Institute for Research and Technical Assistance

The Alternative

IRTA Newsletter Volume XXI Number 5 Winter 2012

IRTA to Start Mold Release Agent Project Shortly

IRTA is planning to initiate a project to identify, test, develop and demonstrate alternative low-VOC, low toxicity mold release agents early next year. The project is sponsored by the South Coast Air Quality Management District (SCAQMD) and U.S. EPA Region IX.

Thousands of companies in the U.S. and California make metal, fiberglass, composite, plastic and concrete products. These products are often manufactured using molds which form the part into a particular configuration or pattern. Mold release agents are used to ensure that the parts, as they are made, can be released easily and quickly from the molds.

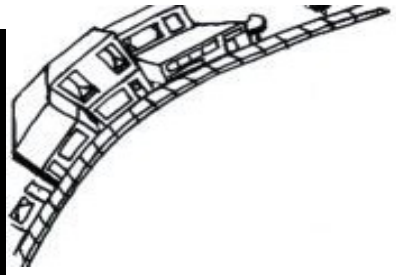
Mold release agents often contain waxes, silicon and lubricant compounds and many of them are blended with solvent carriers. The solvents in the formulations are generally petroleum or other VOC solvents and they may also contain toxic components like toluene and xylene. The mold release products are sold in large quantities like five gallon containers and drums for use in industrial facilities or by contractors. They are also sold in small spray bottles or aerosol containers for use by smaller facilities or operations and consumers.

Most of the mold release agents sold in the South Coast Basin are high VOC products. In particular, the mold release products used in fiberglass and non-aerospace composite manufacturing have no VOC limits. For virtually all applications, there are no limits on the toxic components that can be used in mold release agents.

IRTA is looking for companies who are willing to investigate and test alternative low-VOC mold release agents in their processes. There may be advantages to participating in the project. First, some companies have an overall permit limit on their VOC emissions; finding low-VOC alternatives will help such facilities expand their operations. Second, many companies are adopting "greener" products and this alternatives work will fit with that goal. Companies participating in the project can gain publicity as proactive environmental stewards. Third, companies may be able to reduce their costs and optimize their processes through adoption of lower VOC content products.

IRTA is also looking for suppliers to participate in the project. Many suppliers have developed low-VOC products and would like to expand their product lines. In some cases, IRTA may be able to help these suppliers in formulating additional innovative low-VOC products.

Representatives of companies using molds or supplying mold release agents who want to discuss project participation should contact Katy Wolf at IRTA at (323) 656-1121.



Small Business Corner

New York State Petitions EPA to add nPB to HAP List

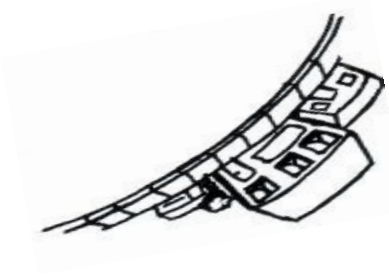
On October 24, the State of New York's Department of Environmental Conservation petitioned EPA to add n-propyl bromide (nPB) to the list of Hazardous Air Pollutants (HAPs) which are regulated under Section 112 of the Clean Air Act. This petition comes about a year after another organization, the Halogenated Solvents Industry Alliance (HSIA), submitted a petition to EPA on the same matter. The New York action should add weight to the issue.

It has been clear for many years as the toxicity data on nPB is strengthened that the chemical is toxic in a variety of ways and should be added to the HAP list. The chemical is a reproductive toxin and also causes nerve damage. The National Toxicology Program (NTP) conducted a two year bioassay where rats and mice were exposed to nPB for their lifetimes. A draft of the results was released in 2009 but the report was never finalized. Even so, it concludes that there is clear evidence of carcinogenic activity in female rats and mice and some evidence of carcinogenicity in male rats.

