



Fact Sheet, August 2014

**IRTA**

Institute for Research and Technical Assistance

## **Graffiti Removal: Films and Graffiti Resistant Coatings for Protecting Surfaces**

Graffiti management and control is a resource intensive and costly problem for public agencies and private companies. Taggers use various materials like spray paint, marker, stickers and acid or diamond tipped tools to deface surfaces like sidewalks, masonry walls, fences, lamp posts, traffic signs, billboards, glass and plexiglass. Some of the methods used today for mitigating graffiti pose risks to workers and community members, lead to emissions of volatile organic compounds (VOCs) or cause other environmental damage. Alternative methods that are safer for workers and the environment are needed.

### **What Materials Can be Used to Protect Surfaces?**

Two types of materials can be used to protect surfaces from taggers. These include films and graffiti resistant coatings. Films are a good option to use on glass, plexiglass and street signs. Taggers apply graffiti like spray paint, marker and stickers to these surfaces and they also often etch the glass or plexiglass with diamond tipped tools or acids. Graffiti resistant coatings may be useful for some masonry surfaces and for certain surfaces that could be damaged by graffiti removers.

### **How Can Films Be Useful?**

As part of a project to investigate and test alternative graffiti management methods, EPA, the Bay Area Air Quality Management District and the San Francisco Department of the Environment (DE) sponsored a project which was conducted by the Institute for Research and Technical Assistance (IRTA), a nonprofit technical environmental organization. One of the tasks was to investigate the role of films in protecting surfaces. As part of the project, IRTA evaluated and tested films for graffiti management. Sacrificial films are designed for one-time use. They can be used on glass windows or plexiglass and when they accumulate graffiti, they can be torn down and replaced with a new film. Sacrificial films may also be useful for preventing etching of glass or plexiglass. Taggers may etch the surface of the clear film and the etching may not penetrate into the substrate below.

IRTA conducted extensive testing of non-sacrificial films for protecting street signs. One is a fluoropolymer film made by 3M. Some spray paint and marker can be lifted from the film using packaging tape and stickers can be lifted off intact. A small amount of graffiti remover can remove the remaining graffiti. Another is a vinyl film made by Vandal Guard. An aggressive graffiti remover must be used to remove all of the graffiti from the film, including the stickers. Both films protect the screen printing on the street sign. Most sign shops in California make street signs for agencies and the vast

majority of them use 3M screen materials for the signs. The 3M film can be used over this base sheeting under the sign warranty. It is a violation of the warranty to use the non-3M film on these street signs and the Vandal Guard film is best used for other types of signage.



### How Can Graffiti Resistant Coatings Be Useful?

As part of the project, IRTA investigated and tested graffiti resistant coatings. Many of the coatings offered by suppliers do not meet the low VOC limits established by the local air districts in California. IRTA tested five different graffiti resistant coatings that met the VOC standards. Many suppliers of the coatings claim that graffiti can be removed easily from the coatings. IRTA found that this claim is generally not true, particularly for graffiti that has been on a substrate for more than about 12 hours. Graffiti is difficult to remove from graffiti resistant coatings and aggressive graffiti removers must be used or there will be shadowing left on the surface. IRTA tested the coatings on various masonry surfaces including concrete, painted stucco and granite. Some of the coatings discolored the substrate and this would not be acceptable. Building owners most often apply the coatings to the bottom six or eight feet of a building. If there is discoloring, the taggers will know there is a coating on the building and simply apply the graffiti above that height. It also looks unsightly if the bottom of the building is discolored and most building owners would not accept that. IRTA applied a few of the coatings to hard nonporous fiberglass. It was more difficult to remove the graffiti from the coating than to remove the graffiti from the bare substrate. One coating was tested on street signs and it performed well; it was more difficult to remove the graffiti, in this case, than it was when the 3M film was used. The testing indicated that there is some limited applicability for graffiti resistant coatings.



### **Where Can I Find Out More About Films and Graffiti Resistant Coatings?**

The results of the graffiti project are available in a report entitled "Safer Alternative Graffiti Management Methods for California." The report can be accessed on the IRTA website at [www.irta.us](http://www.irta.us). For more information, contact Katy Wolf at IRTA at (323) 656-1121 or [kwolf.irta@earthlink.net](mailto:kwolf.irta@earthlink.net).

#### **DISCLAIMER**

This report was prepared as a result of work sponsored, paid for, in whole or in part, by EPA Region IX, the Bay Area Air Quality Management District and the San Francisco Department of the Environment. The opinions, findings, conclusions, and recommendations are those of the author and do not necessarily represent the views of the sponsors. The sponsors, their officers, employees, contractors and subcontractors make no warranty, expressed or implied, and assume no legal liability for the information in this fact sheet.