March 5, 2021

Clerks’ Office

California Air Resources Board

1001 I Street

Sacramento, California 95814

<https://www.arb.ca.gov/lispub/comm/bclist.php>

Subject: Comments on Proposed Amendments to the California Consumer Products Regulation; Board Agenda Item # 21-2-1

Dear Board Members:

The National Aerosol Association (NAA) appreciates the opportunity to comment on the Initial Statement of Reasons (ISOR) for the Consumer Products Regulation released February 2, 2021.

The NAA is an industry group devoted to serving the public’s health, safety and hygiene needs through the aerosol product form.  The NAA represents marketers, manufacturers, fillers and suppliers to the aerosol market.

These comments from NAA will only be on the Innovative Product Exemption (IPE), further comments will be forth coming.

NAA is highly disappointed that CARB staff did not incorporate language from our December 10, 2020 or our January 19, 2020 comments into the proposed rule on an additional IPE provision. CARB proposed their language on their IPE on November 10, 2020. NAA proposal was exactly 30 days later and was not incorporated into the proposal. We fail to understand why CARB staff did not incorporate our suggestions prior to releasing the draft regulations for the Board’s consideration. While we appreciated staff’s collaborative approach over the last two years as it relates to the other elements in this rulemaking, we found their engagement on this portion to be the exact opposite. The following comments are on the staff’s Compressed Gas IPE and the additional IPE provided by the NAA.

**CARB Staff IPE proposal**

Section 94511 Innovative Products is being amended by the staff to add a provision to this section for products utilizing compressed gases. The NAA does not believe this amended provision meets the spirit or the letter of the law under the California Health and Safety Code Section 41712 (b) 2. That states “The regulations are commercially and technologically feasible and necessary.”

The NAA believes that this provision is not technologically or commercially feasible for the following reasons:

1. Under section 94511(c)(1) there is not a calculation provided to explain how to calculate 50 percent by volume. In section 94511(a) there is a detailed calculation on how to comply. This section does not provide clarity to the user.
2. Likewise, 94511(c)(2) does not provide a calculation to determine a lower Global Warming Potential (GWP). Again, clarity for the user is needed.
3. No explanation or calculation is provided for 94511(c)(3) to determine the amount of product dispensed. Need clarity.
4. Once again, no calculation is provided for 94511(c)(4) to determine the ozone formation of the IPE product compared to the representative HFC-152a product. A calculation is needed to provide clarity.
5. Section 94511(c)(1) Table 1, under Dry Shampoo, 55% VOC and 50% VOC, the representative samples are inconsistent with the VOC description of Dry Shampoo’s in the ISOR. Figure III-12: Dry Shampoo provides the VOC speciation which is not consistent with the Table 1 representative product sample. There is not nearly this amount of ethanol in the Dry Shampoo as shown in Table 1. None of CARB’s survey data has shown this amount of ethanol in a dry shampoo.
6. CARB has failed to provide any examples of how this is technologically feasible. During the November 10, 2020, workshop, the example of a product that meets this provision was not even close to be technologically feasible. The example given would have exceeded the can pressure and would not have been feasible. On page I-17 of the ISOR, CARB states that the staff over a 3-year period reviewed over one million products and participated with 1500 product manufacturers but could still not provide one single viable example that meets the provision. Even though on page III-88 of the ISOR staff states manufacturers have expressed an interest in this approach but no examples are available.
7. CARB staff states there is a disincentive for compressed gas due to weight. However, there are technical reasons compressed gases have not been used. These technical reasons are the direct drop in pressure that liquefied propellants do not have.
8. CARB did not propose this provision until November 10, 2020. Per the ISOR on page ES-3, this rule development started in June of 2018. That means 2 years and 6 months into the rule development CARB staff proposed this provision. Thus, only leaving less than 90 days for Industry to review and comment which Industry did. Stating all the short comings of this provision. However, CARB still proposed this provision.

