

The Alternative

IRTA Newsletter

Volume XVI Number 4

Fall 2007

CARB Initiates New Rulemaking for Consumer Products

The California Air Resources Board (CARB) recently began developing a consumer products regulation for certain consumer products categories. The proposed regulation is scheduled to be presented to the CARB Board in June 2008. The first workgroup meeting was held on August 29.

To date, CARB has adopted five consumer product regulations that established 150 VOC limits in 115 categories. The regulations resulted in VOC emission reductions of 200 tons per day in the state. The regulations also resulted in 13 tons per day of chlorinated toxic air contaminant emission reductions from 63 categories. Under the State Implementation Plan (SIP), CARB committed to an additional 30 to 40 tons per day of VOC emission reductions. In the current rulemaking, CARB's VOC emissions reduction goal is 10 to 20 tons per day.

CARB has already initiated a 2006 consumer and commercial survey for several categories of products. The agency collects information on the sales of consumer products in the state from suppliers and estimates VOC and toxic emissions. CARB then uses the more recent data to develop future regulations.

In the current rulemaking, CARB is proposing to regulate several categories of consumer products including Air Care, Automotive Care, Cleaners/Degreasers, Fabric Care, Lubricants/Penetrants, Personal Care, Sealants & Caulks, Waxes & Polishes, Miscellaneous and Paint & Lacquer Thinner. The total VOC reductions in these categories, if they are adopted, would amount to 19.14 tons per day. By far the largest single reduction, 13.14 tons per day, come from the category

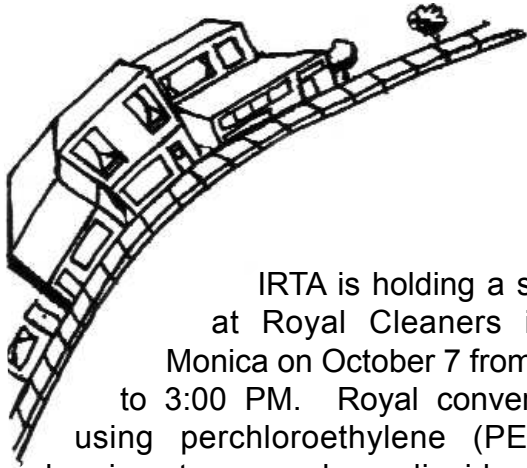
Paint & Lacquer Thinner.

IRTA recently completed a project that was sponsored by Cal/EPA's Department of Toxic Substances Control (DTSC) that focused on identifying, developing, testing and demonstrating low-VOC, low toxicity alternatives to paint and lacquer thinner consumer products. These products are used for thinning coatings and for various cleanup activities. IRTA successfully found alternative materials for all applications that met a VOC content limit of 2.5%. CARB is proposing to establish a VOC limit for the category of 3%.

In the rulemaking, CARB is proposing to regulate the subcategory of Spot Remover (non-aerosol) under the general category of Fabric Care. It is not clear whether this subcategory includes spotting chemicals used by dry cleaners for pre- and post-spotting garments. These spotting agents are generally formulations based on perchloroethylene (PERC) and, more extensively, trichloroethylene (TCE). Both chemicals are carcinogens and Toxic Air Contaminants and TCE is a VOC. IRTA recently completed a project, sponsored by DTSC and EPA, to find alternative low-VOC, low toxicity spotting chemicals for the dry cleaning industry. Alternatives that were effective were water-based and soy based. IRTA estimated that the use of the toxic spotting agents amounts to about one ton per day statewide. CARB could regulate the category by banning the use of PERC and TCE and by establishing a low VOC limit. This would result in an additional ton per day of VOC reductions.

CARB is also proposing to regulate Lubricants/Penetrants in the current rulemak-

(see *Rulemaking* page 3)



Dry Cleaner Alternative Showcase Scheduled for October 7

IRTA is holding a showcase at Royal Cleaners in Santa Monica on October 7 from 9:00 AM to 3:00 PM. Royal converted from using perchloroethylene (PERC) dry cleaning to a carbon dioxide cleaning process. Even though carbon dioxide equipment is expensive, Royal reduced their costs through the conversion (see case study in this issue of the newsletter).