In California, the suppliers of nPB continue to market it to dry cleaners and for vapor degreasing. Some dry cleaners in the state and companies using vapor degreasers in San Diego and the Bay Area continue to use the chemical. Some time ago, the California Occupational Safety and Health Administration (Cal/OSHA) lowered the allowed exposure level of nPB to 5 ppm. The chemical is very volatile and this level is virtually impossible to achieve with the dry cleaning and vapor degreasing equipment used with nPB today. If the Cal/OSHA standard were enforced, none of these facilities would be able to continue using the chemical.

IRTA requested that the California Air Resources Board add the chemical to the California Toxic Air Contaminant (TAC) list several years ago but CARB has taken no action. As a consequence, because the chemical is not on the TAC list, local air districts have no choice but to grant permits for its use in any application. Until CARB takes action, the situation will likely continue. If EPA does decide to add the chemical to the HAP list, perhaps CARB will consider adding it to the TAC list. It is really not good public policy for either agency to allow the chemical's continued use without any control.

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



IRTA Completes CARB Greenhouse Gas Project

Over the last three years, IRTA has worked on a research project on greenhouse gases (GHGs) which was sponsored by the California Air Resources Board (CARB) Research Division. As part of AB 32, the Global Warming Solutions Act, CARB is charged with developing and implementing a plan for the state of California for reducing emissions of GHGs to 1990 levels by 2020. Part of the work involves determining the inventory of different GHGs with high Global Warming Potential (GWP). As part of that effort, IRTA developed a bottom up inventory of high GWP GHG banks and emissions in two major categories.

The first category is solvents. The three applications of focus are film cleaning which relies on one hydrochlorofluorocarbon (HCFC) and hydrofluoroethers (HFEs), vapor degreasing which relies on the same GHGs and also hydrofluorocarbons (HFCs), and disk lubing which relies on HFEs and perflurorocarbons (PFCs). Film cleaning involves cleaning movie film, often valuable original negative film. Vapor degreasing involves cleaning various metal and plastic parts, often high end precision parts. In disk lubing, the GHGs are used as carriers for a lubricant which is deposited on hard computer disks.

The suppliers of the GHGs in the solvent industry were reluctant to share information on the use of their solvents. As a consequence, IRTA used local air district permit information to estimate emissions. The major air districts where GHG solvents are used include the Bay Area Air Quality Management District, the South Coast Air Quality Management District and the San Diego Air Pollution Control District. IRTA estimated emissions in 2010 and projected emissions for 2020 for each of the air districts. IRTA also analyzed methods of reducing emissions and performed a cost analysis for using better equipment and GHG alternatives. Emissions of GHGs are expected to decline over the next 10 years in these applications, primarily because one of the high GWP solvents, HCFC-225, will be phased out beginning in 2015. HCFC-225 is the most widely used GHG solvent in the state and it is scheduled to be banned because it contributes to stratospheric ozone depletion.

The second category is fire protection applications which include total flooding systems and portable fire extinguishers. Total flooding systems rely on Halon 1301, which is also an ozone depleting substance, HFCs and a perfluoroketone. These systems are used to protect expensive electronic equipment and data that could be destroyed in the event of a fire. Portable fire extinguishers rely on Halon 1211, an HFC and an HCFC. They are used in a variety of applications including marine and aerospace facilities for local fire protection. IRTA estimated the size of the bank and the level of emissions for the two applications. IRTA also analyzed the GHG alternatives and compared the cost of using them.

IRTA worked with a major system installer to make estimates of the bank of GHGs in total flooding systems in 2010. Emissions from these systems were estimated as a percentage of the bank. As with solvents, the size of the bank and emissions of GHGs are expected to decline between 2010 and 2020. This is largely a result of a reduction in the use of the halons which have relatively high GWPs.

(continued on page 5)

DTSC Issues Draft Green Chemistry Regulation

On October 31, Cal/EPA's Department of Toxic Substances Control (DTSC) issued "draft informal" regulations on safer consumer products in California. The regulations were developed under the 2008 Green Chemistry Initiative. In that year, two bills, AB 1879 and SB 509, were signed into law. The laws authorize DTSC to develop an alternatives analysis framework to encourage the substitution of safer alternatives for harmful chemicals used today. The regulatory development involved more than two years of outreach to a variety of stakeholders, including the public. After an informal comment period, DTSC plans to develop a formal regulatory proposal for comments.

