P² at PPG’s Meadville, Pennsylvania Glass Plant

Great Lakes Regional Pollution Prevention Roundtable – Erie, Pennsylvania
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PPG’s Meadville Glass Plant
Automotive Glass Production primarily for DaimlerChrysler, General Motors, Ford, Honda, and Toyota

Two glass melting furnaces - very energy/resource intensive

Raw materials - sand, limestone, dolomite, gypsum, & soda ash

NO\textsubscript{x}, SO\textsubscript{x} & PM emissions
What Are We Doing?

- Implementing New Technologies: Oxy-Fueled Furnace
- Gaining Recognition as an Environmental Leader - USEPA NEPT Award
- Adopting an ISO 14001 Certified EMS
- Integrating Environmental with Business Planning
- Active local Environmental Leadership
PPG's P² Program

- Mature Systematic Waste Minimization Program
- Plant Mgmt. Accountability
- Plant and Corporate Waste Goals Tied to ISO 14001 O&T's
- SBU Waste Tracking Intranet System
- Program Goals
2002 PPG Glass Plants' WGR

- Burlington: 11.7
- Carlisle: 15.6
- Fresno: 6.6
- Meadville: 6.1
- Mt. Zion: 10.6
- Owen Sound: 13.0
- Salem: 3.7
- Wichita Falls: 7.0
Monthly Plant Trash Disposal

Waste (Tons per Month)
P² Program Highlights

- Oxy-Fueled Glass Furnace Project
- Reusable Glass Rack System & Packaging Reduction (dunnage) Initiative
- Cullet Reuse Program
- Waste Batch Reuse
8-1 Air-Fueled Furnace
Oxy-Fueled Furnace Benefits

- Eliminated ~1,800 tons NO$_x$ emissions
- Eliminated ~41,000 tons CO$_2$ emissions
- Reduced natural gas usage by over 15% (~400 MM cubic feet)
- Hazardous Waste Reduction
Annual Oxides of Nitrogen Emissions

<table>
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<tr>
<th>Year</th>
<th>NOx Emissions (Tons)</th>
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<tr>
<td>1994</td>
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</tr>
<tr>
<td>1995</td>
<td>2,500</td>
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<tr>
<td>1996</td>
<td>3,125</td>
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<td>1997</td>
<td>3,672</td>
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<td>2004</td>
<td>3,672</td>
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PPG’s motivation to implement oxygen fueled furnace technology...
- ensure a competitive edge in the market place
- anticipate future regulatory targets
- produce a high quality automotive product at maximum rates
- reduce energy consumption and
- reduce air emissions
Packaging Reduction

- Automotive Glass Shipments
- Customers Return Racks & Waste
- Eliminated over 985 tons of Packaging Dunnage (Waste)
- Annual Savings Exceed $500K
- Eliminated... plywood decks, plastic stretch wrap, plastic dust covers, wooden toeboards, laminated paper corners, fiberboard sandwich pads & wooden lashboards
“Old” Glass Racks
“New” Glass Racks
PPG’s Plant P² Success

- Measurement & Metrics
- Management Accountability
- Corporate Commitment
- Focus on Environmental Leadership
QUESTIONS