Public Workshop To Initiate Rulemaking To Further Reduce Consumer Product Emissions

April 12, 2019

Outline

Program Overview and Summary of Survey Results
- Program Background
- Discussion of final survey data
- Review of consumer products emissions contributions

Rulemaking Schedule
- Major Rulemaking Topics
- Work Groups Description and Schedule

Category Screening Process and Discussion
- Discussion of Considerations
- Potential Categories

Discussion and Questions
Program Overview and Summary of Survey Results

Consumer Products Program Background

- California Clean Air Act requires CARB to regulate consumer products
  - Achieve the maximum feasible reduction in volatile organic compounds from consumer products
  - Regulations must be technologically and commercially feasible
  - Must not eliminate a product form
- 2016 State Strategy requires additional consumer product VOC reductions
  - By 2023: 1-2 tpd in the South Coast
  - By 2031: 4-5 tpd in South Coast, 8-10 tpd Statewide
- Consumer Products Survey provides technical foundation to identify effective new strategies
Consumer & Commercial Product Survey: Data Summary

- CARB’s most comprehensive consumer products survey
- 491 Survey Categories
- 1400 companies
- Approximately 1.05 million products

Data Summary for 2015

<table>
<thead>
<tr>
<th>Category Code</th>
<th>Category Name</th>
<th>Reporting Companies</th>
<th>RepeatSurveyed Products</th>
<th>Sales (lbs)</th>
<th>Sales Weighted Average VOC Content</th>
<th>Speciation</th>
<th>VOC (lbs)</th>
<th>ROS (lbs)</th>
<th>TDP (lbs)</th>
<th>Emission Inventory Potential (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>39001</td>
<td>Wax and Lighteners*</td>
<td>45</td>
<td>922</td>
<td>0.06</td>
<td>0.25%</td>
<td></td>
<td>0.00</td>
<td>0.06</td>
<td>0.02</td>
<td>0.15</td>
</tr>
<tr>
<td>39002</td>
<td>Conditioner without styling claims</td>
<td>337</td>
<td>8775</td>
<td>134.45</td>
<td>0.07%</td>
<td></td>
<td>3.13</td>
<td>2.45</td>
<td>5.51</td>
<td>5.19</td>
</tr>
<tr>
<td>39003</td>
<td>Hair Permants</td>
<td>50</td>
<td>7910</td>
<td>25.11</td>
<td>4.15%</td>
<td></td>
<td>1.00</td>
<td>2.56</td>
<td>0.58</td>
<td>0.52</td>
</tr>
<tr>
<td>39004</td>
<td>Dye, semi-permanent</td>
<td>22</td>
<td>1457</td>
<td>1.35</td>
<td>3.27%</td>
<td></td>
<td>0.05</td>
<td>0.24</td>
<td>0.14</td>
<td>0.49</td>
</tr>
<tr>
<td>39005</td>
<td>Dye, temporary</td>
<td>29</td>
<td>394</td>
<td>1.29</td>
<td>9.79%</td>
<td></td>
<td>0.12</td>
<td>0.54</td>
<td>0.46</td>
<td>0.29</td>
</tr>
<tr>
<td>39006</td>
<td>Hair Finishing Spray</td>
<td>109</td>
<td>1085</td>
<td>19.50</td>
<td>53.29%</td>
<td></td>
<td>10.18</td>
<td>10.14</td>
<td>10.28</td>
<td>15.30</td>
</tr>
<tr>
<td>39007</td>
<td>Hair Mousses</td>
<td>45</td>
<td>493</td>
<td>7.81</td>
<td>3.39%</td>
<td></td>
<td>0.25</td>
<td>0.57</td>
<td>0.04</td>
<td>0.09</td>
</tr>
<tr>