The regulations establish a list of about 3,000 Chemicals of Concern (COCs) which is largely taken from other lists prepared by authoritative bodies. The regulations also allow DTSC to identify additional COCs and provide a process for an individual or organization to petition DTSC to add a chemical or a product/chemical combination to the list.

The regulations require DTSC to evaluate and prioritize product/COC combinations to develop a list of Priority Products. An alternatives assessment must be conducted for these Priority Products. Manufacturers, importers or retailers of these products must notify DTSC and they must perform an alternatives analysis (AA) for the product and a COC in the product. DTSC must determine methods of limiting the adverse public health or environmental impacts posed by the Priority Product/COC if the manufacturer wants to continue selling it or the alternative chemical/product selected by the manufacturer as a substitute. To avoid complying with the requirements, a manufacturer may remove the product from the market.

Thirty days after the regulation becomes effective, DTSC will provide a list of the chemicals identified as COCs on their website. DTSC will evaluate products and determine which products are Priority Products based on widely used products with high exposures. After receiving comments and making revisions, DTSC will finalize the COCs and Priority Products and will revise the list at least once every three years.

DTSC must develop guidance materials to assist in performing AAs. The AA involves determining whether the COC is necessary in the Priority Product, identifying potential alternatives, evaluating them and ultimately selecting one. DTSC will review the AA reports and decide what the regulatory responses should be.

It is not clear why any manufacturer or supplier of a Priority Product containing a COC would ever perform an AA which could be a time consuming and expensive process. Rather the manufacturer or supplier could simply remove the product from the market. This would actually have the desired effect of reducing the risk to consumers and others in California who are exposed to hazardous substances classified as Priority Product/COC combinations.

For information on DTSC's Safer Consumer Products Informal Draft Regulations, access DTSC's website at www.dtsc.ca.gov.

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

IRTA Paints Boat With Port of San Francisco

IRTA and the Port painted a Port of San Francisco boat at the beginning of October. The boat was the second Port boat painted as part of a project sponsored by EPA and Cal/EPA's Department of Toxic Substances Control (DTSC). The project involves testing new and emerging nonbiocide hull paints on panels and boats and investigating and testing methods of reducing the cost and complexity of the paint application process. The research will be completed shortly and the final report will be available on IRTA's website at www.irta.us.

The Port of San Francisco had an unpainted 14 foot aluminum hull workboat that is used by the Port for inspections. In panel testing conducted during the project and completed in August, IRTA had tested two emerging paints made by Petit. One of the paints, in particular, performed well in the panel testing. The paint is a soft nonbiocide paint based on silicon and a fluoropolymer. The specific fluoropolymer in the paint had been withdrawn from the market so Petit could not provide the same paint for boat testing. The Petit chemist reformulated the paint using a different

(continued on page 6)

(continued from page 3)

The analysis also involved comparing the emissions estimates for some of the GHGs to EPA emissions estimates and the estimates from two fire protection trade associations.

The final project report entitled "Developing a California Inventory for Industrial Applications of Perfluorocarbons, Sulfur Hexafluoride, Hydrofluorocarbons, Nitrogen Trifluoride, Hydrofluoroethers and Ozone Depleting Substances" can be accessed on IRTA's website at www.irta.us. For more information or to discuss the applications and findings, call Katy Wolf at IRTA at (323) 656-1121.

(continued from page 5)

fluoropolymer and IRTA and the Port decided to test it on the 14 foot workboat.

The application procedure involved applying two coats of primer, one tiecoat and two topcoats. The paints were applied by rolling and the boat was launched in October. The nonbiocide paint is fairly soft and is flexible and rubbery to the touch. The workboat is used heavily and often sustains damage to the bow. IRTA and the Port plan to see how the paint holds up over the next few months.