**Summary**

NAA cannot support this provision because the lack of definition and calculations to accurately be able to develop a product to meet the criteria. Also, with the lack of calculations and detail, how can the Industry be assured that CARB can accurately ensure that VOC emissions are not exceeded. The discrepancy with the Representative Product for Dry Shampoo is disturbing. How was this information developed? The lack of any type of reasonable example is troublesome. If there are manufacturers supporting this provision, why are there no examples? Lastly, CARB staff had stated since May of 2019, that this provision was being considered. However, proposing this provision after 2½ years into a rule development does not appear to be transparent as staff has continuously stated this process is. For all of the above reasons this provision should be modified or removed.

**Additional Proposal**

During the rulemaking process and 30 days after CARB proposed their IPE provision, NAA proposed this additional IPE provision.

**Background**

CARB has proposed the use of the Innovative Product Exemption (IPE) for use with Hair Spray, Dry Shampoo or Personal Fragrance Product to utilize Compressed Air, Nitrogen or Carbon Dioxide propellant. CARB has stated the goal of this IPE provision is to provide an alternative way to propel these products to replace the propellant HFC-152 which will lower the Global Warming Potential (GWP) of products.

CARB has provided a chart with Representative HFC-152a formulations for products; these representative products are listed below. NAA used this information even though some sections should be modified.

**Table 94511(d)(1): Representative HFC-152a Product Formulations**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product Category and Applicable VOC Standard | Weight Percent by Ingredient | | | | |
| Ethanol | HFC-152a | Fragrance | Other VOC or LVP-VOC\* | Non-Volatiles and Exempt VOCs\*\* |
| Hair Finishing Spray: 50% VOC | 45 | 45 | 0.1 | 3.9 | 6 |
| Dry Shampoo: 55% VOC | 30 | 29 | 0.2 | 30.8 | 10 |
| Dry Shampoo:  50% VOC | 30 | 33 | 0.2 | 26.8 | 10 |
| Personal Fragrance Product: 70% VOC | 40 | 15 | 2 | 30 | 13 |
| Personal Fragrance Product: 50% VOC | 30 | 30 | 2 | 22 | 16 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \* Includes VOCs and LVP-VOCs.  Average MIR of 0.9. | | | | | |
| \*\* MIR of 0.00. |  |  |  |  |  |

**IPE GWP Reduction Proposal**

CARB is attempting to provide a pathway for Industry to lower the GWP of the three targeted categories by using an alternate propellant system, which in their proposal is compressed gas. In this proposal CARB has criteria to maintain the MIR value of the product to prevent any increase in Ozone Forming Potential (OFP). This limitation is vital to maintain the VOC emissions proposed by CARB in this rulemaking. The use of Reactivity is a perfect way to ensure that OFP is maintained per product. In addition, there is criteria for not reducing non-propellant mass.

This proposal is very narrow in concept and would be extremely difficult, based on chemistry and physics, to implement. In addition, this proposal may have unintended negative environmental consequences. Aerosol products using compressed gases often are unable to expel all of the actives out of the can which can leave undesired waste in the can and hinder the recycling process. CARB should be commended for not only seeking solutions that are outside the regular command and control, but also maintain OFP and are a potential offset for GWP. Using CARB’s goal of reducing GWP in propellants and maintaining OFP this proposal could be broadened to use more tools to reduce GWP while maintaining OFP of a product.

As an alternative, instead of considering only the propellant, it is more appropriate to use the solvent/propellant blend for a product. Especially for aerosols, the Solvent/Propellant blend is critical to the performance of the product. In compressed gas applications the solvent portion is critical to the spray performance. Also, several additional compounds, solvent and propellant, could be utilized to complete the goal of reducing GWP and maintaining OFP of a product.

**New IPE GWP Reduction Proposal**

Using the solvent/propellant blend for a product is the most critical portion of the Aerosol product.

