Pollution Prevention
Ceramic Industrial Coatings

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Company Overview

• Founded 1961
• Metal, construction, and wood coatings
• Contract manufacturing
• 44 employees
Motivations for Change

- Continually improve environmental stewardship
- Maximize productivity
- Increase competitiveness
Reasons for MnTAP Assistance

• Gain outside perspective
• Use MnTAP expertise
• Appreciate passion for environment
Approach Taken

- "Backwards" investigation
- Observation
- Cost analyses
- Experimentation
Processes Investigated

- Tank washing
- Distillation
- Production Overages
- Waste Removal
- Compressed Air
Tank Washing

• Current System
  – Two-step washing procedure
  – 13 dedicated tanks
  – Average of 34 gallons of solvent a day
Tank Washing (cont.)
Tank Washing (cont.)

• Proposed System
  – 36 designated tanks, with room for expansion
  – Reduce solvent use by 4-5 gallons a day
Distillation

• $0.90 per gallon of still solvent
  – Cost a result of labor, electricity, HAZ waste
• HAZ waste greatest cost
Conserving Excess Product

• Establish product overage drums
• Replace old storage system
Retain Program

• One half-pint retain for every batch
• Reuse most frequently made products
• Each retain costs CIC close to $3
Retain Program (cont.)

- 2,000–2,500 reusable retains a year
- $7,000+ a year
- 1,700 lb. of Hazardous waste
Cardboard Recycling and Solid Waste Removal

• Responsible for 26,000 lb. of cardboard a year
• Cancel recycling service
• Use cardboard baler
• Sell cardboard directly to recycler
Cardboard Recycling and Solid Waste Removal (cont.)

- Replace financially inefficient system
- Reduce pick-up frequency
- Increase bin size
Compressed Air

• 50 HP compressor
• Improvement Opportunity
  – Leaks throughout facility
• Solution
  – Repair leaks, begin maintenance program, participate in audit
Compressed Air (cont.)
# Changes Implemented and Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Environmental Savings (per year)</th>
<th>Cost</th>
<th>Savings (per year)</th>
<th>Payback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Dedication</td>
<td>2,100 lb. HAZ waste</td>
<td>$20</td>
<td>$1,700</td>
<td>Immediate</td>
</tr>
<tr>
<td>Overage Drum</td>
<td>950 lb. solid waste</td>
<td>$60</td>
<td>$1,900</td>
<td>Immediate</td>
</tr>
<tr>
<td>Retain Program</td>
<td>1,700 lb. HAZ waste</td>
<td>$22</td>
<td>$4,300</td>
<td>Immediate</td>
</tr>
<tr>
<td>Baler/Solid Waste</td>
<td>130 lb. CO₂</td>
<td>$500</td>
<td>$3,200</td>
<td>2 months</td>
</tr>
<tr>
<td>Air Maintenance</td>
<td>10,900 kWh</td>
<td>$600</td>
<td>$1,200</td>
<td>6 months</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,800 lb. HAZ waste, 950 lb. solid waste, 10,900 kWh, 130 lb. CO₂</td>
<td>$1,202</td>
<td>$12,300</td>
<td>1 month</td>
</tr>
</tbody>
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Minnesota Technical Assistance Program  
[www.mntap.umn.edu](http://www.mntap.umn.edu)
Personal Benefits

- Experience
- Technical understanding
- Data/cost analyses
- Project management
- Teamwork
- Environmental awareness
Questions?
Images from

http://suncoastmarineoil.com/images/products/display/55_gallon_drum.jpg
http://www.professionalequipment.com/product_images/Full/177966_big.jpg
http://afghans.net/wallpapers/nature/nature_0093.jpg