

The Alternative

IRTA Newsletter

Volume XXII Number 7

Winter 2014

EPA Press Events Focus on IRTA Graffiti Alternatives Project

EPA held two press events to showcase IRTA's project on safer alternative graffiti management methods. The project is sponsored by EPA Region IX, the Bay Area Air Quality Management District and the San Francisco Department of the Environment. IRTA has been working on the project for about a year and the aim is to identify, develop, test and demonstrate safer alternative graffiti management methods.

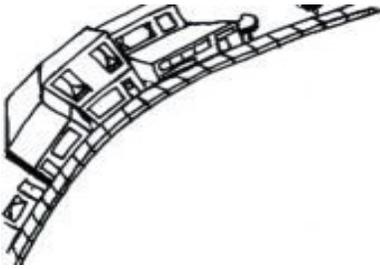
IRTA's work has addressed four areas. First, IRTA identified, tested and demonstrated two different blasting technologies that can be used for removing graffiti from various types of surfaces. The systems used currently for this purpose include soda blasting and high pressure water blasting and they generate significant amounts of waste material. Because of stringent regulations, the spent media cannot generally be released to the storm water and it must be collected. There would be a significant advantage in finding blasting methods that generate less waste material. The systems IRTA is testing are dry ice blasting, which generates no secondary waste media, and wet crushed recycled glass blasting, which generates minimal amounts of secondary waste.

Second, IRTA is testing graffiti resistant coatings. Some coatings are sacrificial and designed to be replaced when they are defaced with graffiti; others are non-sacrificial and they are designed to stay on the surface for a long period. IRTA is testing non-sacrificial coatings. When graffiti removers are used on these coatings, they often leave a shadow. IRTA is working on graffiti removers that will not shadow the surface (see below).



Third, IRTA is working with sacrificial and non-sacrificial films for windows, plexiglass and street signs. IRTA has identified two films that can protect street signs and one of these is extremely effective. The graffiti stays on the surface of the film and postal stickers can be pulled back off easily and spray paint and marker can be pulled off the surface of the film with tape. A small amount of graffiti remove may also be needed to completely remove heavy graffiti. When graffiti removers are used on street signs today, they often remove the screen printing on the sign and it must be discarded. The film protects the street sign screen printing.

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Small Business Corner

IRTA Starts New Project on Floor Wax Strippers

IRTA recently began a project to identify, develop, test and demonstrate safer alternative floor wax strippers. The project is sponsored by EPA Region IX, the Western Sustainability and Pollution Prevention Network (WSPPN) and the Bay Area Air Quality Management District.

Floor wax is used extensively in schools, public buildings, grocery stores, other retail stores and private office buildings to give a polish and shine to floors made of materials ranging from marble to vinyl composition tile. The floor wax is applied regularly and, when several coats have built up on the floors, they are stripped and a new coat of wax is applied.

EPA's Design for the Environment (DfE) program works with suppliers, called partners, to recognize safer products with a safer products labeling program. EPA lists several floor wax stripper suppliers in this program. The San Francisco Department of the Environment also has a program to encourage the use of safer cleaning products, including floor wax strippers. In general, however, these organizations do not focus on the VOC content of products. The VOC content of all consumer products is important in California, particularly in Southern California, where smog is still a significant problem.

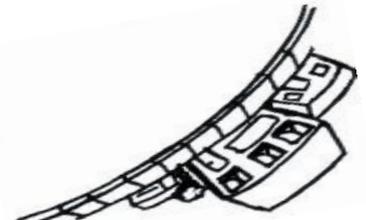
The California Air Resources Board (CARB) regulates the VOC content of consumer products in California. The regulation requires suppliers to label floor wax strippers with a dilution for removing light or medium buildup of polish that leads to a VOC concentration of 3% or less by weight. For heavy buildup of polish, the VOC limit is 12% or less by weight. Even though there is a fairly low VOC limit on the products, VOC emissions from floor wax strippers in

the state may amount to as much as eight tons per day.

