Calculating Weighted Average %VOC and Density

The MAERS A-101 form requires that you enter a weighted VOC % and density if you use several different coatings covered under the same source classification code (SCC). Use this worksheet to determine the weighted average VOC % and density of two or more coatings used at an emission unit covered under the same SCC on the A-101 form.

Complete the following fields for all components of the coating mixture.

<table>
<thead>
<tr>
<th>Name of Coating</th>
<th>Coating Throughput (gal/yr)</th>
<th>VOC (% by wt)</th>
<th>Density (lbs/gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating 4:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating 5:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Throughput (lbs/gal):

Weighted Average VOC % by wt =

\[
\text{Weighted Average VOC % by wt} = \frac{\text{Coating throughput} \times \%\text{VOC}}{\text{Total throughput}} + \frac{\text{Coating throughput} \times \%\text{VOC}}{\text{Total throughput}} + \frac{\text{Coating throughput} \times \%\text{VOC}}{\text{Total throughput}} + \cdots
\]

Weighted Average Density =

\[
\text{Weighted Average Density} = \frac{\text{Coating throughput} \times \text{Density}}{\text{Total throughput}} + \frac{\text{Coating throughput} \times \text{Density}}{\text{Total throughput}} + \frac{\text{Coating throughput} \times \text{Density}}{\text{Total throughput}} + \cdots
\]
**EXAMPLE**

**Calculating Weighted Average %VOC**

The MAERS A-101 form requires that you enter a weighted VOC % and density if you use several different coatings covered under the same source classification code (SCC). Use this worksheet to determine the weighted average VOC % and density of two or more coatings used at an emission unit covered under the same SCC on the A-101 form.

Complete the following fields for all components of the coating mixture.

<table>
<thead>
<tr>
<th>Name of Coating</th>
<th>Coating Throughput (gal/yr)</th>
<th>VOC (% by wt)</th>
<th>Density (lbs/gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating 1:</td>
<td>Gray Z-235-Z</td>
<td>500</td>
<td>60</td>
</tr>
<tr>
<td>Coating 2:</td>
<td>Green B-1234-AB</td>
<td>230</td>
<td>53</td>
</tr>
<tr>
<td>Coating 3:</td>
<td>Red A-1256-KP</td>
<td>90</td>
<td>99</td>
</tr>
<tr>
<td>Coating 4:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating 5:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Throughput (lbs/gal):</td>
<td></td>
<td>820</td>
<td></td>
</tr>
</tbody>
</table>

Weighted Average VOC % by wt =

\[
\frac{\text{Coating throughput}}{\text{Total throughput}} \times \%\text{VOC} + \frac{\text{Coating throughput}}{\text{Total throughput}} \times \%\text{VOC} + \frac{\text{Coating throughput}}{\text{Total throughput}} \times \%\text{VOC} \ldots
\]

\[
\left[ \left( \frac{500}{820} \right) \times 60 \right] + \left[ \left( \frac{230}{820} \right) \times 53 \right] + \left[ \left( \frac{90}{820} \right) \times 99 \right]
\]

\[
= 36.59 + 14.87 + 10.87 = 62.33
\]

62.33% VOC is the weighted average. Enter "62.33" in the VOC content field on the A-101 form.

Weighted Average Density =

\[
\frac{\text{Coating throughput}}{\text{Total throughput}} \times \text{Density} + \frac{\text{Coating throughput}}{\text{Total throughput}} \times \text{Density} + \frac{\text{Coating throughput}}{\text{Total throughput}} \times \text{Density} \ldots
\]

\[
\left[ \left( \frac{500}{820} \right) \times 8.1 \right] + \left[ \left( \frac{230}{820} \right) \times 7.8 \right] + \left[ \left( \frac{90}{820} \right) \times 7.5 \right]
\]

\[
= 4.93 + 2.19 + 0.82 = 7.94
\]

7.94 lbs/gal is the weighted average density. Enter "7.94" in the density field on the A-101 form.