



The Alternative

IRTA Newsletter

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CARB Workshop Addresses LVP Materials in Paint Thinner Regulation

On September 12, the California Air Resources Board (CARB) held a workshop to discuss proposed amendments to the Aerosol Coating and Consumer Product Regulations. Most of the discussion during the meeting centered around the potential amendments for the category of Multi-Purpose Solvent and Paint Thinner Products.

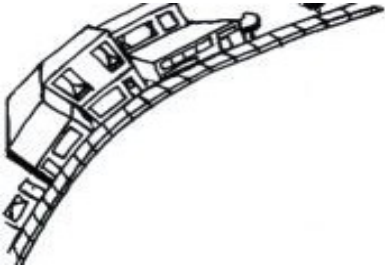
In the last issue of The Alternative and in this issue, there are articles that discuss the Low Vapor Pressure (LVP) materials exemption in CARB's Consumer Product Regulations. The South Coast Air Quality Management District (SCAQMD) adopted Rule 1143 "Consumer Paint Thinners & Multi-Purpose Solvents" in 2009; the regulation would apply to consumer products sold in the South Coast Basin. In 2010, CARB adopted a similar regulation on the same types of products that would apply to consumer products sold statewide.

The VOC reductions the SCAQMD rule required are not being achieved because suppliers are using a loophole to continue selling products that are actually VOCs (see article in this issue describing the SCAQMD paper). They are doing this by labeling the product as a General Purpose Degreaser which can utilize the LVP exemption in the CARB regulation. At the workshop, CARB proposed possible approaches for fixing the problem. These involved modifying the definition in the CARB regulation, specifying a different test method and/or requiring that products meet the lower limit in the SCAQMD regulation.

The problems with the LVP exemption in the CARB regulations are broader than just the paint thinner and multi-purpose solvents category. The SCAQMD paper summarized test results that demonstrate that many LVPs used by suppliers in other products, like automotive aerosols for example, should also be considered VOCs because they evaporate very quickly. CARB's LVP exemption was designed to allow the use of materials like soy and other extremely low evaporating materials that are clearly not VOCs. The problem is that the definition used by CARB in the regulation is not restrictive enough and allows the use of many materials that are clearly VOCs. There was considerable discussion of this broader issue during the workshop.

LVP materials, some of which are clearly VOCs, are being used extensively in many consumer products today. CARB is required to submit State Implementation Plans (SIPs) periodically to EPA that describe the reductions in VOC emissions they have achieved. It is clear now that many of the SIPs CARB has submitted to EPA over the years have claimed emission reductions in consumer product categories that have not actually been achieved. In addition, CARB reached a settlement with the environmental community several years ago and the settlement required CARB to achieve a certain level of VOC reductions. These claimed reductions have not actually been achieved. Furthermore, EPA has adopted a national regulation for consumer products that uses the same definition for LVPs as the CARB regulation. EPA has also claimed VOC emission reductions that have not actually been achieved.

It is likely to take a great deal of work to resolve and rectify the LVP exemption problem in the years to come. For more information, contact Katy Wolf at IRTA at (323) 656-1121.



Small Business Corner

SCAQMD Testing Shows Many CARB LVP Solvents Are VOCs

In the last issue of "The Alternative," IRTA included an article entitled "LVP Solvents Cause Significant VOC Emissions from Consumer Products." This article elaborates on that theme and describes an issue that arises when the California Air Resources Board (CARB) adopts consumer product regulations. In these regulations, CARB provides an exemption for Low Vapor Pressure (LVP) solvents. Suppliers can use these LVP solvents and they are not considered VOCs. LVP solvents are defined as solvents with vapor pressure less than 0.1 mm Hg or a boiling point of more than 216 degrees C or containing more than 12 carbon atoms.

The issue came to light when the South Coast Air Quality Management District (SCAQMD) adopted Rule 1143 "Consumer Paint Thinners and Multi-Purpose Solvents." This regulation set a VOC content limit for products at 25 grams per liter. CARB also adopted a consumer product regulation for paint thinners and multi-purpose solvents. Because of the LVP exemption, however, suppliers of the products are selling products that do not comply with the SCAQMD limit of 25 grams per liter. They are exercising a preemption clause through labeling that provides this loophole. In particular, the suppliers of these products are marketing odorless mineral spirits as a paint thinner, but in small letters on the can, are labeling it as a general purpose degreaser so the LVP exemption applies. The bottom line is that the SCAQMD and CARB regulations, which claimed reductions of about 10 and 20 tons per day of VOC respectively did not achieve those reductions.