The local air districts in California do not regulate consumer products except in certain instances. The South Coast Air Quality Management District (SCAQMD) does have a certification program that includes floor wax strippers. The Clean Air Choices Cleaner Certification Program is a voluntary program that encourages the use of ultra-low-polluting commercial cleaning products.



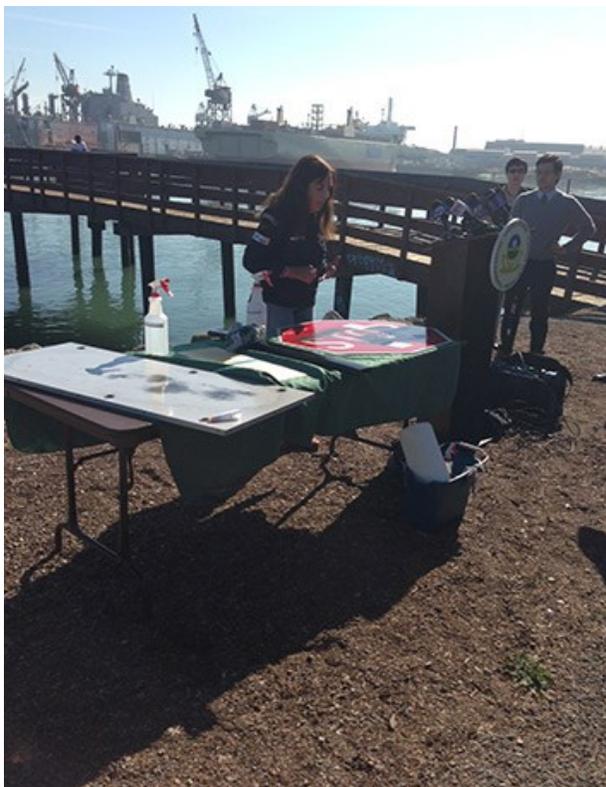
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Fourth, IRTA is developing and testing safer alternative graffiti removers for a range of different applications. Many of the graffiti removers on the market today have high VOC content and do not comply with the California Air Resources Board graffiti remover regulations. IRTA is developing low VOC removers.

The first event was held in the San Francisco area in Agua Vista Park. The alternative blasting systems were demonstrated by the suppliers and Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest, operated the system. Dr. Katy Wolf from IRTA demonstrated the films for street signs and removed graffiti from some substrates with graffiti removers developed by IRTA. Several press people were in attendance.



Speakers at the event included Jared Blumenfeld of EPA, Katy Wolf from IRTA and representatives from several of the organizations who are co-sponsors of the project or are helping IRTA test the alternative management methods. The representatives were from the San Francisco Municipal

Transportation Agency, the San Francisco Department of the Environment, the Port of San Francisco, the San Francisco Department of Public Works and the Bay Area Air Quality Management District.



The second event was held in Simi Valley in Southern California. The City of Simi Valley is assisting IRTA in testing some of the alternative management methods. The blasting systems, the film and the alternative graffiti removers were also demonstrated at this event.

For more information on the project, contact Katy Wolf at IRTA at (323) 656-1121. EPA's website at <http://www.epa.gov/region9/mediacenter/graffiti/> has a project description, pictures from the press event and a list of the speakers. CBS prepared a story that included the blasting systems and alternative strippers; it can be accessed at <http://minnesota.cbslocal.com/video/9628471-project-may-make-cheaper-greener-graffiti-removal-possible/>

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The District gives a product certification if it meets environmentally preferable qualifications, including a VOC limit of 10 grams per liter or about 1%. This is much lower than the CARB limits given above. Other criteria include limits on toxic air contaminants, water pollutants, carcinogens on various lists and alkylphenol ethoxylates which are endocrine disruptors. SCAQMD indicates that no floor wax stripping products have been able to meet the stringent limits of their certification program to date.

IRTA plans to work with suppliers of the products to formulate new very low VOC content products that will meet the requirements of the SCAQMD certification program. IRTA is also recruiting users of floor wax stripper to test the alternatives that are developed

and to compare them to their current products. IRTA is seeking testing partners like schools and public buildings where exposure to floor wax strippers is high for the general public, teachers and students.

