

**Proposed MLD Method 310 (M310) Changes**

**SECTION 1 - APPLICABILITY**

**Existing Section 1.1**

- Remove the phrase “the percent by weight of” in Section 1.1 because, with the inclusion of such categories as dryer sheets (and all of those to come; i.e. potpourri and scented candle), limits are based on “grams VOC per use”.
- Remove and add language in Section 1.1, for clarity and consistency. Changes clearly state what M310 determines, in an orderly format that can be referenced back to the Consumer Products Regulations (CP Regulation), with the addition of some specific terms and references, including:
  - Correct language in section 1.1 (1) to provide the exact citations for the determination of VOC, for Articles 1 and 2.
  - Correct language in Section 1.1 (2) to provide the exact citations for the determination of “LVP-VOC” is defined in CP Reg, for Article 2.
  - New Section 1.1 (3) explains applicability for volatile components of a product that do not meet the definition of a VOC or are exempted.
  - New Section 1.1 (4) explains applicability for toxic/prohibited components.
  - New Section 1.1 (5) explains applicability for both ROC and PWMIR.

**Existing Section 1.2 and 1.3**

- Language in existing Sections 1.2 and the last part of 1.3 can be removed as that language will be contained in new Section 1.1 (5), complete with references and description.
  - This language, currently split on two difference sections, is much better added under Section 1.1, as shown above.
- Language in existing Section 1.3 can be removed as that language will now be contained in Sections 1.1 (3) for exempt components and 1.1 (4) for toxic/prohibited components.
  - This language, currently all contained in one section, is much better added under two separate sections, under Section 1.1, as shown above.

**Existing Section 1.4**

- As a result of the changes already mentioned, Section 1.4 becomes Section 1.2.

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**Existing Section 1.5**

- As a result of the changes already mentioned, Section 1.5 becomes Section 1.3 and will be entitled “Definitions”.
- Existing definition for the Executive Officer becomes Section 1.3.1 and contains corrections from ARB to CARB and incorporates gender neutral language.
- Insert new sections 1.3.2 and 1.3.3 for definitions of **chemical “compound”** and **chemical “mixture”**.
  - Such terms like “component”, “content”, “compound”, “material” and “mixture” occur but should uniformly and consistently be used throughout M310. To harmonize the use of scientifically accepted descriptor terminology throughout M310, MLD recommends adding definitions for **chemical “compound”** and **chemical “mixture”** and refers to their content, as applicable.

**SECTION 2 – REFERENCE METHODS**

**Existing Section 2**

- Revise title of Section 2 from **REFERENCE METHODS** to **REFERENCES** to reflect purpose.
  - With the changes outlined directly following, this section is where **all** reference sources are for M310.
- Subdivide Section 2 into two parts: Section 2.1 - Reference Methods and Section 2.2 - Literature References.

**New Section 2.1**

- Changes reflect the alpha-numeric reordering of M310 reference methods.
  - Reference methods have been added during the various amendments to M310, this reorganization allows for an orderly way of finding each reference method.
  - Future additions will be inserted, in the same way.
- Add the following reference methods: NIOSH 1300, NIOSH 1401, NIOSH 1402 and NIOSH 1403.
  - NIOSH 1300 (**new 2.1.28**) is a new reference method, added for ketone analysis, including for ROC based analysis.
  - To date M310 has listed only NIOSH 1400, implying an all-inclusive series, when in fact these are four separate reference methods, which are revised independently (**new 2.1.30, 2.1.31 and 2.1.32**).

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- Update the following reference method citations: ASTM D5443 and ASTM D5580.
  - Per federal EPA recommendation, the citation information for each of these reference methods is being updated (see new 2.1.22 and 2.1.23).
- Remove the following reference methods: ASTM D3710 – 95(2004), US EPA Method 602, US EPA 8015B and US EPA 8020A.
  - With the completion of MLD’s method development for reactivity-based analysis of aerosol coatings, the above methods will not be utilized.