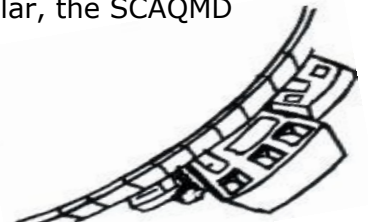
The SCAQMD has made a significant effort over the last few years to study what materials are actually VOCs and what materials are not. This is an important issue

because the definition of a VOC matters greatly to people living in communities like Southern California where smog is a big issue, companies emitting VOCs who are regulated and manufacturers and suppliers of industrial and consumer products containing VOC materials. The SCAQMD recently published a paper describing the approach they took to analyzing this problem and the results of their research. The paper, entitled "Non-Volatile, Semi-Volatile, or Volatile: Redefining Volatile for Volatile Organic Compounds," is referenced in the SCAQMD Air Quality Management Plan (see article in this issue) and can be obtained by calling the authors Uyen-Uyen Vo at (909) 396-2238 or Mike Morris at (909) 396-3282 or by visiting <http://www.aqmd.gov/prdas/Coatings/VOCs/vocsMainPage.htm>.

There are several different test methods that have been used over the years to define VOC and VOC content. The SCAQMD paper examines these methods and compares them with ambient evaporation tests conducted in a real world setting. The comprehensive evaporation tests led to some very interesting conclusions.

The most striking conclusion from the SCAQMD work is that ambient testing unequivocally demonstrates that many materials that are considered LVPs and therefore not VOCs by CARB are actually VOCs that evaporate very quickly. In other words, the parameters (vapor pressure, boiling point and number of carbons) used by CARB to define LVPs are not viable. In particular, the SCAQMD

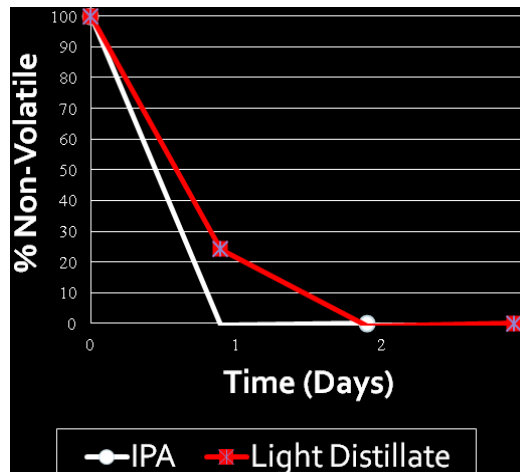
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paper indicates that some of the LVPs evaporate nearly as rapidly as the traditional VOCs they are meant to replace. Conversely, the SCAQMD study also found that bio-based materials and heavy hydrocarbons, which are often considered VOCs in traditional test methods, do not readily evaporate. The SCAQMD study concludes that the research and testing provides evidence that warrants “a reevaluation of regulatory standards.”

The SCAQMD evaluated several materials which they categorized as volatile, semi-volatile and non-volatile. The volatile materials evaporate within six months in the ambient evaporation tests. One of the so-called volatile materials was isopropyl alcohol (IPA) which completely evaporated within one day in the ambient evaporation tests. IPA is considered a VOC by all agencies and by any measure. Another material evaluated by SCAQMD is supplied by Calumet Specialty Products. The SCAQMD paper refers to the material as light distillate and it is actually the odorless mineral spirits, Conosol 200, being sold as an LVP paint thinner. The most interesting result of the SCAQMD study is the comparison of the ambient evaporation rates of IPA and the odorless mineral spirits. The tests indicated that the odorless mineral spirits evaporated completely within two days. The plot below compares the evaporation rate of IPA on the one hand and odorless mineral spirits, called light distillate, on the other hand.



The conclusions of the study demonstrate that light distillate, which is currently being sold as an alternative low-VOC material for paint thinner and multi-purpose solvents is, in fact, a VOC; it evaporates almost as quickly as IPA. Again, although CARB and SCAQMD have taken credit for VOC emission reductions, there has been no reduction in VOC emissions. CARB’s definition of LVPs in the consumer product regulations is clearly flawed.

