moderate to strong petroleum odors during use. Users agree that biodiesel-based resin packages exhibit significant odor reductions both in molding and core production operations, as well as at pouring, cooling and shakeout. Our Custom Coat E-Series resin-coated sands are formulated with low nitrogen levels and low free phenol levels, resulting in noticeably lower smoke and odor in the core shop, and measurably reduced ammonia and formaldehyde emissions in most applications. E-series sands can also include a new deodorizer that can yield additional odor improvements, though these improvements are more subjective. Our EZ Lite coatings are formulated with ethanol instead of a blend of isopropanol and petroleum solvents, as ethanol has a higher odor



www.ha-international.com



threshold and a cleaner smell. Ethanol is commonly used in perfumes, as its rapid volatility and slight odor tend not to be objectionable. Finally, perhaps the most technically advanced odor-focused technology substitutes a novel solvent, TEOS, for the petroleum solvents used in the competing conventional products. While TEOS itself can be quite odorous, we have found that its use can dramatically reduce or even eliminate the “foundry smell” associated with one of the most vexing odor problem areas, pouring, cooling and shakeout operations.

Adoption of EcoMission Technologies

Through our EcoMission initiative we have developed a series of product lines that provide real environmental benefits, both to our customers and to their surrounding communities. But a product has to do more than offer environmental benefits to be adopted; it needs to really work! That’s why we’ve insisted that our EcoMission products combine improved environmental attributes with the performance and value characteristics the industry needs to be able to really adopt these technologies, and to be successful in their marketplace when they do. Many EcoMission products are drop-in replacements that do not require any new capital investment, while a few, like TEOS, represent more dramatic departures from conventional technologies that result in even greater environmental benefits in exchange for the additional developmental work they will require. Take a look at our EcoMission products, and see how we can work together to help improve the environment at your plant today.



www.ha-international.com