The showcase will be helpful to cleaners considering which alternatives to adopt over the next few years. Royal's owner, spotters and finishing people will be on hand to describe their procedures for spotting and finishing with the carbon dioxide technology. Suppliers of the machines and carbon dioxide will also attend. Representatives from government agencies including Cal/EPA's Department of Toxic Substances Control (DTSC), the California Air Resources Board (CARB), EPA, the South Coast Air Quality Management District and the City of Santa Monica will be present to answer questions about grant programs and regulations. IRTA staff will hand out information on the cost and performance of the carbon dioxide technology and a safer spotting chemical alternatives fact sheet.

IRTA is conducting a project, sponsored by CARB and DTSC to showcase water-based and carbon dioxide technologies. IRTA has held two other showcases and is planning two additional showcases for early next year. IRTA is also planning an EXPO for early next year that will feature presentations by cleaners and information on water-based and carbon

dioxide technologies.

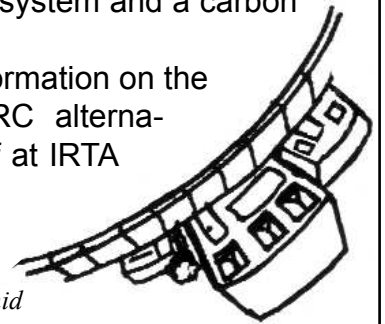
IRTA recently held a showcase in Fresno at Mastercraft Cleaners. Several cleaners and other interested parties attended. The shop has a wet cleaning system and a Green Jet machine. About half the garments are processed through the Green Jet system which sprays a mixture of water and detergent on the garments. This technology is best for lightly soiled garments. The wet cleaning system is used for the more heavily soiled garments. The combination of Green Jet and wet cleaning is a very low cost alternative. The facility manager demonstrated the Green Jet system operation and the spotting procedures for the attendees.

IRTA also recently held a showcase in the San Diego area at Hangers Cleaners. Cleaners and other interested people saw demonstrations of the carbon dioxide cleaning equipment and the spotting procedures used at the shop. Carbon dioxide is most effective for cleaners in high end locations.

One of the showcases IRTA is planning for next year is a Tustin cleaner. The facility has a wet cleaning system and a Green Jet machine. The other showcase IRTA is planning for next year is a facility in the Bay Area with a wet cleaning system and a carbon dioxide machine.

For more information on the showcases or PERC alternatives, call Katy Wolf at IRTA at (818) 244-0300.

Illustration by Todd Schmid



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Visit us on the web at: www.irta.us
or contact us at: 818-244-0300

Dry Cleaner Deadline Approaching in South Coast Basin

The South Coast Air Quality Management District (SCAQMD) in Southern California regulates about half the dry cleaners in the state. Roughly one-third of the cleaners in the South Coast Basin have converted to alternatives to perchloroethylene (PERC) dry cleaning systems. The remaining two-thirds of the cleaners still rely on PERC dry cleaning.

SCAQMD Rule 1421 "Control of Perchloroethylene Emissions From Dry

Cleaning Systems" regulates cleaners who continue to use PERC dry cleaning systems. The regulation specifies that after January 1, 2003, no new facilities could use PERC. The rule also specifies that all facilities using PERC must have machines with secondary control after November 1, 2007. PERC dry cleaning is banned after December 31, 2020 and facilities still using PERC dry cleaning systems must (see *Dry Cleaner Deadline* page 5)

Rulemaking

(Continued from Front Page)

ing. The agency is proposing a 25% VOC limit for the subcategories Multi-Purpose Lubricant and Penetrant. IRTA recently completed a project sponsored by EPA and the South Coast Air Quality Management District (SCAQMD) that involved identifying and testing alternative low-VOC lubricants and rust inhibitors. Although this project focused on industrial lubricants and rust inhibitors, many of the companies IRTA worked with also used consumer product lubricants for some purposes. IRTA found alternatives that were water-based and vegetable based that have lower VOC content than the 25% limit CARB is proposing. CARB could establish an even lower VOC limit for these subcategories.

For the first time in the consumer products rulemaking, CARB is also proposing to regulate certain categories using a reactivity-based regulation. CARB already has a reactivity-based regulation for aerosol coatings. A reactivity-based regulation would mandate that the products be reformulated to include chemicals that are lower in reactivity than the products used today. Relative reactivity is a complex concept and it could force companies to formulate with lower reactivity materials that are more toxic than higher reactivity materials that are used today. This approach must be carefully thought through so the regulation does not have unanticipated and negative consequences.