The implications of the SCAQMD findings are profound. The largest growth area for VOC emissions in the South Coast Basin is consumer products. The SCAQMD has adopted very stringent regulations on stationary sources (industrial facilities) emitting VOCs. There are very few, if any, stationary source categories that can be regulated to achieve future VOC emission reductions. Significant additional VOC reductions can be achieved only if CARB begins to regulate VOC emissions from consumer products more aggressively. Not only does CARB need to move forward and increasingly regulate consumer products sources, CARB also needs to change the definition of LVP materials in the regulation. Industrial facilities, which have been heavily regulated already, should step forward and demand that CARB to do their part so they do not have to face even greater VOC emission reductions in the future.

For more information on the LVP issue, call Katy Wolf at IRTA at (323) 656-1121.

Some Emerging Paints Applied During DTSC Project Still Performing Well

IRTA completed a project sponsored by Cal/EPA's Department of Toxic Substances Control (DTSC) in early 2012. The project involved applying emerging paints to a number of boats to test them and compare the performance and cost of using them with the performance and cost of using the traditional copper antifouling paints.

One boat that was painted with emerging paints was a City of Newport Beach Boston Whaler that is used for patrolling and observation. IRTA collaborated with the Orange County Coastkeeper in painting the boat in June of 2011. The Coastkeeper provided some grant funds to offset the cost of the paint job.

Half of the boat, the starboard side, was painted with a paint called Hempasil X3 that was applied to a few other boats during an earlier project IRTA conducted with the Port of San Diego. The other half of the boat, the port side, was painted with a coating called XA 278, a completely new coating that IRTA tested in the DTSC project panel testing. Hempel, the paint supplier, wanted to compare the performance of the two paints. Both paints were rolled and brushed on the boat, the first time Hempasil X3 was applied to a boat using a method other than spraying. Hempel also wanted to see how the paints would fare if they were applied using the new application method.



The cost of the paint jobs for alternative paints is generally higher than the cost of the paint job for copper paints. The alternative paints last much longer, however, so the cost of using them over the life of the paint can be the same or lower than the cost of using the copper paint over its life. In general, a boat with a copper paint will require repainting about every two years. Hempasil X3, on commercial boats, has been used for about eight years without the need for repainting. One of the boats painted with Hempasil X3 during the Port of San Diego project has been operating for more than three years without requiring repainting. The owner, the diver who worked on the Port of San Diego project, reports that the paint is still doing well and the fouling is easily removed during cleaning.

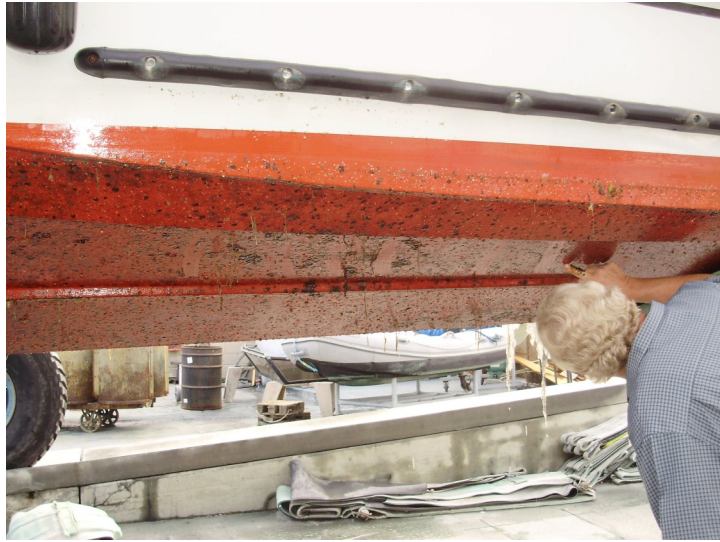
One of the factors contributing to the higher paint job cost of the alternative paints is that suppliers often recommend they be spray applied rather than rolled on. Copper paints are commonly rolled on and spraying can add \$600 to \$1,000 to the paint job cost for a 30 foot boat.

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In painting the City of Newport Beach boat, the intention was to examine the life of the paint and the effect of rolling and brushing rather than spraying. In addition, more emerging alternative paints are needed on the market to drive down the cost of the alternative paints and the cost of applying them. It is important to panel and boat test completely new paints like the Hempasil XA 278.