For this proposal the solvent/propellant blend is the Ethanol/HFC-152a portion of the Representative sample. If we focus on the solvent/propellant blend, then we assume the remaining portion of the product is the active portion. The active portion will likely be maintained with whatever solvent/propellant blend is used. Thus, considering only the solvent/propellant mixture broadens the proposal and offers numerous other possibilities. For example, the Representative Product formulation solvent/propellant for a 50% Hair Finishing Spray per CARB’s proposal is the following:

50% Hair Spray

Ethanol 45%

HFC-152a 45%

If one assumes the other 10% of the formula is the active portion, this 10% will remain the same. The above solvent propellant/blend percent is 90%. This is simply the 45% Ethanol plus the 45% HFC-152a. The solvent/propellant blend MIR is the following:

Ethanol 45% x 1.53 MIR Value = 0.70

HFC-152a 45% x 0.02 MIR Value = 0.01

0.71

Thus, the solvent/propellant blend is 90% of the product with an MIR value of 0.71. CARB has stated at least a 50% reduction in HFC-152a is needed to qualify for the IPE.

This proposal represents other unique ways to comply with the IPE using liquefied propellants and other compounds.

**Hairspray Example**

Here are other options to maintain the reduced GWP and maintain the OFP of a product.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 1 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 40% | 0.61 |  |
| Isopropanol | 0.61 X | 5% | 0.03 |  |
| HFO-1234ze | 0.10 X | 25% | 0.03 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 20% | 0 |  |
|  |  | 90% | 0.68 | Below 0.71 MIR of Solvent/Propellant |

Note: Solvent/propellant blend maintained

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 2 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 36% | 0.55 |  |
| HFO-1233zd | 0.04 X | 9% | 0 |  |
| A-46 | 0.60 X | 25% | 0.15 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 20% | 0 |  |
|  |  | 90% | 0.70 | At 0.71 MIR of Solvent/Propellant |

Note: Solvent/propellant blend maintained

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 3 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 33% | 0.50 |  |
| HFO-1233zd | 0.04 X | 15% | 0.01 |  |
| A-46 | 0.60 X | 30% | 0.18 | 100% reduction in GWP Propellant |
| HFO-1234ze | 0.10 X | 15% | 0.02 |  |
|  |  | 90% | 0.71 | At 0.71 MIR of Solvent/Propellant |

Note: Solvent/propellant blend maintained

* All GWP propellant removed

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 4 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 30% | 0.46 |  |
| Isopropanol | 0.61 X | 15% | 0.09 |  |
| A-46 | 0.60 X | 25% | 0.15 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 20% | 0 |  |
|  |  | 90% | 0.70 | Below 0.71 MIR of Solvent/Propellant |

Note: Solvent/propellant blend maintained

**Dry Shampoo**

The Solvent/Propellant blend MIR for The Representative Dry Shampoo product is the following:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MIR Value | % | MIR x % |  |
| Ethanol | 1.53 X | 30 | 0.46 |  |
| HFC-152a | 0.02 X | 29 | 0.01 |  |
|  |  | 59% | 0.47 | 0.47 MIR is the Solvent/Propellant blend |

Note: Solvent/Propellant blend is 59%

**For 50% Dry Shampoo Representative Product**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MIR Value | % | MIR x % |  |
| Ethanol | 1.53 X | 30 | 0.46 |  |
| HFC-152a | 0.02 X | 33 | 0.01 |  |
|  |  | 63% | 0.47 | 0.47 MIR is the Solvent/Propellant blend |

Note: Solvent/Propellant blend is 63%

**Dry Shampoo Examples**

Given that the MIR for the Solvent/Propellant blend is the same these examples work for both 55% and 50% limits

