

D-M-E's Eco-Smart™ Hot Runner System: A Watershed Moment in 'Green' Polymers

The plastics industry is at a difficult crossroads.

Spurred by demand from fast-developing regions around the world, many plastics companies are in high-production mode. Meanwhile, environmental concerns are dominating the global economic discourse. Pollution, energy consumption, the supply of nonrenewable resources and solid waste management are on the minds of many. And they're all issues that are affected by increasing plastics production.

The industry must find a way to make more with less—less energy, less resin and less overall environmental impact. The time is right for greener, more renewable plastics.

The PLA solution

The push for plastics to be “compostable” in landfills has brought about efforts to add corn starch and other organic fillers to thin plastics products (i.e. poly bags, etc.) and hasten their degradation. World-class companies have invested heavily into research on plastics made from renewable resources such as corn, vegetable oils and switch grass.

One of the most prominent of those green materials is Polylactic Acid (PLA), which uses fermented natural plant sugars to create a clear plastic that can be shaped into a variety of bottles, containers, trays, film and other packaging.

But PLA has its drawbacks: It's hypersensitive to heat leading to molecular breakdown, and it can degrade quickly into highly corrosive acids. In normal operation, these polymers tend to plate out these acids onto the walls of the molding system.

Introducing Eco-Smart™

To date, no other hot runner manufacturer makes a hot runner nozzle assembly optimized for processing starch-based resins such as PLA. In the meantime, molders of

PLA have had to use special-ordered, corrosion-resistant nozzle components that can withstand acids.

However, nozzle assemblies aren't typically stocked "standard" by hot runner manufacturers in "all" or "near-all," corrosion-resistant formats. Further, most hot runner nozzle assemblies tend to be geared for the mass market, not necessarily suitable for the demanding requirements of PLA resin.

That's why D-M-E has created the Eco-Smart Hot Runner System. The first of its kind in the industry, specifically designed to maximize the success of processing polymers including PLA, the Eco-Smart represents a watershed moment in "green" polymer processing.

The Eco-Smart was carefully engineered to meet a variety of needs cited by PLA-processing customers. Manufactured with highly wear-resistant and corrosion-resistant components, its thermal profile is designed to suit PLA's temperature hypersensitivity, with nozzle tips that minimize shear heat. It's available for both process filled and unfilled PLA resins.

Eco-Smart can also accommodate a variety of other bio-based polymers as well, and is being qualified for additional polymers as they reach the commercial stage of development.

About D-M-E

D-M-E Company is an essential mold technologies resource to customers worldwide. In addition to offering the plastics industry's broadest range of market-leading products, D-M-E provides unsurpassed knowledge, a global logistics infrastructure, and exceptional service every step of the way. This support ensures that customers get the speed, accuracy, and quality they need across D-M-E's complete line of hot runner systems, control systems, mold bases and components, and mold making and molding equipment and supplies. A subsidiary of Milacron, Inc., D-M-E also manufactures and sells standard tooling for the die-casting industry.



Every step of the way

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