<td>39008</td>
<td>Hair Shing</td>
<td>81</td>
<td>492</td>
<td>2.25</td>
<td>7.76%</td>
<td></td>
<td>0.10</td>
<td>0.12</td>
<td>0.57</td>
<td>0.06</td>
</tr>
<tr>
<td>39009</td>
<td>Hair Blow Products</td>
<td>29</td>
<td>21</td>
<td>0.34</td>
<td>46.71%</td>
<td></td>
<td>0.08</td>
<td>0.09</td>
<td>0.03</td>
<td>0.02</td>
</tr>
<tr>
<td>39010</td>
<td>Hair Styling Product (permanent and pump spray)</td>
<td>322</td>
<td>392</td>
<td>4.02</td>
<td>6.88%</td>
<td></td>
<td>0.29</td>
<td>0.53</td>
<td>0.02</td>
<td>0.10</td>
</tr>
<tr>
<td>39011</td>
<td>Hair Styling Product and other forms</td>
<td>162</td>
<td>8795</td>
<td>17.35</td>
<td>1.22%</td>
<td></td>
<td>0.23</td>
<td>0.74</td>
<td>0.36</td>
<td>0.25</td>
</tr>
<tr>
<td>39012</td>
<td>Hair toning/Hair moisturizer</td>
<td>75</td>
<td>134</td>
<td>2.29</td>
<td>17.65%</td>
<td></td>
<td>0.12</td>
<td>0.22</td>
<td>0.25</td>
<td>0.45</td>
</tr>
<tr>
<td>39013</td>
<td>No Rinse Shampoo or Toners/Conditioner</td>
<td>75</td>
<td>129</td>
<td>1.18</td>
<td>82.21%</td>
<td></td>
<td>0.96</td>
<td>0.94</td>
<td>0.94</td>
<td>0.98</td>
</tr>
<tr>
<td>39014</td>
<td>Reinstant Wave Treament*</td>
<td>24</td>
<td>335</td>
<td>1.38</td>
<td>0.06%</td>
<td></td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>39015</td>
<td>Shampoo</td>
<td>388</td>
<td>8011</td>
<td>157.97</td>
<td>0.66%</td>
<td></td>
<td>0.97</td>
<td>1.34</td>
<td>1.30</td>
<td>0.55</td>
</tr>
<tr>
<td>39016</td>
<td>Temporary Hair Color Remover</td>
<td>12</td>
<td>371</td>
<td>0.37</td>
<td>50.0%</td>
<td></td>
<td>0.13</td>
<td>0.19</td>
<td>0.32</td>
<td>0.27</td>
</tr>
<tr>
<td>39017</td>
<td>Thermal Protector</td>
<td>67</td>
<td>245</td>
<td>1.18</td>
<td>9.07%</td>
<td></td>
<td>0.13</td>
<td>0.12</td>
<td>0.29</td>
<td>0.29</td>
</tr>
<tr>
<td>39019</td>
<td>Other Hair Care Products</td>
<td>149</td>
<td>2060</td>
<td>12.39</td>
<td>0.01%</td>
<td></td>
<td>0.06</td>
<td>0.05</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>All Hair Care Products</td>
<td></td>
<td>378</td>
<td>36,820</td>
<td>631.76</td>
<td>3.86%</td>
<td></td>
<td>16.11</td>
<td>20.04</td>
<td>17.75</td>
<td>20.85</td>
</tr>
</tbody>
</table>
Speciation Summary Reports

![Graph of 2015 Survey Year Top 10 TOG Ingredients]

Survey Emissions Comparison

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC (tpd)</td>
<td>155.2</td>
<td>152.6</td>
<td>152.7</td>
</tr>
<tr>
<td>LVP-VOC (tpd)</td>
<td>43.7</td>
<td>49.7</td>
<td>50.6</td>
</tr>
<tr>
<td>ROG (tpd)</td>
<td>198.9</td>
<td>202.3</td>
<td>203.4</td>
</tr>
<tr>
<td>Exempt (tpd)</td>
<td>47.0</td>
<td>46.9</td>
<td>50.8</td>
</tr>
<tr>
<td>TOG (tpd)</td>
<td>245.9</td>
<td>249.2</td>
<td>254.2</td>
</tr>
<tr>
<td>Ozone Forming Potential (tpd)</td>
<td>467.74</td>
<td>465.15</td>
<td>463.24</td>
</tr>
</tbody>
</table>
VOC Emissions Contributions: Of the Six Major Sectors Surveyed