The project will involve developing safer alternative floor wax strippers and testing them extensively with the recruited partners. The most important characteristics of the alternatives is that they perform effectively and be reasonably cost effective. IRTA plans to conduct a cost analysis as part of the project. IRTA also plans to investigate other methods of maintaining floors that avoid the use of floor wax strippers altogether.

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



IRTA Completes Report on Safer Alternative Release Agents

IRTA recently finalized a report on low-VOC low toxicity release agents and mold cleaners. The project was sponsored by EPA Region IX and the South Coast Air Quality Management District (SCAQMD) under EPA’s Pollution Prevention Grants Program.

During the project, IRTA identified, developed, tested and demonstrated low-VOC, low toxicity alternatives in three different applications. In one application, rubber mats are used to stamp a pattern into the concrete as it is curing. The pattern is designed to make the concrete surface look like stone and it is often colored during or after the stamping process. A release agent is used between the mat and the curing concrete to prevent the

concrete from sticking to the mat. The mat is moved over the entire surface to different parts of the concrete area which is being stamped.



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SCAQMD Holds Workshop on Adhesives and Sealants Rule

In the last issue of "The Alternative," one of the articles discussed the workgroup meetings for South Coast Air Quality Management District (SCAQMD) Rule 1168 "Adhesive and Sealant Applications." SCAQMD held a workshop on proposed amendments to the rule on December 18. The rule has not been amended for many years and the District is proposing to reduce several of the VOC limits.

The rule currently includes an exemption for aerosol adhesives. The District is proposing to regulate aerosol adhesive and sealant consumer products used for manufacturing at stationary sources. Such facilities would be limited to using less than 16 ounces or less of these products per day.



The District is also proposing to amend the definition of VOC to allow exemptions for tert-butyl acetate (TBAC) and dimethyl carbonate (DMC) in roofing regulated products. Both chemicals were deemed exempt from VOC regulation by EPA some years ago. They are not used widely in the rest of the country, however, because the VOC regulations in most other locations are much less stringent than the VOC regulations in the South Coast Basin. If they were exempted in this rule, they would be widely employed by suppliers in roofing adhesives and sealants. In effect, the District would be promoting the use of these chemicals through an exemption.



TBAC forms a metabolite, tert-butyl alcohol, which is a carcinogen. DMC is a developmental toxin; it forms a metabolite, methanol, which is a developmental toxin and may also be a carcinogen. If these chemicals were exempted from VOC regulation in this rule, there would be a risk to the community surrounding these operations, to the workers using the products containing the chemicals and to consumers using the products containing the chemicals.

The Hazard Evaluation System and Information Service, part of the California Department of Health Services which is concerned with worker protection, estimated the risk to workers using TBAC at the current Permissible Exposure Limit (PEL) of 200 ppm. The results indicate that the worker risk ranges between 74,000 and 380,000 in one million. This risk is extremely high and a risk greater than about 10 in one million is considered significant.

Most chemicals that are marketed have not been tested for chronic toxicity. This is a strong limitation in that it does not allow a determination of whether or not a chemical poses toxicity problems. In some cases, these chemicals have been used, sometimes widely, and later, they have been found to be toxic. By then, however, it is too late and community members, workers and consumers have been exposed to the chemicals, perhaps for several years.

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and recently completed reports.**

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In the case of TBAC and DMC, there are data that indicate the chemicals are indeed toxic. It is fortunate the data are available and it allows the sensible conclusion that chemicals with known toxic endpoints that pose a high risk should not be promoted for use. The District, in proposing the exemption, is providing a message to suppliers to formulate products with the chemicals.

There has been a movement globally, nationally and in California toward Green Chemistry. The California Department of Toxic Substances Control (DTSC) recently adopted a Green Chemistry regulation. EPA and Congress are working to modify the Toxic Substances Control Act (TSCA) to better control widespread use of toxic materials. All of the Green Chemistry efforts are focused on preventing regrettable substitutions. This happens when suppliers substitute one chemical that is dangerous in a particular way for another chemical that is also dangerous, perhaps in a different way. All of IRTA's work over the last 25 years has focused on identifying, developing, testing and demonstrating safer alternatives that will not lead to regrettable substitutions.