CARB is also considering whether or not to grant exemptions from VOC regulations for certain chemicals in this rulemaking. One of

the potential candidates for exemption is tert-butyl acetate (TBAC). TBAC forms a metabolite that is a carcinogen (see article in this issue of the newsletter). Other candidates for exemption include certain hydrofluorocarbons (HFCs), hydrofluoroethers (HFEs) and hydrochlorofluorocarbons (HCFCs). These materials are greenhouse gases that contribute to global warming. Exempting chemicals from VOC regulations strongly encourages their use so CARB must carefully weigh the negative implications of such an action.

One category CARB is not including in the rulemaking but is currently surveying is Paint Strippers. The most widely used paint stripping formulations contain methylene chloride (METH). METH is a carcinogen and a Toxic Air Contaminant but is not a VOC; statewide use of the chemical in strippers is 10 tons per day. IRTA recently completed a project sponsored by DTSC that involved testing and demonstrating alternative non-METH consumer product strippers. IRTA found alternatives based on benzyl alcohol (BA). This chemical has been tested for chronic toxicity and is not a carcinogen. The BA formulations IRTA tested are Low Vapor Pressure (LVP) materials which are not considered VOCs in the consumer product regulations. IRTA is encouraging CARB to regulate paint strippers in the current rulemaking. CARB could ban METH in paint strippers and establish a very low VOC limit.

For more information on the regulation or the results of IRTA's technical work, call Katy Wolf at IRTA at (818) 244-0300.



New Sanding Technology More Effective for Autobody Operations

IRTA is currently conducting a project, sponsored by Cal/EPA's Department of Toxic Substances Control (DTSC), with the autobody industry. The project involves examining alternative thinning and cleanup methods, analyzing the conversion from solvent to waterborne base coats and investigating methods of dust control. The project should be completed early next year.

The South Coast Air Quality Management District (SCAQMD) adopted a regulation that requires autobody shops to convert to waterborne base coats over the next few years. IRTA is working with several body shops in the South Coast Basin to monitor the conversion at small and large facilities and analyze and compare the costs of the transition.

As part of the project, IRTA has examined an alternative dust control measure that is very effective in reducing the dust that is generated during sanding. Autobody shops do a lot of sanding during the repair process. Technicians sand primer, bondo and topcoats during painting. Traditional sanding discs contain abrasive and six sanding holes. The Abranet technology, offered by a company based in Finland called Mirka, consists of an aluminum oxide grain with resin bonding. It is

a mesh sanding product with thousands of holes and has better extraction capability than traditional sanding discs.

IRTA has tested the alternative abrasive with several autobody facilities and three of those participating in the project have converted to the abranet material. There are three advantages of the alternative sanding method. First, use of the abranet minimizes the generation of dust. The technicians have lower exposure to dust and less waste dust that might be classified as hazardous waste is generated. Second, traditional abrasives clog fairly easily and use of the Abranet abrasive extends the life of the sanding disc. The shops IRTA is working with estimate that the Abranet abrasive lasts two to four times as long as traditional abrasives. Third, the cost of using Abranet is lower than the cost of using traditional abrasives. Although an Abranet disc is more costly than a traditional sanding disc, the cost of using Abranet is lower because fewer discs are required for the same job.

IRTA is currently developing case studies with cost analysis for the facilities that have elected to convert to the alternative sanding method. For more information on the technology, call Katy Wolf at IRTA at (818) 244-0300.



Santa Monica Cleaner Pleased With Carbon Dioxide Technology

Royal Cleaners has been located in Santa Monica, California since 1948. In 2003, the owner, Bobby Smerling, moved to a new location in the same area and installed a 60 pound carbon dioxide machine and a carbon dioxide storage tank. The carbon dioxide machine replaced a 55 pound perchloroethylene (PERC) machine which was used to clean 104,000 pounds of garments annually. At this stage, the shop has increased its cleaning volume substantially, to 155,000 pounds of garments per year.

"I made the right decision," says Mr. Smerling. Royal received a grant from the South Coast Air Quality Management District to purchase the new system. "The PERC phase-out in California no longer concerns me

because I put in the best alternative." Mr. Smerling plans to open a second plant with a carbon dioxide and wet cleaning machine in the west Los Angeles area in the next year or so.

The carbon dioxide machine operates at 700 to 900 pounds per square inch pressure to keep the carbon dioxide liquefied. "The cycle time of my machine is only 35 minutes which is less than the cycle time of the old PERC machine," says Mr. Smerling. "When we moved, we didn't have room for a large machine and I decided to purchase a Sailstar system," he says. "It took us only about two months to learn the new features and procedures. The finishing is about the same as it was with PERC but there is more spotting now. We (see *Carbon Dioxide Technology* page 3)

Dry Cleaner Deadline (continued from page 3)

comply with Rule 1402 "Control of Toxic Air Contaminants From Existing Sources."


