

# **OTC Draft White Paper**

## **Inclusion of “Paint Thinner and Multi-purpose Solvents” in the Consumer Products Model Rule**

### **Introduction**

The Ozone Transport Commission (OTC) is tasked with developing regional strategies to help reduce ozone levels across the Northeastern United States. The purpose of this paper is to discuss the impact of requirements on paint thinner and multi-purpose solvents on air quality and user safety, and how to effectively regulate the products. The purpose of the regulation would be to reduce emissions of volatile organic compounds (VOCs) from the use, storage, and disposal of paint thinner and multi-purpose solvent materials.

Paint Thinners and Multi-purpose Solvents are a significant source of VOC emissions. The inclusion of Paint Thinners and Multi-purpose Solvents in the Consumer Products rule would provide needed reductions of VOC emissions in the OTC region in order to meet Ozone National Ambient Air Quality Standards (NAAQS). The OTC recommendation would help promote consistency in regulations throughout the region.

### **Source Category Description**

The source category includes products that are commonly used in the thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. The categories of Paint Thinners and Multi-purpose Solvents should be added to the Consumer Products model rule in an effort to maximize VOC reductions in the OTC region in the shortest time frame possible, instead of undertaking an entirely new rulemaking for the category.

### **Regulatory History**

The South Coast Air Quality Management District (SCAQMD) adopted a rule in March 2009, reducing the VOC content of paint thinners and multi-purpose solvents to 300 grams per liter (g/L) effective January 1, 2010, and then to 25 g/L effective January 1, 2011. A regulation was put in place, but declared by a California court to be unlawful after a challenge to the Environmental Assessment. The SCAQMD, as a result of the litigation, worked with CARB and local fire officials to address flammability and flashpoint issues of the products and amended their regulation, by requiring additional labeling.

The California Air Resources Board (CARB) worked with SCAQMD to revise their rule, and, in September 2009, amended the CARB Consumer Products regulation to include these categories with a limit of 30 percent (%) VOC by weight as of December 31, 2010 and a future effective limit of 3% as of December 31, 2013. CARB provides a three year sell-through period, in which noncompliant solvents can be sold.

The CARB and SCAQMD rules both contain specific labeling requirements, and SCAQMD developed a public education and outreach program to alert the public to issues with products containing Acetone. Acetone has become the cheapest alternative solvent although it is

extremely flammable due to a very low flash point of 0 degrees F (-18 degrees C) and it may explode or cause flash fire even below room temperature. It auto-ignites at a temperature of 869 degrees F (465 degrees C). Acetone and many currently available lacquer thinner products are considered extremely flammable per federal law because they have “a flashpoint at or below 20 degrees F (-6.7 degrees C)”. The lower the flash point, the more likely the material will ignite.

The SCAQMD rule uses grams per liter for their VOC limit, which is inconsistent with the OTC Consumer product rule that uses weight percent for VOC limits. The CARB Rule uses weight percent for VOC limits, (although 3% VOC content by weight is essentially the same as 25 g/L for the products used as thinners and solvents).

### **Candidate Control Measures Summary**

The CARB regulation reduces the VOC content of paint thinners and multi-purpose solvents to 30% and then 3%. The recommendation to the OTC states would be to develop a model rule and adopt similar regulations. Note that the CARB and SCAQMD rules address flashpoint and flammability issues associated with the use of Acetone as a substitute low-VOC thinner and solvent by including the labeling requirement of “Extremely Flammable.”

The OTC states should consider regulatory structures that include provisions for addressing flammability and flash point. A quick discussion with one of the largest solvent manufacturers indicated that the timeline proposed in the CARB regulation was acceptable.

Industry is interested in the use of a reactivity based standard for multi-purpose solvents and thinners. California is currently discussing this method with industry and the United States Environmental Protection Agency (EPA) on a general basis, including, but not limited to paint thinners and multi-purpose solvents. Questions regarding enforceability, toxicity, fine particulate matter formation, uncertainty in measurement, and concern over modeling results have slowed progress. While discussions of reactivity-based standards are ongoing, and in context of the issues that have arisen, the OTC should not pursue this methodology at this time.

### **Expected Emission Reductions**

Reduction of the VOC content to 3% VOC could potentially provide a reduction of 38.2 tons per day for the OTC. This reduction is based on CARB estimates of multi-purpose solvent and paint thinner emissions in the state, excluding the South Coast Air Basin, after the effective date of their regulation. The estimate of 38.2 tons per day for the OTC assumes a similar reduction scaled according to 2006 population data for the OTC region.

### **Timing of Implementation**

CARB has already drafted a regulation that reduces VOC levels to 30% as of December 31, 2010 and includes a future effective limit of 3% as of December 31, 2013. The OTC is considering a schedule to implement the 3% limit by 1/1/2014.

## **Rule Penetration, and Rule Effectiveness**

The additional paint thinner and multi-purpose solvents provisions are intended to impact the products at their manufacture. Rule penetration (RP) would be potentially 100% because the rule affects all solvents within the category in the region. Because this rule affects solvents at the point of manufacture, a 100% Rule Effectiveness (RE) is assumed – only compliant solvents would be allowed to be sold in the region.

## **Rule Development Issues**

Paint Thinners and Multi-purpose Solvents are a significant source of VOC emissions. The current OTC Consumer Products model rule (2014 OTC Model Rule for Consumer Products) has adopted the categories from the 2006 CARB amendments.

The OTC Consumer Products Model Rule and the CARB Consumer Products regulation which was the model for the OTC rule contains an exemption for what are called low vapor pressure VOC compounds (LVP-VOC). LVP-VOC is defined as a compound with a vapor pressure of less than 0.1 mm Hg at 20 degrees C, or as a chemical compound with more than 12 carbon atoms or a chemical mixture comprised solely of compounds with more than 12 carbon atoms, or as a chemical compound with a boiling point of more than 216 degrees C. The VOC limits specified in the Consumer Products rule do not apply to any LVP-VOC. The CARB rule specifies a limit of no greater than 1% aromatic compound content by weight in paint thinners and multi-purpose solvents. The applicable range of the OTC Consumer Product VOC limit of 3%, LVP-VOC exemption, and 1% weight limit of aromatic compounds are still under evaluation by the OTC group.

To provide consistency for the industry throughout the OTC states for Paint Thinners and Multi-purpose Solvents, each state should adopt provisions consistent with the model rule.

## **Recommendation**

The CARB rule should be used to amend the 2014 OTC Model Rule for Consumer Products. It addresses flammability and safety issues, the LVP-VOC exemption, and uses weight percentage for VOC concentration limits, as in the current OTC Model Rule.