IRTA and the Port painted another boat, a Boston Whaler with a fiberglass hull, with a different emerging paint last January. IRTA and the Port plan to paint one additional boat with a third emerging paint in the future.

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

Visit our website: www.irta.us

Read back issues of The Alternative and

recently completed reports.

IRTA Paints Boat With New Experimental Method

In December, IRTA was involved in painting a boat with a nonbiocide paint over a copper paint. Applying the nonbiocide paints over copper paint is an experimental technique that, if successful, may reduce the cost of a paint job for a nonbiocide paint considerably.

IRTA has been working on a project sponsored by U.S. EPA and Cal/EPA's Department of Toxic Substances Control (DTSC) for the last 18 months. The project involves conducting panel tests of new and emerging nonbiocide paints which are alternatives to copper antifouling paints used to protect boat hulls from excessive marine growth. It also involves applying new and emerging nonbiocide paints to boats and investigating and analyzing methods of making it less costly to apply nonbiocide paints to boats.

Copper paints are generally rolled on boats today. The general wisdom is that nonbiocide paints must be sprayed on boats rather than being rolled on. Copper paints are also applied over the old copper paint after adequate surface preparation when a boatyard performs a paint job. The general wisdom is that the nonbiocide paints must be applied to a stripped boat hull the first time they are applied. Spraying the paint on a 30 foot boat instead of rolling it can increase the cost of a paint job for a 30 foot boat by as much as $1,000. Stripping the hull of a 30 foot boat could cost $2,500. The spraying and stripping requirements for the nonbiocide paints can increase the cost of a paint job from about $1,040 for a copper paint to as much as $5,000 for a nonbiocide paint.

In the DTSC project, IRTA has demonstrated that the nonbiocide paints can be rolled on

(continued on page 7)

(continued from page 6)

rather than sprayed on. Rolling the paints does not seem to affect the performance of the paint at all. In the case of three boats that were painted during the project, IRTA arranged for the nonbiocide paint to be applied over the copper paint. A so-called sealer is used over the copper paint and then the nonbiocide paint is applied over the sealer. The three boats that have been painted in this way seem to be performing the same way they would if the paint had been applied to a stripped hull.

In an earlier project, also sponsored by EPA, IRTA worked with the Port of San Diego to test biocide and nonbiocide alternatives to copper antifouling paints. One of the best performing nonbiocide paints in that project was a paint called Intersleek 900. The boat that was painted in December was painted with Intersleek 900. A sealer developed by International Paint was applied over the old copper paint and Intersleek 900 was applied over the sealer. The boat was painted at South Cost Shipyard in Newport Beach.

The boat is a 40 foot sailboat owned by James Rhodes. The owner is planning to maintain and clean the hull himself to ensure that the proper tools are used. IRTA and the supplier plan to follow the boat over the next few years to observe the performance and longevity of the paint.

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

Calendar

February 6 - 9

14th Annual Unified Program Training Conference. The conference will be held at the Hyatt Regency, San Francisco, CA. For information, call (530) 676-0815.

March 27 - 29

Westec 2012. The conference and exhibition will be held at the Los Angeles Convention Center in Los Angeles, CA. For information, access westeconline.com.

April 22

Earth Day

May 15 - 19

Western Sustainability and Pollution Prevention Network (WSPPN) and CalRecycle will hold the P2/Used Oil/HHW/Green Business Conference at the Sheraton Grand Hotel in Sacramento, CA. For information, access www.wsppn.org.

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!

Printed on recycled paper

☐ Yes! I would like to support the efforts and goals of IRTA.
Enclosed is my tax-deductible contribution of: $_____

☐ I would like to receive more information about IRTA.

☐ Please send me a brochure.

Please note the following name/address change below.

Name/Title _____

Company _____

Address _____

City, State, Zip _____

Institute for Research and Technical Assistance

In This Issue

IRTA
Institute for Research and Technical Assistance
8579 Skyline Drive
Los Angeles, CA 90046
website: www.irta.us