The SCAQMD mailed all cleaners still using PERC a PERC emissions limit that would allow the facilities to comply with Rule 1402. This rule does not allow facilities to pose a cancer risk greater than 25 in a million to the surrounding community. The emissions limit the District gave facilities is based on this risk level. The District required the cleaners to respond by indicating whether they would continue using PERC given the limit or whether they intended to convert to a PERC alternative.

For many facilities with PERC machines, the limit on PERC emissions would be difficult to meet. Some cleaners are trying to avoid the law. They are planning to purchase their PERC from more than one source and keep purchase records for only one source. Cleaners who do this are taking a risk, however. The state regulation adopted by the California Air Resources Board (CARB) requires PERC suppliers to keep records of which cleaners they sold PERC to and how much PERC they sold. The local air districts and CARB have the right to inspect these records and would discover through them that

cleaners are violating their emissions limit.

Some cleaners have decided to purchase new PERC machines because their existing machine does not have secondary control. Cleaners in the South Coast Basin who are taking this route will have to replace their new PERC machine in 2020 when the machine is only 13 years old. Some cleaners are purchasing used PERC machines with secondary control. The state regulation requires cleaners to stop using PERC machines when they are 15 years old. If a used PERC machine is five years old now, the cleaner will have to stop using it in 10 years.

The best option for cleaners still using a PERC machine without secondary control is to purchase an alternative technology. This is also the best option for cleaners using a PERC machine with secondary control. Many cleaners are exercising this option. There are a variety of alternatives and some cleaners have been using them for several years. In some cases, use of the alternatives is less costly than use of PERC. Using an alternative allows cleaners to avoid the stringent reporting and oversight for PERC users.

For more information on the alternative technologies, call Katy Wolf at IRTA at (818) 244-0300. 

Carbon Dioxide Technology

(continued from Page 4)

can process delicate garments much more easily with carbon dioxide."

"My customers are upscale," says Mr. Smerling. "They are concerned about health

and the environment. The carbon dioxide process has health and environmental benefits, and the costs of using the system are lower than they were with PERC even though I had to buy a new machine."



Annualized Cost Comparison for Royal Cleaners in Santa Monica		
	PERC	Carbon Dioxide
Annualized Capital Cost	-	\$11,200
Solvent Cost	\$969	\$9,600
Detergent Cost	\$1,937	\$2,704
Electricity Cost	\$7,152	\$10,000
Gas Cost	\$3,279	-
Spotting Labor Cost	\$12,087	\$47,000
Finishing Labor Cost	\$145,043	\$97,344
Maintenance Labor Cost	\$1,007	-
Maintenance Equipment Cost	\$2,503	\$200
Compliance Cost	\$3,487	-
Waste Disposal Cost	\$3,278	\$150
Total Cost	\$180,742	\$178,198

Tert-butyl Acetate Added To Toxics “Hot Spots” List

Tert-butyl acetate (TBAC) was deemed exempt from VOC regulations some time ago by EPA. Lyondell, the manufacturer of the chemical, has been lobbying many states to recognize the EPA exemption. Most states either have exempted TBAC or plan to do so in the near future. The chemical has been exempted in California only for certain narrow applications.

TBAC forms a metabolite called tert-butyl alcohol (TBA) which is a carcinogen. The Office of Environmental Health Hazard Assessment (OEHHA), the agency that investigates the toxicity of chemicals for the state of California, evaluated the toxicity of TBA and published a paper describing their results. In the paper, OEHHA states that “TBAC should be considered to pose a potential cancer risk to humans because of the metabolic conversion to TBA.” The Hazard Evaluation System & Information Service (HESIS), which focuses on worker exposure to toxic materials in California, estimated the impact of TBAC on workers. Based on OEHHA’s cancer risk value for TBA and assuming worker exposure to TBAC at the Permissible Exposure Limit (PEL) for California, HESIS determined a lifetime cancer risk for workers of 74,000 in a million. This is an extremely high risk.