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 1 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 29% | 0.44 |  |
| HFO-1233zd | 0.04 X | 1% | 0 |  |
| HFO-1234ze | 0.10 X | 15% | 0.02 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 14% | 0 |  |
|  |  | 59% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 59%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 2 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 25% | 0.43 |  |
| Isopropanol | 0.61 X | 2% | 0.01 |  |
| HFO-1234ze | 0.10 X | 15% | 0.02 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 14% | 0 |  |
|  |  | 59% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 59%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 3 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 23% | 0.35 |  |
| Isopropanol | 0.61 X | 7% | 0.02 |  |
| A-46 | 0.60 X | 15% | 0.09 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 14% | 0 |  |
|  |  | 59% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 59%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 4 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 9% | 0.13 |  |
| A-46 | 0.60 X | 50% | 0.30 | 100% reduction in GWP |
|  |  | 59% | 0.43 | 0.43 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 59%

**Personal Fragrance**

The Solvent/Propellant blend MIR for the Representative Personal Fragrance Product is the following:

**For 70% VOC limit**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MIR Value | % | MIR x % |  |
| Ethanol | 1.53 X | 40 | 0.61 |  |
| HFC-152a | 0.02 X | 15 | 0.00 |  |
|  |  | 55% | 0.61 | 0.61 MIR is the Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

**For 50% VOC limit**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MIR Value | % | MIR x % |  |
| Ethanol | 1.53 X | 30 | 0.46 |  |
| HFC-152a | 0.02 X | 30 | 0.01 |  |
|  |  | 60% | 0.47 | 0.47 MIR is the Solvent/Propellant blend |

Note: Solvent/Propellant blend is 60%

**Personal Fragrance Examples**

For 70% VOC limit MIR content 0.61 Solvent/Propellant blend 55%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 1 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 38% | 0.58 |  |
| HFO-1233zd | 0.04 X | 1% | 0 |  |
| HFO-1234ze | 0.10 X | 8% | 0.01 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 7% | 0 |  |
|  |  | 55% | 0.61 | 0.61 MIR is at Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 2 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 37% | 0.57 |  |
| Isopropanol | 0.61 X | 3% | 0.02 |  |
| HFO-1234ze | 0.10 X | 8% | 0.01 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 7% | 0 |  |
|  |  | 55% | 0.60 | 0.60 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 3 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 36% | 0.55 |  |
| HFO-1233zd | 0.04 X | 4% | 0.00 |  |
| A-46 | 0.60 X | 8% | 0.05 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 7% | 0 |  |
|  |  | 55% | 0.60 | 0.60 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 4 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 34% | 0.55 |  |
| Isopropanol | 0.61 X | 6% | 0.01 |  |
| A-46 | 0.60 X | 8% | 0.05 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 7% | 0 |  |
|  |  | 55% | 0.61 | 0.61 at MIR Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

**For 50% VOC Limit MIR content 0.47 Solvent/Propellant 60%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 1 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 29% | 0.44 |  |
| HFO-1233zd | 0.04 X | 1% | 0.00 |  |
| HFO-1234ze | 0.10 X | 15% | 0.02 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 15% | 0 |  |
|  |  | 60% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 60%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 2 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 28% | 0.43 |  |
| Isopropanol | 0.61 X | 2% | 0.01 |  |
| HFO-1234ze | 0.10 X | 15% | 0.02 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 15% | 0 |  |
|  |  | 55% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 55%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 3 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 23% | 0.35 |  |
| HFO-1233zd | 0.04 X | 7% | 0.00 |  |
| A-46 | 0.60 X | 15% | 0.10 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 15% | 0 |  |
|  |  | 60% | 0.45 | 0.45 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 60%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Example 4 | MIR Value | % | MIR x % | Note |
| Ethanol | 1.53 X | 20% | 0.31 |  |
| Isopropanol | 0.61 X | 10% | 0.06 |  |
| A-46 | 0.60 X | 15% | 0.09 | 50% reduction in GWP Propellant |
| HFC-152a | 0.02 X | 15% | 0 |  |
|  |  | 60% | 0.46 | 0.46 MIR is below Solvent/Propellant blend |

