Metal Can Industry Overview

- Produced ~139 billion cans in 1998
- Used > 70 million gallons of coatings and solvents
- Emitted ~30,000 tons of HAP
Metal Can Industry

- ~50 Companies
- ~240 Production Facilities
- Types of Cans (Billions) (% of Total)
  - Two-Piece Beverage 101 74
  - Food (2-pc & 3-pc) 32 23
  - General Packaging 4 3
  139 100

Industry Segments Based on Product Types (Abbreviated Nomenclature)

- Two-piece beverage cans (2-Pc Bev)
- Two-piece draw and iron food cans (2-Pc DI)
- Two-piece draw-redraw cans (2-Pc DRD)
- Three-piece food cans (3-Pc FC)
- Three-piece general line cans (3-Pc GL)
- Three-piece aerosol cans (3-Pc AER)
- Crowns and closures (C&C)
- Decorative tins (Deco Tin)
- Once-piece aerosol cans (1-Pc AER)
- Ends (not really a segment)
Metal Can Coatings

<table>
<thead>
<tr>
<th>Category</th>
<th>Usage (million gallons)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. End Seal Compounds</td>
<td>20.2</td>
<td>33</td>
</tr>
<tr>
<td>2. Inside Spray</td>
<td>15.1</td>
<td>25</td>
</tr>
<tr>
<td>3. Interior Base Coatings</td>
<td>13.0</td>
<td>21</td>
</tr>
<tr>
<td>4. Overvarnish</td>
<td>5.3</td>
<td>9</td>
</tr>
<tr>
<td>5. Exterior base Coatings</td>
<td>3.7</td>
<td>6</td>
</tr>
<tr>
<td>6. Rim/Bottom Coat</td>
<td>2.5</td>
<td>4</td>
</tr>
<tr>
<td>7. Side Seam Stripe</td>
<td>0.7</td>
<td>1</td>
</tr>
<tr>
<td>8. Decorative Inks</td>
<td>0.5</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Metal Can Industry HAP Emissions

- Total Industry
  - Glycol Ethers (including EGBE) 70%
  - Xylene 12%
  - Hexane 10%
  - Formaldehyde* 1-5%

*Most industry data does not include cure volatiles.
Metal Can Industry

- 209 facilities in database
  - 157 major sources
  - 10 synthetic minor sources
  - 42 area sources
- 78 facilities reported a total of 125 add-on control devices
- < 5 facilities may be small businesses

Number of Metal Can (Mfg) Facilities

- 240 Total (Approximate)
- 209 in database

- 61 Other
- 2-Piece Beverage
Metal Can NESHAP Issues

- Two Delisting Petitions
  - 2-Pc Beverage Industry Segment (CMI)
  - EGBE (CMA)
- MACT is driven by combination of “compliant coatings” (e.g., low-VOC) and add-on control equipment (e.g., thermal oxidizers)
- Reported capture/control data has “quality issues”
- Cure Volatiles Issue - Modify Test Method 311

Cure Volatiles (HAPs)

- CMI data provided an emission factor for cure volatiles (HAP - formaldehyde): range of 0.7% to 4.0% by weight of total solids in coatings and inks
- EPA chose midpoint: 2.35% of total solids for emission calculations
- Total solids based on all coatings except end seal compounds and side seam stripe
- Used same capture/control efficiencies
MACT Floor Options

• Individual coating (category) limits
• Industry segment limits
  – By coating category
  – Overall facility
• Combined segments/coating category limits
  – Coatings
  – Cleaning solvents
• Overall facility emission limit

MACT Floor Approach

• Evaluated several different floor options
• Selected MACT option utilizing overall facility emission limit to provide flexibility
• Includes coatings, cleaning solvents, and cure volatiles (HAPs)
• Does not include storage tanks, mixing, wastewater, or handling/transfer emissions
Existing MACT Floor Determination

- Based on data from 167 facilities (major and synthetic minor)
- Best 12% = Top 20 facilities (e.g., lowest emitting)
- Used “median” approach (avg. of 10th and 11th ranked facilities)
- Overall facility emission limit = 0.41 lb HAP/gal solids applied (0.05 kg HAP/L solids)

MACT Floor Determination

- “Ends only” facilities not included in floor calculations
  - Not considered to have representative mix of coatings and processes
  - Would still have to meet MACT limit (such facilities typically reported very low HAP emissions)
MACT Floor Determination

• The 20 MACT floor facilities include a representative mix of all industry segments
• Does not conflict with existing VOC requirements
• Coatings/solvents/solids data readily available to calculate HAP emissions and determine compliance with overall facility emission limit

MACT Floor Option Selected
(Overall facility emission limit)

• No subcategories or multiple limits
• No coating category or segment definitions
• Allows “internal averaging”
• Simplifies compliance and enforcement
• Reduces recordkeeping and reporting burden
MACT Emission Reductions

- Average HAP emitted 2.74 → 0.41 lb of HAP/gal solids applied
- 85% reduction in HAP emissions
- ~25,000 tons of HAP reduced

Potential Economic Impacts

- ~50% of major sources without add-on control devices (~90 facilities)
- Working with ISEG to develop costs/impacts
- Improved Capture Systems - cost?