TBAC is not widely used today because it is much more expensive than traditional VOC solvents like toluene, xylene and MEK. California has very stringent VOC regulations. The California Air Resources Board (CARB) and the local air districts often rely on the availability of exempt chemicals to meet the lower VOC limits they establish. When chemicals are exempted in California, it creates a market to use the chemical. When chemicals are exempted in other parts of the country, they are not necessarily used because the VOC regulations are much less stringent.

CARB exempted TBAC for use in products covered by the Autobody Suggested Control Measure (SCM). This is not a regulation but is a suggested regulation for the local air districts. Local air districts often follow CARB’s lead and adopt the SCM as is. The San Joaquin Valley Air Pollution Control District did adopt the SCM in total. The South Coast

Air Quality Management District (SCAQMD) exempted TBAC much more narrowly in their autobody regulation, Rule 1151. The SCAQMD exempted TBAC for use in primers; it is not clear why the District took this action since they did not lower the VOC limit for this category of coating.

SCAQMD also provided a narrow exemption for TBAC in their architectural coatings regulation, Rule 1113. The exemption for TBAC only applies in Industrial Maintenance (IM) coatings. The District took this action to give coating suppliers “maximum flexibility” even though there were many IM coatings available that met the future lower VOC limit which did not contain TBAC. When CARB developed their architectural coating SCM, CARB declined to exempt TBAC in the measure. CARB staff indicated that their board did not want to encourage the use of carcinogens.

Lyondell has visited CARB and local air districts in California recently to lobby for a comprehensive exemption of TBAC in all uses. The chemical manufacturer is aware that the major market for the chemical is California because of the more restrictive VOC regulations in the state. Lyondell is indicating that new toxicity results should be taken into account and that the state and local air districts should act on that basis. They have submitted the new toxicity results to OEHHA and have requested priority review.

The new toxicity results Lyondell is citing are not likely to change any of the views of the toxicity issues. Lyondell conducted a sub-chronic inhalation toxicity test of TBAC in rats and mice. From the results, Lyondell concludes that there is no evidence that TBAC is a carcinogen. Since it is actually the carcinogenicity of TBA, the metabolite, that is the issue, the results for TBAC toxicity are of little interest. They do not provide any additional information on the carcinogenicity of TBA except to argue that the TBA data have no relevance to humans. The OEHHA paper disputes this conclusion.