3-Year Survey Average VOC Emissions

- Adhesives, Sealants, and Related Products: 4%
- Personal Care Products: 43%
- Pesticide Products: 3%
- Solvents and Thinning-Related Products: 5%
- Vehicle and Marine Vessel Aftermarket Products: 6%
- Household and Institutional Products: 37%

Comparison of Survey Data to SIP Inventory

Survey Comparison to Adjusted SIP Inventory

- **TOTAL**
  - 2015, ROG (tpd) 2015 Survey: 150
  - 2015, ROG (tpd) 2016 SIP V1.05: 120
  - Total ROG Change: 25%
- **PERSONAL CARE PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 100
  - 2015, ROG (tpd) 2016 SIP V1.05: 90
- **HOUSEHOLD AND INSTITUTIONAL PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 50
  - 2015, ROG (tpd) 2016 SIP V1.05: 40
- **VEHICLE AND MARINE VESSEL AFTERMARKET PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 20
  - 2015, ROG (tpd) 2016 SIP V1.05: 10
- **SOLVENTS AND THINNING-RELATED PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 10
  - 2015, ROG (tpd) 2016 SIP V1.05: 5
- **PESTICIDE PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 5
  - 2015, ROG (tpd) 2016 SIP V1.05: 3
- **ADHESIVES, SEALANTS AND RELATED PRODUCTS**
  - 2015, ROG (tpd) 2015 Survey: 10
  - 2015, ROG (tpd) 2016 SIP V1.05: 8
Consumer Products Survey Emissions and SIP Trends

Rulemaking Schedule
Proposed Rulemaking Process and Timeline

- **April 2019**: Kickoff Public Workshop
- **Spring-Summer 2019**: Topic-specific Workgroups
  - Regulatory Strategies
  - Regulatory Definition/Language Updates
- **Fall 2019**: Public workshop to identify and quantify emissions benefits of regulatory options
- **Late 2019/Early 2020**: Additional public workshop(s) as needed
- **Ongoing**: Meet with interested stakeholders
- **Late 2020**: Proposed regulatory amendments for Board consideration

Proposed Public Workgroup Plan

- Listen to ideas on how best to achieve reductions and improve program effectiveness
- One- to two-hour, topic-specific teleconferences open to all interested stakeholders
- Focused effort for CARB and interested stakeholders
Regulatory Strategies Workgroup
Prioritization of Product Categories

- Based on survey data
- Screening process to narrow our focus to identify survey categories that might yield reductions significant enough to proceed into rulemaking
  - Begin with highest VOC/OFP categories (> 0.5 tpd VOC)
  - Currently Unregulated Categories
  - Average product VOC content
  - Category not subject to recent rulemaking processes
  - Potential for toxic disbenefits
  - Others

Category Screening Process and Discussion
Example Category Considerations

- **Hair Finishing Spray** - (10.4 tpd VOC, 15.2 tpd OFP)
  - Complying Market Share and Feasibility
- **No Rinse Shampoo** - (0.9 tpd VOC, 1.1 tpd OFP)
  - Complying Market Share and Feasibility
- **Sunscreen (hair or body) (aerosol)** - (3.5 tpd VOC, 5.5 tpd OFP)
  - Health Benefit and Other Regulatory Regimes
- **Laundry Detergent** - (4.6 tpd VOC, 32.5 tpd OFP)
  - Average product VOC content and Fragrance
- **Floor Wax Stripper** – (1.3 tpd VOC, 7.9 tpd OFP)
  - High OFP Ingredients

### Hair Finishing Spray (30606)

<table>
<thead>
<tr>
<th>Reporting Companies</th>
<th>Reported Products</th>
<th>Sales (tpd)</th>
<th>Weighted Average VOC Content</th>
<th>Speciation</th>
<th>VOC (tpd)</th>
<th>ROG (tpd)</th>
<th>TOG (tpd)</th>
<th>PWMIR (gO₃/g)</th>
<th>Ozone Forming Potential (tpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
<td>1105</td>
<td>19.50</td>
<td>12.24%</td>
<td>LVP-VOC</td>
<td>10.38</td>
<td>10.39</td>
<td>13.26</td>
<td>0.78</td>
<td>11.20</td>
</tr>
</tbody>
</table>

