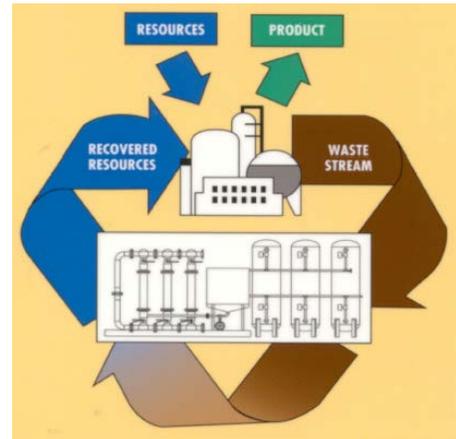


## APPLICATION BRIEF – ETHYLENE GLYCOL PURIFICATION

### ETHYLENE GLYCOL IN THE PET PROCESS

The polyethylene terephthalate (PET) resin manufacturing process generates large volumes of spent ethylene glycol (EG). Some facilities distill the EG before recycling.

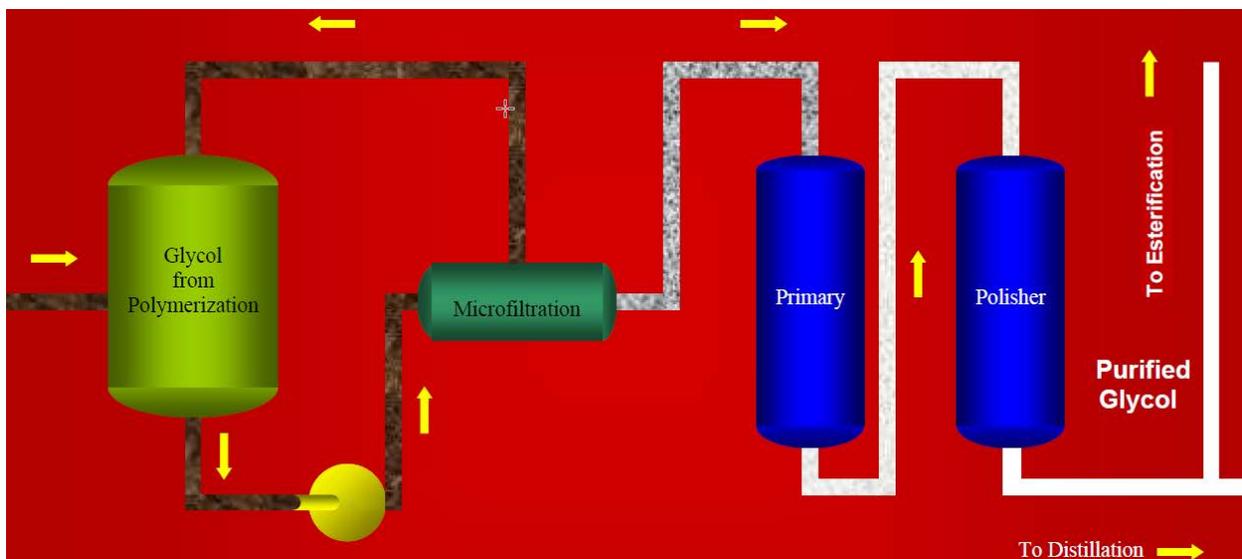
However, the distillation process generates a secondary waste stream that contains, among other things, the heavy metal antimony. (Antimony functions as a catalyst in the production of PET.) Unfortunately, this "traditional" process yields less than desired EG quality and generates significant "still bottoms" for disposal. The "still bottoms" stream contained expensive catalyst and PET monomer. Disposal meant significant environmental impact and cost to ship the bottoms off-site for incineration.



### A PATENTED SOLUTION TO ETHYLENE GLYCOL PURIFICATION

Envirogen offers a patented process that features a combination of continuous crossflow microfiltration and selective ion exchange technologies to more effectively address the spent ethylene glycol recovery process.

Spent EG is collected in storage tanks and fed directly into the process. After working its way through specialized filtration equipment, the glycol then enters two banks of vessels containing the variously charged ion exchange resins.



With the proven Envirogen process, the expensive antimony catalyst is recovered, EG recycle stream quality is improved, the bottoms stream is eliminated - zero discharge, no off-site shipments, and no incineration. In addition, the higher quality "bottoms" product can be sold for use in unsaturated polyester resins called polyol.

By recovering and reprocessing the antimony, customers can avoid the full cost of buying new catalyst and disposing of the old. It also keeps antimony out of the waste stream and reduces the environment impacts of further mining, smelting and transportation. The antimony can be reprocessed at Envirogen's Memphis facility and then sent to an antimony smelter where the customer can receive credit on the purchase of new catalyst.

Clients have reported elimination of a million pounds of waste annually, with associated cost savings of millions of dollars per year.

## ENVIROGEN SYSTEM BENEFITS

The Envirogen patented process offers many benefits to polyester manufacturers and is applicable to other chemical process streams as well.

### BENEFITS INCLUDE:

- Uses nonthermal separation technology
- Reduces operating costs
- Improves product quality and yield
- Avoids waste disposal

### RECOVER MORE:

- 98%+ glycol recovery yields
- Better glycol color than distillation and less power consumption
- Oligomer recovery creates saleable raw material
- 98% of catalyst is recovered.



### ADDITIONAL SOLUTIONS OFFERED

- Spinning wastewater recycle
- Dye wastewater recycle
- PTA/DMT catalyst recovery
- Spinneret cleaning water treatment
- Solutions for manufacturing of polyester, nylon, acetate, spandex, and other polymers

[CONTACT US FOR ALL YOUR WATER TREATMENT SYSTEM NEEDS!](#)



### NORTH AMERICAN HEADQUARTERS

Envirogen Technologies, Inc.  
2627 Chestnut Ridge, Suite 260  
Kingwood, TX 77339

Tel: +1 877.312.8950  
E-mail: [info@envirogen.com](mailto:info@envirogen.com)  
Website: [www.envirogen.com](http://www.envirogen.com)