

# Our Environmental Protection Plan



RECYCLING CAPABILITIES AND  
ENVIRONMENTAL ACCOMPLISHMENTS



## WHO WE ARE

Since day one, East Penn has made safe recycling an everyday practice. East Penn opened its doors as a battery rebuilding company almost three quarters of a century ago. Today, the company has never stopped building on its expertise, infrastructure, capabilities, and commitment. This continuous commitment has made us the most progressive manufacturer in environmental protection and technologically advanced battery recycler throughout the entire industry. It also continues to give our customers the critical reassurance of safe battery recycling without the worry of debilitating fines, penalties, or paperwork associated with hazardous waste disposal laws.

## WHAT WE'VE DONE

The centerpiece of East Penn's commitment to the environment can be found in our product stewardship principles that include a continuous product life cycle approach. At our state-of-the-art recycling facility, we process approximately 30,000 batteries per day. Our computer-controlled, closed-loop system, co-located with our manufacturing facilities, recycles virtually 100 percent of each spent battery received for processing. The processed lead, combined with the other premium-grade recycled lead, accounts for approximately two-thirds of all lead used in the manufacture of new batteries. Each of the three major battery components (lead, plastic, and acid) are safely recycled and used in making new energy storage devices.

## WHERE WE'RE GOING

East Penn continues to lead the industry through innovative recycling, environmental protection, and proactive continuous improvement. The company is also helping to make a "greener" tomorrow with new breakthroughs in advanced battery products. These products serve essential roles in Hybrid Electric Vehicles, Renewable Energy Integration, Smart Grid Services, and other power solutions that are highly recyclable, conserve energy, and reduce CO<sub>2</sub> emissions.

# Our Environmental Accomplishments



## Lead Smelting

Our EPA- and Pennsylvania Department of Environmental Protection-permitted smelter recycles over 200 million pounds of lead per year.



## Acid Reclamation

East Penn's acid reclamation plant was the first in the industry. This patented process recycles millions of gallons of acid each year, diverting this material from potentially hazardous disposal.



## Plastic Recycling

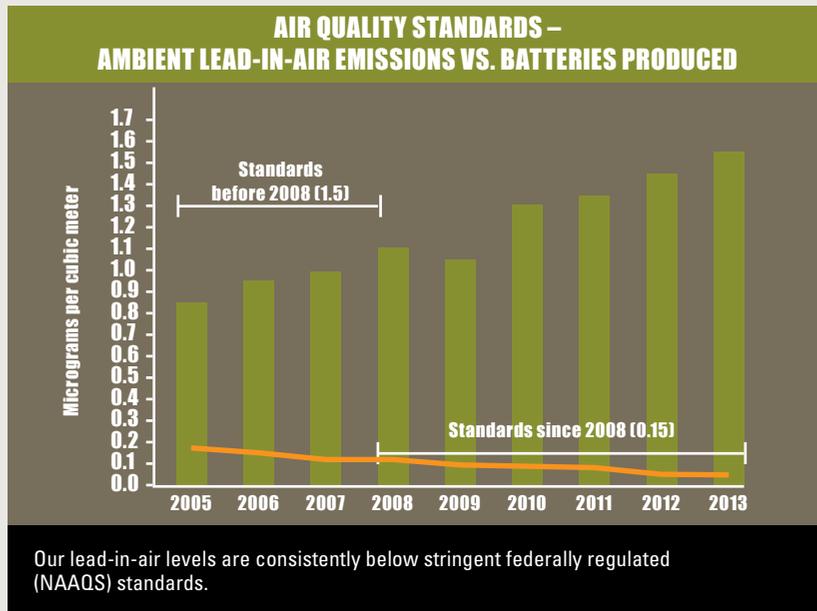
Plastic battery cases and covers are cleaned, ground, and re-extruded into polypropylene pellets that are molded into new cases and parts at our on-site injection molding facility. East Penn recycles over 11 million pounds of plastic per year.