### Product Data (Fate and Transport Adjusted)

- **Product VOC Content**

![Product VOC Content Graph](image)
30606 - Hair Finishing Spray
Category Summary

- Regulated at 55% VOC since June 1, 1999
- Most emissions occur from products in 50-55% VOC content range
- TOG consists primarily of ethanol and propellant
- 1,165 reported products, 96 unique formulations
- 20% market share at 50% VOC

No Rinse Shampoo (Dry Shampoo and Conditioner) (30613)
30613 - No Rinse Shampoo
(Dry Shampoo and Conditioner)
Category Summary

- No VOC limit
- Category definition added in January 2015
- 0 to 99% VOC content in category (Average ~80%)
- TOG consists primarily of isobutane and ethanol
- 325 reported products, 26 unique formulations
- 27% market share at 50% VOC
- 10% market share at 5% VOC
30411 - Sunscreen (hair or body) (aerosol)
Category Summary

- No VOC limit – Not regulated as a consumer product by CARB
- 0 to 90% VOC in category
- TOG consists primarily of ethanol and propellant
- 405 reported products, 59 unique formulations
- 26% market share at 50% VOC
- 40% market share at 65% VOC
- FDA regulated (Over the Counter Drug)
20903 – Laundry Detergent
Category Summary

- No VOC limit – Not regulated as a consumer product by CARB
- Average 1.4% VOC in category
- TOG consists primarily of ethanol and fragrance
- 1,757 reported products, 228 unique formulations
- 50% market share at 1% VOC
21405 – Floor Wax Stripper
Category Summary

- Regulated since January 1, 2002
  - 94509(j) VOC limit applies to dilutions for specific use instructions
  - No “as sold” VOC limit
- TOG consists primarily of ethylene glycol monomethyl ether, 2-butoxy ethanol, monoethanolamine, benzyl alcohol
- 266 reported products, 20 unique formulations
- Category VOC emissions: 1.3 tpd
- Category OFP: 7.9 tpd

Definition/Reporting Updates Workgroup

- Identify portions of the regulation that may need updates or clarification
  - Definitions
  - Reporting Requirements
- Prioritize issues with potential emissions or compliance consequences
**U.S. EPA Prohibition on Methylene Chloride (MeCl) in Paint Stripper**

- MeCl exposure can cause death due to nervous system exposure
  - Less harmful substitutes available
- U.S. EPA announced ban on March 15, 2019
  - Does not apply to workplace uses
  - Action eliminates MeCl, an Exempt VOC, as a compliance option to meet paint stripper VOC content limits
- DTSC Safer Consumer Product Program also evaluating MeCl use in paint stripper
- CARB to work with DTSC and interested stakeholders to evaluate and address compliance challenges

**Next Steps**

- Sign-up for public workgroups
  - To sign up to be notified of workgroup meetings, email lucy.negrete@arb.ca.gov or sign up here (sheet/clipboard)
- Focused workgroups from May through Summer 2019
  - Materials to be posted prior to each meeting
- Next public workshop in Fall 2019 with findings and initial options/proposals to meet emission reduction commitments
Program Contacts

- Ravi Ramalingam, Branch Manager
  - Email: ravi.ramalingam@arb.ca.gov
  - Phone: (916) 322-2085
- Joe Calavita, Section Manager
  - Email: joe.calavita@arb.ca.gov
  - Phone: (916) 445-4586
- Josh Berghouse, Air Pollution Specialist
  - Email: josh.berghouse@arb.ca.gov
  - Phone: (916) 324-8174
- Listserv signup
  - https://public.govdelivery.com/accounts/CARB/subscriber/new
  - Enter your email and check “Consumer Products Program”

Discussion & Questions