Note: Solvent/Propellant blend is 60%

**Summary**

Using the Solvent/Propellant blend MIR for the new GWP Reduction IPE affords the product manufacturers a larger variation of options to reformulate their products to these stringent limits. Adding in the Reactivity concept allows for the use of certain compounds that have lower Reactive values than currently utilized compounds. These examples are only a paper formulations and not necessarily desirable formulas for products. There may be certain characteristics of the compounds described above that will limit the individual use of these compounds. Characteristics such as odor, cost, compatibility and flammability may restrict some use of these compounds. In addition, there are likely other compounds that could be used that have not been considered here.

However, these examples are an attempt to show the kind of flexibility and potential for manufacturers to innovate their product lines. This provision will allow a format for product manufacturers to explore expanded options to provide more efficient and effective products while achieving compliance to help CARB reach and maintain Air Quality goals.

Once approved, the IPE product would have its own unique VOC limit which CARB enforcement and laboratory could check for compliance, the same as any other product.

Below is the Regulatory Language.

# **Innovative Products.**

(a) The Executive Officer shall exempt a consumer product from the VOC limits specified in Section 94509(a) if a manufacturer demonstrates by clear and convincing evidence that, due to some characteristic of the product formulation, design, delivery systems or other factors, the use of the product will result in less VOC emissions as compared to:

(1) the VOC emissions from a representative consumer product which complies with the VOC limits specified in Section 94509(a), or

(2) the calculated VOC emissions from a noncomplying representative product, if the product had been reformulated to comply with the VOC limits specified in section 94509(a). VOC emissions shall be calculated using the following equation:

ER = ENC x VOCSTD ÷ VOCNC

where:

ER = The VOC emissions from the noncomplying representative product, had it been reformulated.

ENC = The VOC emissions from the noncomplying representative product in its current formulation.

VOCSTD = the VOC limit specified in 94509(a).

VOCNC = the VOC content of the noncomplying product in its current formulation.

If a manufacturer demonstrates that this equation yields inaccurate results due to some characteristic of the product formulation or other factors, an alternative method which accurately calculates emissions may be used upon approval of the Executive Officer.

(b) For the purposes of subsections (a) and (f), “representative consumer product” means a consumer product which meets all of the following criteria:

(1) the representative product shall be subject to the same VOC limit in Section

94509(a) as the innovative product.

(2) the representative product shall be of the same product form as the innovative product, unless the innovative product uses a new form which does not exist in the product category at the time the application is made.

(3) the representative product shall have at least similar efficacy as other consumer products in the same product category based on tests generally accepted for that product category by the consumer products industry.

(c) The Executive Officer shall exempt an aerosol “Hair Finishing Spray,” “Dry Shampoo,” or “Personal Fragrance Product” product from the VOC limits specified in Section 94509(a) if the product manufacturer demonstrates by clear and convincing evidence that the proposed innovative product meets all four of the following criteria:

(1) At least 50 percent by volume of propellant ingredients are compressed gas, nitrogen, or carbon dioxide;

(2) the replacement of HFC-152a propellant with compressed air, nitrogen, or carbon dioxide propellant will result in the proposed innovative product having a lower global warming potential (GWP) compared to a representative HFC-152a product.

(A) The global warming potential of the proposed innovative product shall be determined by using the 100-Year GWP values from the Intergovernmental Panel on Climate Change’s (IPCC) Fourth Assessment Report IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)]. IPCC, Geneva, Switzerland, 104 pp.);

(B) For a substance for which no GWP value exists in the IPCC’s Fourth Assessment Report, but for which a GWP value does exist in IPCC’s Fifth Assessment Report (IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp), the GWP of the substance shall be determined by using the 100-Year Global Warming Potential values from the IPCC Fifth Assessment Report.

(C) For a substance for which no GWP value exists in IPCC’s Fourth Assessment Report or the IPCC Fifth Assessment Report, the GWP value of the substance shall be zero.