Basin Marine, the boatyard in Newport Beach where the boat was painted, agreed to haul out the boat so IRTA and the supplier could examine the paints. On September 25th, 15 months after the boat was painted, it was hauled out. Both paints appeared to still be in good condition. Small amounts of fouling on the hull could be removed easily with a hand. When the boat was painted, the rolling and brushing did leave a rougher surface than the smooth surface generally achieved with spraying. Even so, the alternative application method did not seem to affect condition of the paint.



For more information on alternative boat paints, contact Katy Wolf at IRTA at (323) 656-1121.

SCAQMD Issues the 2012 Air Quality Management Plan

A few months ago, the South Coast Air Quality Management District (SCAQMD) released a draft 2012 Air Quality Management Plan (AQMP). The purpose of the plan is to lay out a program that will bring the South Coast Basin into compliance with the federal PM 2.5 air quality standard and to provide an update on progress in meeting the federal 8-hour ozone standard. Although air quality in the Basin has improved over the last few decades, more work needs to be done to comply with the more stringent standards.

The AQMP describes several control measures where VOC emission reductions will be explored in the future. One of the control

measures, called CTS-02, is further emission reductions from miscellaneous coatings, adhesives, solvents and lubricants. VOC rules that could be affected by this control measure include Rule 1106 "Marine Coating Operations" and Rule 1106.1 "Pleasure Craft Coatings Operations." These regulation have not been amended in many years. Further VOC reductions can likely be achieved through increased use of lower VOC content coatings. IRTA completed two projects over the last three years designed to test and demonstrate alternatives to copper antifouling paints and has experience in working on pleasure craft coatings.

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DTSC Issues Proposed Consumer Products Regulation

Cal/EPA's Department of Toxic Substances Control (DTSC) recently issued the so-called Green Chemistry Regulation that has been under development for the last several years. Comments on the proposed regulation, entitled "Safer Consumer Products" are due on October 11.

The proposed regulation summary lays out a four step process. First, the regulations provide a list of about 1,200 Chemicals of Concern (COCs). This list was developed from other lists compiled by 22 authoritative organizations. The authoritative bodies list a chemical based on whether it exhibits one or more of seven hazard traits including carcinogenicity, reproductive toxicity, mutagenicity, developmental toxicity, endocrine disruption, neurotoxicity and/ or persistent bioaccumulative toxicity. The list can also include chemicals on exposure indicator lists for water quality, air quality or biomonitoring. The regulations also describe a process for identifying additional COCs not included on the authoritative body lists.

Second, the regulations require DTSC to develop a list of so-called Priority Products which will be selected by DTSC through evaluating and prioritizing the product/COC combinations. DTSC will consider several factors in the evaluation and selection. As part of the evaluation, DTSC can consider whether or not there is a safer alternative that is technically and economically feasible. The first Priority Products list must be proposed within 180 days after the regulation is adopted. These are the products for which alternatives analyses must be conducted. DTSC will review and possibly revise the Priority Products list at least every three years.

Third, the regulations require the manufacturers, importers and retailers to notify DTSC when their product is listed as a Priority Product. These responsible entities must perform an alternatives analysis for the product and the COCs in the product. The entities can avoid performing the alternatives analysis by

demonstrating to DTSC that the product is no longer being sold, offered for sale, distributed, supplied or manufactured in California. If a similar product is offered in the future in California, the manufacturer or importer must notify DTSC if the new product contains a chemical of concern.

Fourth, DTSC must identify and require implementation of regulatory responses to protect public health and the environment. This involves ensuring that the safer feasible alternatives are used in place of the COCs.

The regulations describe the alternatives analyses that must be conducted if a product is identified as a Priority Product containing a COC. Companies will undoubtedly wish to avoid performing these analyses which seems to be a daunting process. Once Priority Products/COCs are identified by DTSC, companies will determine whether any of their products are affected. If a company makes, distributes or sells a Priority Product with a COC, they will likely remove it from the market immediately. At a later date, the company could introduce a similar product that does not contain a COC. Under this process, no alternatives analyses would need to be performed.

Some people may think there is a problem if this is the outcome because the alternatives analysis for the Priority Product was not performed. They might describe this response as a potential loophole. In fact, however, if the products are removed from the market, the regulation will have fulfilled its promise. A Priority Product containing a COC will no longer be marketed and this is an effective strategy for preventing toxic products from being used and exposing workers and consumers.

For the full text or a summary of the regulation, access DTSC's website at www.dtsc.ca.gov.

Visit our website: www.irta.us

Read back issues of *The Alternative* and recently completed reports.