### New Sections 2.2

- Insert this new section to contain all peer reviewed and published scientific literature sources, initially including a citation for DIPPR.

## **SECTION 3 – TESTING TO DETERMINE VOC**

### Footnote 1

- Relocate Footnote 1 to the beginning of Section 3, following introduction in 3.1 (from 3.3).
  - Any reference to alternative testing for determining VOC should be included at the onset of Section 3 of M310.

### Sections 3.2

- Remove specified language.
  - Changes provide the description of propellant analysis, related to both Articles 1 and 2.

### Sections 3.3

- Revise **all** of Section 3.3 to describe M310’s process for non-aerosol or the non-propellant portion of an aerosol consumer products sample, as related to mass-based analysis.
  - Changes provide a clearer, more uniform description of the various analytical methodologies available for VOC content determination, related to both Article 1 and 2, as conducted via M310.
  - To date, there has been a variety of ways these entries have been worded – these changes will provide a uniform and consistent description of each.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

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### Section 3.3.4

- As noted in Section 2 comments, reference methods: NIOSH 1300, NIOSH 1401, NIOSH 1402 and NIOSH 1403 are being added.
  - NIOSH 1300 (new 2.1.28) is a new reference method, added for ketone analysis.
  - To date M310 has listed only NIOSH 1400, implying an all-inclusive series, when in fact these are four separate reference methods, which are revised independently (new 2.1.30, 2.1.31 and 2.1.32).

### Section 3.3.7

- Include additional language to better represent this sections applicability.
  - The addition of “for products with low level VOC (<5%)” further clarifies applicability.
- As noted in Section 2 comments, reference methods: NIOSH 1300, NIOSH 1401, NIOSH 1402 and NIOSH 1403 are being added.
  - NIOSH 1300 (new 2.1.28) is a new reference method, added for ketone analysis.
  - To date M310 has listed only NIOSH 1400, implying an all-inclusive series, when in fact these are four separate reference methods, which are revised independently (new 2.1.30, 2.1.31 and 2.1.32).

### Section 3.4.1

- MLD proposes revision of language, for consistency.
  - Section 4.0 contains equations for calculations, not formulas.

### Section 3.5

- Revise language this section, to provide much needed clarity and to reflect citation in the CP Reg.
  - This is the same language that will appear in the CP Reg changes.

### Section 3.5.1

- This section specifies LVP-VOC determination via formulation data.
  - Modifications include language previously left out of M310, but included in CP Reg. (“, which are incorporated by reference herein, ”)
  - Modifications indicated clearly state this process, adding subsections 3.5.1.1 and 3.5.1.2, which break out exactly what reference methods apply to which criterion of this exemption.

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**Section 3.5.1.1**

- This subsection lists the specific reference methods for vapor pressure determination, with the additional inclusion of ASTM D1782-08 – which was always listed in Section 2 of M310 but is now placed where it can be used.
- These methods include ASTM D2879-97 (isoteniscope), ASTM E1719-97 (ebulliometry), and ASTM E1782-08 (thermal gravimetric analysis).

**Section 3.5.1.2**

- This subsection lists the specific reference methods for boiling point determination.

**Section 3.5.2**

- This section specifies LVP-VOC determination via laboratory determination.
  - Modifications include removal of redundant language that repeats language in the LVP-VOC definition. With the language modification indicated under 3.5, this language is not necessary.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

**SECTION 4 – CALCULATION OF VOC CONTENT**

- Modify specified language and equations in Section 4, for clarity and consistency.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

**Section 4.1**

- Insert this new section, to provide specific language and equations for Article 1 (AP/DO) samples.

**Section 4.2**

- Previously existing language and equations in Section 4 become subsection 4.2.
  - Changes provide a clearer, more uniform presentation of the existing equations, including correct placement of parentheses, brackets, etc., in each equation.

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**Footnote 2**

- Strike Footnote 2 as it is not applicable, here.
  - The footnote referencing alternative testing options has no application to the equation section(s) of M310.