## Environmental, Health & Safety Certifications, Awards, and Recognitions

- Entire 520-acre complex certified to ISO 14001:2004 environmental requirements
- Two Pennsylvania Governor's Awards for Outstanding Environmental Excellence
- American Society of Safety Engineers (ASSE) Industrial Safety Award
- Environmental Stewardship Award, Pennsylvania Institute for Children's Environmental Health
- Healthcare Heroes – 2014 Corporate Achievement Award by Lehigh Valley Business
- Pennsylvania Water Environment Association – 2014 Industrial Waste Excellence Award

# Emissions Control



## Emissions control

Throughout its facilities, East Penn employs the most advanced control technology available to reduce lead emissions. We began deployment of High-Efficiency Particulate Air (HEPA) filters in our manufacturing facilities more than a quarter century ago. Today, the state-of-the-art secondary HEPA filtration units in use are 99.997 percent efficient at 0.3 microns. These systems produce air quality that is actually cleaner than that found in the surrounding atmosphere.

East Penn was also one of the first companies in the nation to install a scrubber unit to “scrub” gasses before they are released. These scrubbers eliminate sulfur dioxide emissions, which can cause acid rain.

# Reclaiming Resources

## A Closed Loop System of Sustainable Reuse

**Lead**



**REFINERY**



Under tight computer controls, the lead is smelted and goes to the refinery where it's combined with reagents.



**RECYCLED LEAD**



Recycled lead is alloyed to exact specifications to meet the needs of each battery or accessory line.

**Plastic**



**PLASTIC RECYCLING**



Used plastic is reclaimed and processed to be remolded into cases and parts for new batteries.



**PRODUCTION**



New cases and covers are made from 100% recycled plastic materials.

**Acid**



**RECLAMATION PLANT**



East Penn built the battery industry's first acid reclamation plant. The reclaimed acid is used in new batteries.



**NEW BATTERY ACID**



We were the first to hold exclusive patents to the acid reclamation process.



### Lead

Our highly efficient smelting facility provides lead required in the manufacture of our new products. It is fully compliant with Environmental Protection Agency and the Pennsylvania Department of Environmental Protection standards. Excess heat from our furnace is redirected through a radiator system to warm adjacent manufacturing facilities in cold weather. Sulfur fumes generated during the smelting process are captured and reprocessed into a liquid nitrogen sulfur solution. Over 24,000 tons of this solution is sold to make fertilizer for agricultural use each year.



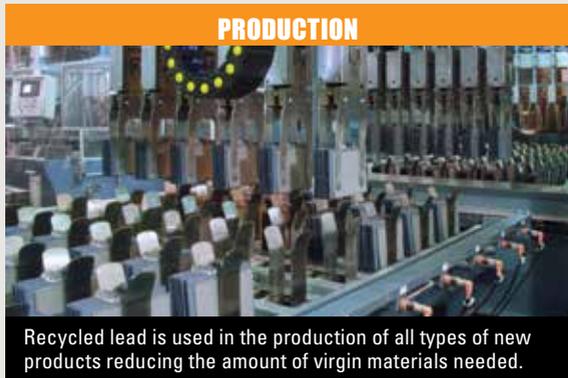
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### PRODUCTION

Recycled lead is used in the production of all types of new products reducing the amount of virgin materials needed.



### STORAGE TANKS

East Penn produces a liquid fertilizer solution from the sulfur fumes created during lead smelting.