(3) the non-propellant mass of the proposed innovative product does not exceed the non-propellant mass of the representative HFC-152a product; and

(4) the ozone forming potential of the proposed innovative product does not exceed that of the representative HFC-152a product.

(A) Assignment of a substance’s Maximum Incremental Reactivity (MIR) values for the purposes of determining a product’s ozone forming potential shall be conducted pursuant to subsections 94509(r)(5)(A)-(D) and (F)-(I)

(B) For fragrance, the MIR value for terpinolene in section 94700 must be used to calculate the product ozone forming potential.

(d) For the purposes of subsections (c) and (f) of this section, “representative HFC-152a product” means a consumer product that meets either of the following criteria:

(1) has the product formulation identified in Table 94511(d)(1) for the

applicable product category; or

(2) whose propellant mass is at least 50 percent HFC-152a; whose fragrance content does not exceed that of the proposed innovative product; and which meets the criteria identified in subsection 94511(b)(1) through (3).

(3) where the percent of HFC-152a is reduced by 50% from the representative product.

**Table 94511(d)(1): Representative HFC-152a Product Formulations**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product Category and Applicable VOC Standard | Weight Percent by Ingredient | | | | |
| Ethanol | HFC-152a | Fragrance | Other VOC or LVP-VOC\* | Non-Volatiles and Exempt VOCs\*\* |
| Hair Finishing Spray: 50% VOC | 45 | 45 | 0.1 | 3.9 | 6 |
| Dry Shampoo: 55% VOC | 30 | 29 | 0.2 | 30.8 | 10 |
| Dry Shampoo:  50% VOC | 30 | 33 | 0.2 | 26.8 | 10 |
| Personal Fragrance Product: 70% VOC | 40 | 15 | 2 | 30 | 13 |
| Personal Fragrance Product: 50% VOC | 30 | 30 | 2 | 22 | 16 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \* Includes VOCs and LVP-VOCs. Average MIR of 0.9. | | | | | |
| \*\* MIR of 0.00. |  |  |  |  |  |

(e) The Executive Officer shall exempt an aerosol product that is a Hair Spray, Dry Shampoo or Personal Fragrance from the VOC limit specified in section 94509(a) if the product manufacturers demonstrate by clear and convincing evidence that the proposed innovative product meets all four of the following criteria:

(1) The propellant/solvent blend total percentage is the same as the Representative Sample in Table 94511 (c)1 or of a Representative product as described in Table 94511 (e) 1.

Propellant + Solvent Blend = Propellant/Solvent Blend

(2) the replacement of HFC-152a propellant will result in the proposed innovative product having at least a 50% reduction in weight of global warming potential (GWP) compounds compared to a representative HFC-152a product as described in Table 92511 (e) 1.

A – B = C

A – HFC-152a content in original formula

B – HFC-152a content in proposed IPE formula

C – HFC-152a content is less than 50% of original formula.

(A) The global warming potential of the proposed innovative product shall be determined by using the 100-Year GWP values from the Intergovernmental Panel on Climate Change’s (IPCC) Fourth Assessment Report IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)]. IPCC, Geneva, Switzerland, 104 pp.);

(B) For a substance for which no GWP value exists in the IPCC’s Fourth Assessment Report, but for which a GWP value does exist in IPCC’s Fifth Assessment Report (IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp), the GWP of the substance shall be determined by using the 100-Year Global Warming Potential values from the IPCC Fifth Assessment Report.

(C) For a substance for which no GWP value exists in IPCC’s Fourth Assessment Report or the IPCC Fifth Assessment Report, the GWP value of the substance shall be zero.

(3) The propellant/solvent blend percentage cannot exceed the MIR Value of the representative product as described in Table 94511 (e) 1.