IRTA opposes the exemption of TBAC and DMC in the adhesives and sealants rule. There are currently roofing products on the market that are water-based, based on other exempt chemicals like acetone and high solids materials. If the two toxic chemicals are exempted from VOC regulation, suppliers will reformulate most if not all of the low-VOC products available currently with TBAC and DMC. This will happen because it is easier to drop in a chemical than to make a water-based or high solids product. In addition, suppliers believe when the District exempts a chemical, they "approve" or "recommend" its use.

The District plans to hold one or more additional working group meetings and a public consultation meeting. The rule is scheduled to be heard by the SCAQMD Board in June 2014.

For more information on the proposed rule, contact Mike Morris at SCAQMD at (909) 396-3282. For information on IRTA's opposition to the proposed exemption of TBAC and DMC, 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.**

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Historically, a powder release agent was used in this industry. Over the last several years, a liquid release agent started being used, particularly in instances where the concrete is colored. The liquid release agent used commonly today is mineral spirits which is a VOC. The alternative that worked best for both colored and uncolored concrete is a lubricant with close to zero VOC content which is made by Dodge Oil. For uncolored stamped concrete, another alternative, recycled vegetable oil, can be used and is a very low cost option.

The recycled vegetable oil cannot be used for colored concrete because it tends to bleach and alter the color. The recycled vegetable oil is picked up from restaurants and it is a combination of soy and canola oil.

In another application, diesel fuel is used as a release agent in asphalt manufacturing plants and on the tooling used to apply asphalt to roads. The alternative that worked effectively for these applications is the recycled vegetable oil. It was tested in the asphalt manufacturing plant and performed very well. IRTA also tested it on the liftgate of an asphalt truck, a wheel barrow, rakes and shovels used by a contractor for applying the asphalt to a road. It also worked effectively in these applications.



In other applications, IRTA tested low-VOC alternatives in mold cleaning and mold release industrial applications. Mineral spirits are used in the mold releases for molding parts made of fiberglass, composite and foam. High VOC content wax based mold releases are sometimes still used for fiberglass molding. The best alternative is to use a water-based liquid

mold release agent for these applications. For some of the foam parts, an exempt solvent based mold release agent formulated by IRTA and a supplier was effective. For concrete parts molding, the recycled vegetable oil was the lowest cost release agent alternative.

IRTA developed and tested a few different alternatives for removing mold protectant from metal molds used to make plastic food service parts. Although a few acetone based cleaners worked effectively, the best alternative was a dry ice blasting system. The advantage of this system is that it generates no secondary media since the dry ice becomes a gas.



As part of the project, IRTA estimated the VOC emissions from concrete stamping, asphalt manufacturing and application and manufactured parts molding. VOC emissions from the asphalt industry are by far the highest, at about seven tons per day. By switching to recycled vegetable oil, this source of emissions could be eliminated. VOC emissions from the other two applications amount to a total of about two tons per day. Implementing alternatives in these applications could also result in a substantial emissions reduction.

The final report summarizing the results of the field research is available on IRTA's website at www.irta.us. For more information on any aspect of the project, call Katy Wolf at IRTA at (323) 56-1121.

Calendar

February 3-6

16th Annual California Unified Program Conference, Hyatt Regency Hotel, San Francisco Airport. For information, access www.calcupa.org.

April

The California Department of Toxic Substances Control (DTSC) adopted the Safer Consumer

Products regulation on October 1, 2013. By April, DTSC must identify five priority chemical/products combinations in wide spread use for further investigation. For information, access www.dtsc.ca.gov.

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!

Yes! I would like to support the efforts and goals of IRTA.
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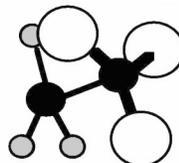
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IRTA
Institute for Research and
Technical Assistance
 8579 Skyline Drive
 Los Angeles, CA 90046
 website: www.irta.us



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