**These three major components: Lead • Plastic • Acid are recycled and reused in the production of brand new products.**

## Plastic

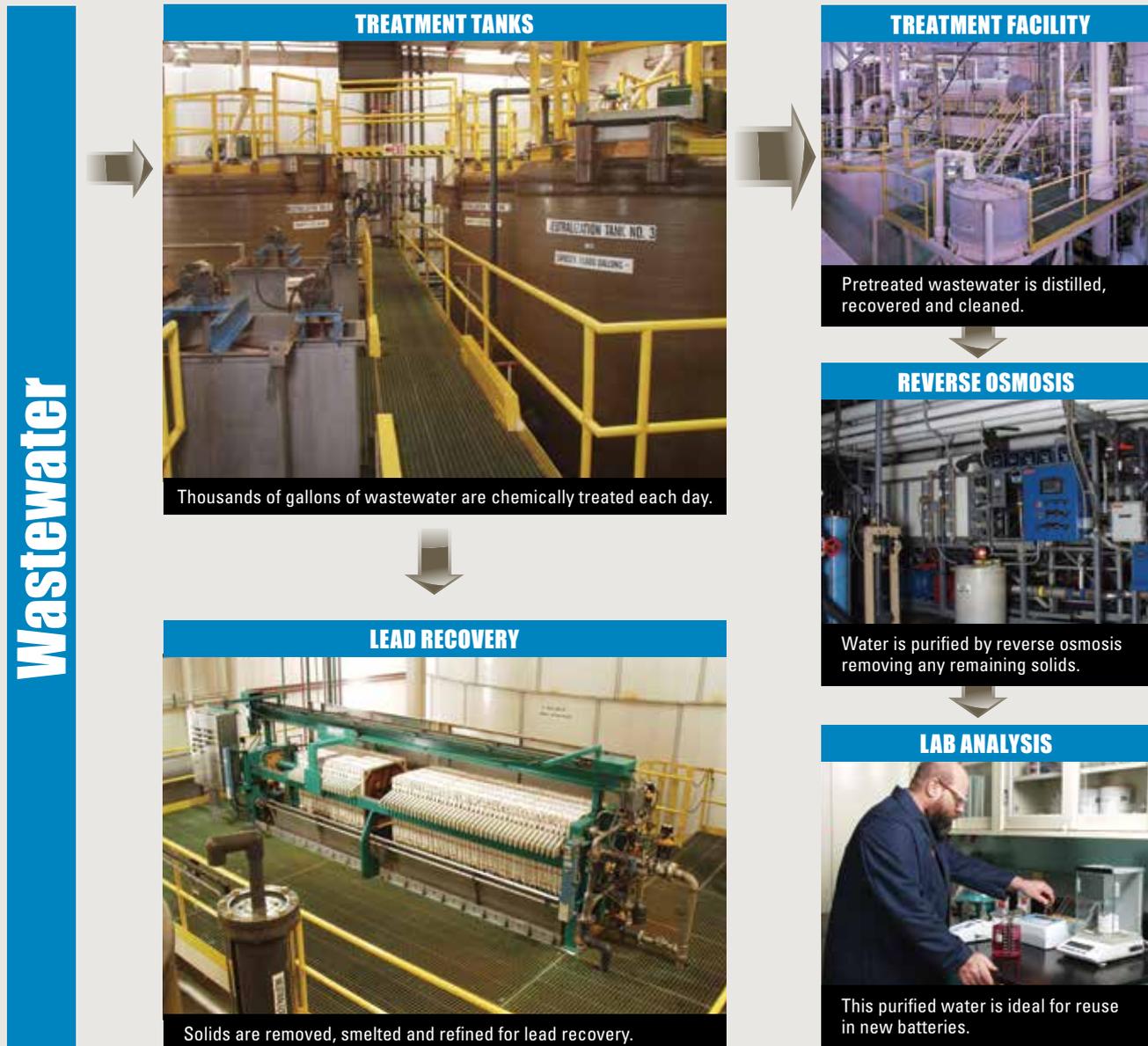
Polypropylene (plastic) is also recycled. Battery cases and covers are cleaned, ground, and re-extruded into polypropylene pellets. The material is then blown through a pipe network to our on-site injection molding facility where it is molded into new cases and parts.

## Acid

East Penn scientists invented the patented process that reclaims sulfuric acid from spent batteries for use in new energy storage devices. At the acid reclamation facility, the first of its kind in our industry, heavy metals and other impurities are removed and the solution is converted into new electrolyte, diverting this material from potentially hazardous disposal.

# Pure Water, Pure Air

## Innovative Purification Processes



### Wastewater treatment

East Penn treats and reuses wastewater from its manufacturing processes in an ultramodern wastewater distillation and treatment plant that is unique within the industry. An exclusive patented system of distillation, reverse osmosis, neutralization, co-precipitation, and salt crystallization produces water of exceptional purity, suitable for re-use in the production of new energy storage devices. This zero discharge system recycles over 31.5 million gallons of water per year. The facility not only reclaims process wastewater, but also reduces groundwater use from on-site wells by as much as 100,000 gallons per day. Another East Penn innovation is the recovery of sodium sulfate salt as a byproduct of the water treatment process. Almost 7 million pounds per year is sold for use in manufacturing of glass products.



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