A – B = C

A – MIR Value of Representative sample

B – MIR Value of Proposed IPE formula

C- Cannot be a value that is negative

A) Assignment of a substance’s Maximum Incremental Reactivity (MIR) values for the purposes of determining a product’s ozone forming potential shall be conducted pursuant to subsections 94509(r)(5)(A)-(D) and (F)-(I)

(B) For fragrance, the MIR value for terpinolene in section 94700 must be used to calculate the product ozone forming potential.

(4) The Executive Officer will designate a new VOC limit for the Innovative Product. This new VOC limit is enforceable by CARB.

**Table 94511(e)(1): Representative HFC-152a Product Formulations**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product Category and Applicable VOC Standard | Weight Percent by Ingredient | | | | |
| Solvent/Propellant Blend | | Fragrance | Other VOC or LVP-VOC\* | Non-Volatiles and Exempt VOCs\*\* |
| Ethanol | HFC-152a |
| Hair Finishing Spray: 50% VOC | 45 | 45 | 0.1 | 3.9 | 6 |
| Dry Shampoo: 55% VOC | 30 | 29 | 0.2 | 30.8 | 10 |
| Dry Shampoo:  50% VOC | 30 | 33 | 0.2 | 26.8 | 10 |
| Personal Fragrance Product: 70% VOC | 40 | 15 | 2 | 30 | 13 |

(~~c~~f) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under this ~~sub~~section ~~(a)~~. ~~The application shall include the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition, the applicant must provide any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption including the VOC content for the innovative product and test methods for determining the VOC content.~~  All information submitted by a manufacturer pursuant to this section shall be handled in accordance with the procedures specified in Title17, California Code of Regulations, Sections 91000-91022.

1. For products that meet the criteria identified in subsections 94511(a) and (b), the application shall include the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition, the applicant must provide any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption including the VOC content for the innovative product and test methods for determining the VOC content.
2. For products that meet the criteria identified in subsections 94511(c) and (d), the application shall include the supporting documentation that demonstrates the criteria identified in subsections (c)(1) through (4) are met, including the name, mass, weight percent, density, reactivity, and GWP for all ingredients present in an amount greater than or equal to 0.1 percent by weight of the product formulation, and all supporting calculations or analytical measurements. In addition, the applicant must provide any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption, including the VOC content and ozone forming potential of the innovative product.

(g) A consumer product which reduces VOC emissions relative to the representative consumer product due to VOC combustion (including, but not limited to, catalytic combustion) shall be ineligible for any exemption provided in this section.

(h) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete as provided in section 60030(a), Title 17, California Code of Regulations.

(i) Within 90 days after an application has been deemed complete, the Executive Officer shall determine whether, under what conditions, and to what extent, an exemption from the requirements of Section 94509(a) will be permitted. The applicant and the Executive Officer may mutually agree to a longer time period for reaching a decision, and additional supporting documentation may be submitted by the applicant before a decision has been reached. The Executive Officer shall notify the applicant of the decision in writing and specify such terms and conditions that are necessary to ensure that emissions from the product will meet the emissions reductions specified in subsection (a), and that such emissions reductions can be enforced.

(j) In granting an exemption for a product the Executive Officer shall establish conditions that are enforceable. These conditions shall include the VOC content of the innovative product, dispensing rates, application rates, and any other parameters determined by the Executive Officer to be necessary. The Executive Officer shall also specify the test methods for determining conformance to the conditions established. The test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures.

(k) For any product for which an exemption has been granted pursuant to this section, the manufacturer shall notify the Executive Officer in writing within 30 days of any change in the product formulation or recommended product usage directions, and shall also notify the Executive Officer within 30 days if the manufacturer learns of any information which would alter the emissions estimates submitted to the Executive Officer in support of the exemption application.