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Another control measure in the AQMP is CTS-03 which envisions further VOC reductions from mold release products. IRTA is currently conducting a project, sponsored by EPA and SCAQMD, to identify, develop, test and demonstrate low-VOC, low toxicity alternative mold cleaners and mold release agents. IRTA is working with several companies in the Basin on the alternatives project.

Another control measure, CTS-04, focuses on further VOC reductions from consumer products. According to the CARB 2009 Almanac, consumer products will be the largest emission category for VOC by 2020. The consumer product regulation includes an exemption

for Low Vapor Pressure (LVP) materials (see article in this issue). SCAQMD research indicates that LVPs are being used in several consumer product categories. In many cases, the LVPs that are used are actually VOCs that are as reactive in the atmosphere as those VOCs they replaced. This control measure involves the District working with CARB to eliminate the LVP exemption in several consumer product categories.

SCAQMD has held several meetings to discuss the AQMP with the public. The District Governing Board is scheduled to hold a hearing on the proposed plan in November or December.

Cal/OSHA to Regulate IPA

California's Occupational Safety and Health Administration (Cal/OSHA) plans to evaluate the Permissible Exposure Limit (PEL) of isopropyl alcohol (IPA). The OSHA PEL is and has been set at 400 ppm for many years. The PEL is a time weighted average (TWA) based on an eight hour workday. Cal/OSHA intends to establish a much lower PEL for IPA in the future.

IPA causes developmental toxicity and kidney damage. The 400 ppm PEL, established many years ago, was not based on either the developmental toxicity or the kidney damage health endpoints and it requires updating to be protective of workers. A new PEL based on these endpoints could be as low as 35 to 50 ppm.

IPA is used widely in many different cleaning applications. It is a polar solvent used by many electronics companies to remove flux from printed circuit boards. It is also used as a general cleaning solvent in many operations. It is employed by medical device man-

ufacturers, biotechnology firms, pharmaceutical companies and hospitals for general maintenance for biocidal control. Because the current PEL is so high, companies have not been especially concerned about worker exposure.

If the PEL is lowered to 50 ppm or less, companies will have to modify their processes substantially to accommodate the new lower exposure level. In many cases, companies will decide to adopt alternatives in place of IPA. In that light, IRTA is currently working on a project sponsored by the Bay Area Air Quality Management District (BAAQMD) that focuses on alternatives to IPA used for biocidal control. Some of the alternatives have toxicity issues and IRTA is interested in testing only low toxicity materials with the participating companies.

For more information on IRTA's BAAQMD project or the IPA issue, call Katy Wolf at IRTA at (323) 656-1121.

Need help finding an alternative?
IRTA assists firms in converting to suitable alternatives in cleaning, paint stripping, coating, thinning, dry cleaning and other applications.

Calendar

October 9 -10

Cal/EPA's Department of Toxic Substances Control, "Alternatives Analysis, Tools, Methodologies and Frameworks," 9:00 AM to 4:00 PM, Cal/EPA Headquarters, 1001 I Street, Sacramento, CA., Sierra Hearing Room. For information, access www.dtsc.ca.gov.

October 11

Comment period ends for Cal/EPA's Department of Toxic Substances Control "Safer Consumer Products" proposed regulation. For the regulation and summary, access www.dtsc.ca.gov. For information on the comment period, call Krysia Von Burg at (916) 324-2810.

November 2 or December 7

South Coast Air Quality Management District Governing Board Hearing for the Draft 2012 Air Quality Management Plan, 9:00 AM, SCAQMD headquarters, Diamond Bar, CA. For information, access www.aqmd.gov.

December

California Air Resources Board Consumer Products Public Workshop, Cal/EPA Headquarters, 1001 I Street, Sacramento, CA, will discuss item on possible modifications to regulatory provisions for Multi-purpose Solvent and Paint Thinner product categories. For information, contact Jose Gomez at (916) 324-8033.

IRTA is working together with industry and government towards a common goal, implementing sensible environmental policies which allow businesses to remain competitive while protecting and improving our environment. IRTA depends on grants and donations from individuals, companies, organizations, and foundations to accomplish this goal. We appreciate your comments and contributions!

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- Enclosed is my tax-deductible contribution of: \$ _____
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Institute for Research and Technical Assistance
 8579 Skyline Drive
 Los Angeles, CA 90046
 website: www.irta.us