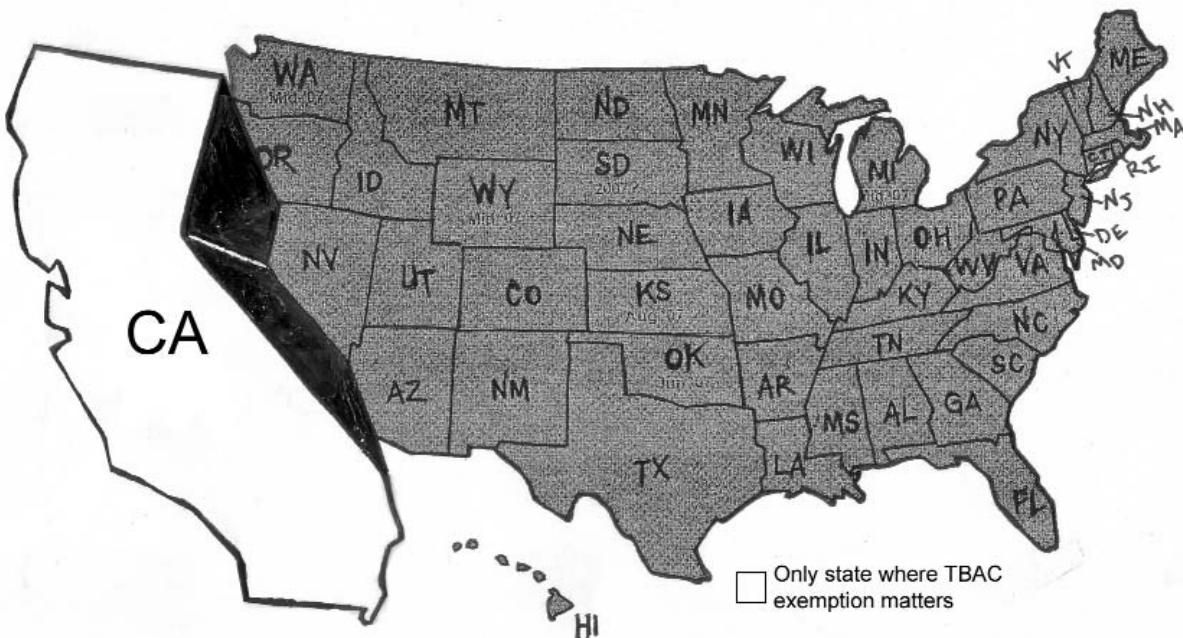
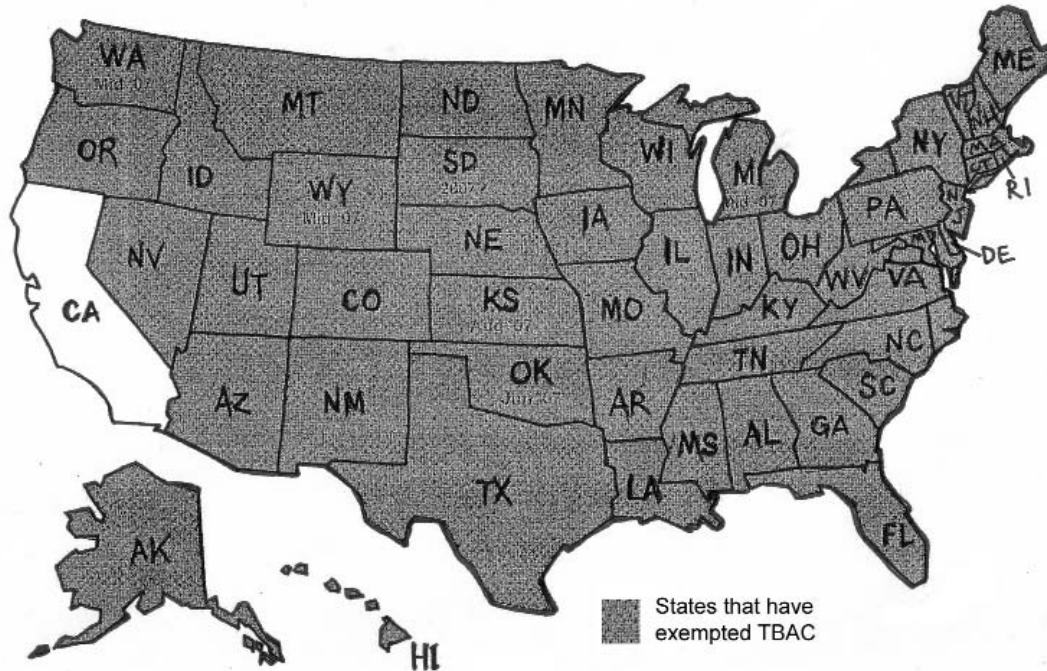
TBAC was added to the Air Toxics “Hot Spots” Information and Assessment Act list on
(See **Toxics Hot Spots** Page 7)

Toxics Hot Spots (continued from Page 6) November 2006. The chemical was placed on the list of “Substances for Which Emissions Must Be Quantified” in Appendix A-1. Companies in the Hot Spots program must report their use of TBAC if it exceeds 200 pounds per year.

Companies that use autobody coatings and industrial maintenance coatings should be concerned about using products that contain TBAC. SCAQMD has exempted TBAC for use in autobody primers and IM coatings. Formulators may choose to develop formula-

tions that contain TBAC in these products for use in the South Coast Basin. Companies should request MSDSs from their suppliers for autobody primers and their contractors that apply IM coatings and should refuse to use products containing the chemical. This will protect them from having to report under the Hot Spots regulation and it will protect their workers and the people who live in the surrounding communities from the risk posed by TBA.

For more information on TBAC and TBA, call Katy Wolf at IRTA at (818) 244-0300.



CALENDAR

October 7

Showcase at Royal Cleaners at 256 26th Street in Santa Monica from 9am to 3pm. Features carbon dioxide machine. For information, call IRTA at (818)244-0300

October 23 - 25

2007 Western U.S. Pollution Prevention Conference, Sponsored by the Western Regional Pollution Prevention Network, Bahia Resort Hotel, San Diego, CA. For information, access www.wrppn.org

October 18

South Coast Air Quality Management District 19th Annual Clean Air Awards. Millennium Biltmore Hotel, Los Angeles, CA. For more information, call (909)396-2778

October 30

Green Chemistry Symposium III - The Synthesis of Success. Sponsored by Cal/EPA's Department of Toxic Substances Control, Byron Sher Auditorium, 1001 "I" Street, Sacramento, CA. For more information, contact Bill Ryan at bryan@dtsc.ca.gov or (916)322-5919

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