**Section 4.2.3**

- Revise language and equations related to consumer products with VOC embedded within a delivery substrate, like dryer sheets, where results are reported as VOC per use in grams.
  - Existing language only considers dryer sheet, when there are other situations/samples to consider.
  - Modifications also present the equations, for their specified application, as is shown in the rest of M310.

**Section 4.2.5**

- Modifications to Section 4.2.5, along with those in 3.3.7, more clearly state the application of “low VOC limits (<5%)”.
  - Changes provide a clearer, more uniform presentation of the existing equations, including correct placement of parentheses, brackets, etc., in each equation.

**SECTION 5 – TESTING TO DETERMINE ROC**

- Following the completion of MLD’s method development, changes proposed to Section 5 provide a clear and uniform description of ROC determination via M310.
  - Changes will provide a clearer, more uniform description of ROC determination related to Article 3, as conducted via M310.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

**Footnote 3**

- Footnote 3 becomes Footnote 2 (since it is being removed) and is to be relocated to the beginning of Section 5, following introduction in 5.1 (from 5.3).
  - Any reference to alternative testing for determining ROC should be included at the onset of Section 5 of M310.

**Sections 5.2**

- Remove specified language.
  - Changes provide the description of propellant analysis.

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**Sections 5.3**

- Revise **all** of Section 5.3 to describe M310's process for non-aerosol or the non-propellant portion of an aerosol consumer products sample, as related to reactivity-based analysis.
  - Changes provide a clearer, more uniform description of the various analytical methodologies available for ROC content determination, related to reactivity-based analyses, as conducted via M310.
  - To date, there has been a variety of ways these entries have been worded – these changes will provide a uniform and consistent description of each.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

**Section 5.3.4 and 5.3.5**

- As noted in Section 2 comments, reference methods: NIOSH 1300, NIOSH 1401, NIOSH 1402 and NIOSH 1403 are being added.
  - NIOSH 1300 (**new 2.1.28**) is a new reference method, added for ketone analysis.
  - To date M310 has listed only NIOSH 1400, implying an all-inclusive series, when in fact these are four separate reference methods, which are revised independently (**new 2.1.30, 2.1.31 and 2.1.32**).

**Sections 5.3.6, 5.3.7 and 5.3.8**

- Remove these subsections, as the data generated by these processes is not used in the PWMIR calculation.
  - These reference methods remain in Section 2, of M310.
  - These reference methods will also be included in Article 3 directly after §94526(a) (1) – the Test Method section (**page 141**), of the CP Reg.

**SECTION 6 – [NEW SECTION]**

- Insert entire new Section 6, titled **CALCULATION OF PWMIR USING ROC CONTENT**.
  - This new section specifies the equation where the ROC content of the product is used to calculate the PWMIR, for products subject to reactivity-based limits.
  - The addition of definitions for chemical “compound”, and chemical “mixture” to M310 will augment clarifications found in this section.

# DRAFT – 6/25/2020

## Proposed MLD Method 310 (M310) Changes

### **SECTION 7 - METHOD PRECISION AND ACCURACY** (formerly Section 6)

- Other than the section number advancing one, there is no changes to this Section.

### **SECTION 8 – ALTERNATE TEST METHODS** (formerly Section 7)

- Revise title from “**ALTERNATE TEST METHODS**” to “**ALTERNATIVE TEST METHODS**” to better reflect purpose and for consistency.
  - Wording in current title is incorrect.
  - Remove superfluous language.

### **METHOD 310 - APPENDIX A**

#### Section 3

- Revise title from “**APPARATUS AND MATERIALS**” to “**EQUIPMENT AND SUPPLIES**” to better reflect purpose and for consistency.
  - Changes will provide a clearer, more uniform description, as conducted via M310.

#### Footnotes 1 and 2

- These references are no longer necessary as the relevant information was incorporated into Figures 2 and 4, respectively.