

## **LVP Coalition White Paper**

### Low Vapor Pressure (LVP) Compounds

#### **The Issue**

LVP-VOCs are an essential component in consumer products. When the California Air Resources Board (CARB) began regulating consumer product regulations in 1990, these components were exempt from the VOC limits. Thus, the industry has an incentive to not only use these compounds but to build products using the maximum amount of LVPs possible. In addition, LVPs provide safe alternatives to other compounds that could be flammable, caustic or otherwise harmful to human safety.

In June of 2012, the South Coast Air Quality Management District (SCAQMD) released their draft Air Quality Management Plan (AQMP). This draft plan has several proposals to regulate coatings and other products. The most concerning is CTS-04 - Emission Reductions from the Removal of Consumer Products Lower Vapor Pressure Exemption. This proposal directs staff to remove the LVP exemption from Consumer Products in the SCAQMD. SCAQMD does not have regulatory authority to perform this action. CARB has sole authority for the regulation of consumer products in California. This means SCAQMD is seeking to have CARB make this change to the LVP status.

The LVP definition has been part of the Consumer Products regulation since the adoption of the Consumer Product regulation in 1990. Any change to this definition will have a significant effect on the formulation of consumer products. Most product category VOC limits were based on the use of LVP compounds to justify setting the limits for the category.

Changing any part of the LVP definition or use of LVPs will have the largest effect on our industry in decades. Collectively, the industry must work to maintain the LVP exemption for all product categories. It will be a devastating precedent if LVPs are removed from even one category.

#### Timeline

- SCAQMD is requesting comments on the AQMP by August 31.
- SCAQMD Board Hearing will consider the AQMP on November 2, 2012.
- CARB is having a workshop September 12 in Sacramento where LVP will be discussed.
- CARB will consider the SCAQMD AQMP in developing the State SIP in late 2012-early 2013.

#### Action Requested

Following is an explanation and examples of LVPs. Please review your product portfolio to determine if your products contain LVPs and contact the [lvpcalition@gmail.com](mailto:lvpcalition@gmail.com) to get involved.

## **What is an LVP?**

LVP-VOCs (low vapor pressure – volatile organic compounds) comprise a class of materials that have been integral to meeting both the product needs and evolving emissions regulations within the United States. LVPs are recognized, along with exempt compounds, as important building blocks in the development of common consumer, commercial and institutional product that are widely used across industries.

Recent recommendations by the South Coast Air Quality Management District (AQMD) in their proposed Air Quality Management Plan, propose to eliminate the exemption (Section 94510(d) of the California Consumer Products Rule) for LVP-VOCs in consumer products. The LVP Coalition offers that the elimination of this exemption is a considerable change, in that it would result in wide-ranging changes in product quality, cost, and the likely elimination of specific categories of consumer products.

## **Background**

LVP-VOCs are raw material components that are widely used to meet the current VOC limits in consumer products used today. In the VOC calculations of consumer products, they are given the value of zero and thus have no contribution to the reported VOC limit.

### **CARB Definition of LVP-VOC**

LVP –VOC is defined as a chemical “compound” or “mixture” that contains at least one carbon atom and meets one of the following:

- A. Has a vapor pressure less than 0.1 mm Hg at 20°C, as determined by ARB Method 310;  
Or
- B. Is a chemical “compound” with more than 12 carbon atoms, or is a chemical “mixture” comprised solely of “compounds” with more than 12 carbon atoms, and the vapor pressure and boiling point is unknown;  
Or
- C. Is a chemical “compound” with a boiling point greater than 216°C, as determined by ARB Method 310;  
Or
- D. Is the weight percent of a chemical “mixture” that boils above 216°C, as determined by ARB Method 310.

For the purposes of this definition, an LVP-VOC “compound” is a molecule of definite chemical formula and isomeric structure, and an LVP-VOC “mixture” means a substrate comprised of two or more chemical “compounds.”

### **LVP-VOCs in Consumer Products**

Consumer products are tangible, formulated products used in households, commercial settings and institutions for a wide variety of personal, maintenance, and enjoyment applications. Common examples from this broad range classification include cosmetics,

detergents, polishes, personal care products, hair sprays, engine degreasers, antiperspirants, and deodorants. Other consumer products include air fresheners, windshield washer fluids, coatings, household cleaners, disinfectants, floor cleansers, wood polishes, and home and garden products.

LVP-VOCs are prevalent in consumer products because they help manufacturers to provide products that perform better in addition to reducing VOC. For example:

- Hair care products - LVP-VOCs give a soft feel or shine to the hair, and they are a carrier for polymers
- Insecticide products – LVP-VOCs apply the active compounds that kill bugs
- Cleaning products – LVP-VOCs dissolve dirt and grime, and stabilize emulsions in water-based formulations, low odor, biodegradability, no damage to substrates
- Air care products – LVP-VOCs deliver fragrance and are nearly odorless
- Lubricants – LVP-VOCs are often the active component, high flash point
- Floor polishes – LVP-VOCs give good wetting properties
- Carpet & Upholstery products- LVP-VOCs do not damage fabrics

### **LVP-VOCs Alternatives**

In many cases, there are not chemical alternatives that will meet current VOC limits while providing the same performance characteristics, cost, and usage. Within the consumer products category, this will mean significant reformulation by manufacturers with the likely inability to provide the same product quality as currently exists today. General consumer impact will be measured in less functional products and higher prices. However, there is a strong likelihood that many categories within the broad Consumer Products Classification will be eliminated, as current VOC levels will not allow formulation of these products without the use of LVP compounds.

The following are some examples of LVPs. This list was published by CARB in 2007. There are many other compounds that meet the LVP definition. Please review your products to determine the LVPs in your products.