(l.) *Modification of Product Ingredients for an Existing Exemption:* Where one or more ingredients in a product for which an exemption has been granted based upon the eligibility criteria in subsection (c) has been modified, the product shall be considered a modified product and:

(1) the manufacturer must notify the Executive Officer of an ingredient modification within 30 days, but need not apply for a new exemption for the modified product if all of the following three conditions are met:

(A) The modified ingredient or ingredients meet the definition of fragrance as specified in section 94508(a)(54) and/or do not meet the definition of ‘Reactive Organic Compound’ as specified in section 94509(r)(1)(I);

(B) The total mass of the modified ingredient or ingredients that meet the criteria in subsection (A) represent no more than 0.5 percent of the total product weight for “Hair Finishing Spray” and “Dry Shampoo” and 2.5 percent of the total product weight for “Personal Fragrance Product”; and

(C) the modification does not increase the product’s ozone forming potential.

(2) If the modified product does not meet all of the conditions in subsections (A) through (C), the manufacturer must apply for a new exemption for the modified product pursuant to subsection (e)(2).

(m) If the VOC limits specified in Section 94509(a) are lowered for a product category through any subsequent rulemaking, all innovative product exemptions granted for products in the product category, except as provided in this subsection (~~h~~j), shall have no force and effect as of the effective date of the modified VOC standard. This subsection (~~h~~j) shall not apply to innovative product exemptions granted to the following:

(1) those innovative products which have VOC emissions less than the applicable lowered VOC limit and for which a written notification of the product's emissions status versus the lowered VOC limit has been submitted to and approved by the Executive Officer at least 60 days before the effective date of such limits; and

(2) an ‘Automatic Aerosol Air Freshener’ product subject to a 30% VOC standard pursuant to Section 94509(a).

(n) If the Executive Officer believes that a consumer product for which an exemption has been granted no longer meets the criteria for an innovative product specified in subsection (a), the Executive Officer may modify or revoke the exemption as necessary to assure that the product will meet these criteria. The Executive Officer shall not modify or revoke an exemption without first affording the applicant an opportunity for a public hearing held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040), to determine if the exemption should be modified or revoked.

**Conclusion**

The NAA supports CARB’s willingness to provide alternatives to command-and-control regulations and will continue to work with CARB on the Compressed Gas portion of this IPE. Currently, given the unique and restrictive characteristics of compressed gas this endeavor may hinder industry’s ability to innovate to help CARB achieve its goals now and in the future. The current language proposed is unclear and confusing. In addition, CARB staff has not provided one viable example of a product that could utilize the Compressed Gas IPE.

This proposal adds an additional IPE provision to CARB’s original IPE proposal. It still maintains the original goal which is to provide Industry a pathway to limit the use of GWP compound while maintaining the OFP of products. Actually, this proposal could reduce any increase in GWP compounds and could reduce the amount of GWP compounds currently being utilized.

Reactivity is sound science and utilizing it within an IPE allows CARB to leverage the creativity of Industry to help meet our mutual goals. This proposal balances the fine line between Ozone formation and reducing GWP compounds. NAA has proposed this new language for the IPE. However, the most important issue is for CARB to allow the use of Reactivity in the IPE Provision. NAA looks forward to continuing to work with CARB for some type of Reactivity provision in the IPE. Finally, the use of the IPE provision allows CARB to review in detail any product that proposes to use this provision.

CARB maintains the ability to grant or deny any manufacturer the use of this provision, thus ensuring that VOC reductions are maintained. NAA suggests that both IPEs be considered and be subject to a 15-day change.

The NAA looks forward to working with CARB to make this provision workable, and more importantly, useable for the Industry.

Thank you in advance for considering this proposal. Any questions please contact our consultant, Doug Raymond at [djraymond@me.com](mailto:djraymond@me.com) or 440-339-4539.

A picture containing text

Description automatically generatedOn Behalf of the NAA,

Joe Bowen

Cc: Ravi.Ramalingam@arb.ca.gov

joe.calavita@arb.ca.gov

josh.berghouse@arb.ca.gov

david.edwards@arb.ca.gov