

## Ashland Performance Materials Ashland Solves Environmental Issues by Installing EnviroGear Seal-less Pumps

Ashland Performance Materials Ashland solves environmental issues by installing EnviroGear seal-less pumps on polyester resin that contains dicyclopentadiene (DCPD), styrene, and methylmethacrylate (MMA). In addition, maintenance savings per pump per year are estimated at \$4,600 with an internal rate of return (IRR) of 29%.

### Challenge

An Ashland resin manufacturing facility sought to improve the reliability of a hazardous product transfer service. The polyester resin being pumped contains three chemical components that are considered regulated pollutants by the EPA: dicyclopentadiene (DCPD), styrene, and methylmethacrylate (MMA). All three chemicals are flammable and hazardous to health. Furthermore, styrene is a proven carcinogen. The resin manufacturing process is covered by Title V of the Clean Air Act.

In the past, an internal gear pump with a single mechanical seal was used. However, the pump incurred both high environmental and maintenance costs because of frequent leakage incidents. Because the polyester resin production process is covered by operating permit regulations, any leakage incident of more than five gallons of fluid has to be reported to the EPA. Smaller leaks required internal record keeping.

The pump was also the source of high maintenance costs because of repeated seal repairs. On average, the pump seals failed five times a year. It took maintenance crews two hours to remove the seal from the pump and thirty more minutes to clean the area around the pump each time a leak occurred. The faulty seal then had to be sent out to be refurbished by a supplier at a cost of \$450 with a week delay to obtain a new seal. Two more hours of maintenance time were spent to install the new pump seal. Total maintenance costs for the pump amounted to about \$3,000 in parts and labor every year.

### Solution

The customer was referred to EnviroGear Pump by a sister plant that had used EnviroGear pumps successfully. To eliminate high environmental, safety, and maintenance costs, EnviroGear Pump proposed to replace the existing pump with seal-less EnviroGear gear pump model E1-82 in carbon steel. The dimensional interchangeability of the EnviroGear eliminated expensive piping or drive changes.

### Results

The EnviroGear pump has been in service for almost two years without any maintenance issues. Environmental and safety concerns have been addressed. Maintenance costs for seal repairs have been eliminated. Maintenance savings alone amount to \$4,600. The payback period for the pump was 1.4 years, and the IRR of the project is 29%. The customer has ordered pumps for other resin services.

***“Switching to EnviroGear pump has eliminated seal failures, which reduced maintenance costs and the time spent on repairing seals and pumps. Our resin manufacturing process is regulated by the government environmental regulations, and leaks have to be reported to the EPA. We could get a fine or lose our operating permit for not having good environmental protection practices. Having a seal-less pump ensures that there is danger of spills.***

***Pump leakage has previously caused us to spend a lot of time documenting spills and preparing internal and external reports. Now, we are running without problems.”***

**- Process engineer, Ashland Performance Materials**