Safer Graffiti Abatement

Protecting Workers and the Environment

EPA Region 9
December 6 and 11, 2018

Public Works Agency
Alameda County

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1. Introduction and Overview

- Classroom
- Health & Safety
- Hands-on Testing
- Review Results – Side by Side

2. Program Overview

- *City Population/Area*
- *# of Graffiti Abatement Workers*
- *Challenges*

Safer Graffiti Abatement: Why?

1. Worker Safety
2. Environmental Impact
3. Cost

Safer Graffiti Abatement: Worker Safety

- 3.4 million U.S. workers potentially exposed to VOCs and toxic solvents from graffiti remover
  (U.S. Dept. of Labor)

+ Slips/Trips/Falls
+ Ergonomics

Safer Graffiti Abatement: Environmental Impact

- Many graffiti removal products contain VOCs and other chemicals that can damage the environment

Safer Graffiti Abatement: Cost

- U.S. spends billions annually managing graffiti.
  - San Francisco: $15 million just on buses and streetcars
  - Los Angeles: $7.7 million to remove 32.8 million square feet of graffiti
  - Phoenix spent $2.2 million for graffiti cleanup

✓ Some alternatives reduce time and labor:
- ✓ protective films
- ✓ pressure washing
- ✓ abrasive blasting

Safer Graffiti Abatement: How?

U.S. EPA tested methods in San Francisco and identified effective alternatives:

- **Safer Chemicals** are healthier for workers to use, but still effective on paint, markers, and stickers.
- **Protective Films** are clear and removable and shield glass and signs from all kinds of graffiti—including scratching.
- **Better Blasting Alternatives** use high pressure water and abrasives to remove graffiti without chemicals.

Type of Graffiti

Surface Affected?

- How easily the surface absorbs graffiti – how "porous" it is – can help you select the best graffiti removal process.
  - Porous: Masonry, Concrete, Pavement, Stucco, and Wood
  - Non-Porous: Aluminum, Steel, and Glass
  - Semi-Porous: Painted Wood, Vinyl Siding, and Fiberglass

Safer Chemicals:

- ***Healthier for workers to use***
- ***Still effective on paint, markers, and stickers***
- ***Choose the best product for the type of graffiti without damaging the surface.***

EPA Video on safer chemicals:
https://www.youtube.com/watch?v=_Tg1njAtNzo&feature=youtu.be

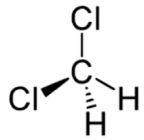
Safer Chemicals:

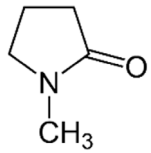
Choose the best chemical remover for the job!

- **Porous: *Acetone* (CAS # 67-64-1) works best for Masonry, Concrete, Pavement, Stucco, and Wood**
- **Semi-Porous: *Soy Methyl Ester* (CAS # 67784-80-9) works best Painted Wood, Vinyl Siding, and Fiberglass**
- **Non-Porous: *Benzyl Alcohol* (CAS # 100-51-6) works best for Aluminum, Steel, and Glass**

Chemicals to Avoid:

- **Methylene Chloride (CAS # 75-09-2) is a carcinogen; also called dichloromethane**
- **N-Methyl Pyrrolidone (CAS # 872-50-4) is a reproductive toxin; also called 1-Methylpyrrolidin-2-one**





Safer Chemicals:

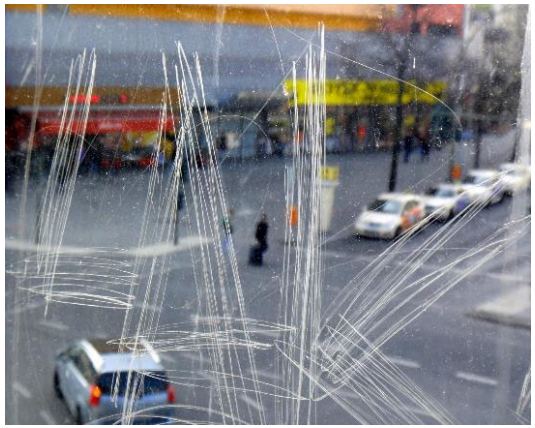
Matching Chemicals with Graffiti		
Active Ingredient	Comment	Better for the Environment and Workers
Soap and Water	--	
Citrus Solvent	Caustic	
Acetone	Evaporates quickly, non-VOC	
Benzyl Alcohol	Evaporates quickly, flammable, can remove paint	
Soy methyl esters		
Avoid		
N-methyl pyrrolidone (NMP)	reproductive and developmental toxin	
Methylene Chloride	carcinogen	
Chlorinated Solvents	toxic	

From 2014 IRTA Report

Protective Films:

- *Do not require unsafe chemicals*
- *Sacrificial and non-sacrificial films protect windows and signs*
- *Available through specialty suppliers in bulk*

Protective Films:



EPA Video on protective films:
https://www.youtube.com/watch?v=aMd91oL6zvA&feature=youtu.be

Better Blasting

- *Use high pressure water to remove graffiti without chemicals*

Better Blasting

Additives/alternatives:

- *Heated*
- *Soap*
- *Blasting media:*
  - *recycled glass*
  - *baking soda*
  - *dry ice*
  - *abrasives*

Test to avoid damaging the surface: scouring, fogging, erosion, paint removal

3. Current Approaches

- *Challenges*
- *Successes*
- *Costs*
- *Promising products/tools*

3. Hands-on Testing

- *Effectiveness*
- *Ease of Use:*
  - *Time*
  - *Labor*
  - *Cleanup*
- *Health & Safety:*
  - *Chemicals*
  - *Slip/Trip/Fall*
  - *Overspray*
  - *Other*

Hands-on Testing: Health and Safety

- *Always use protective equipment: gloves, glasses, and masks*
- *Don't mix graffiti removers - some combinations release dangerous fumes*
- *Use flammable graffiti removers away from flame and outdoors or with good ventilation*

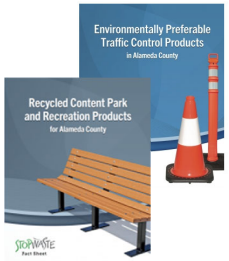
3. Testing Results

- *Effectiveness*
- *Ease of Use:*
  - *Time*
  - *Labor*
  - *Cleanup*
- *Health & Safety:*
  - *Chemicals*
  - *Slip/Trip/Fall*
  - *Overspray*
  - *Other*

Resources

- **EPA Safer Choice:** information on the Safer Choice label for other cleaning products at: *www.epa.gov/saferchoice*
- **IRTA Research Report:** Safer Alternative Graffiti Management Methods for California: *https://archive.epa.gov/region9/mediacenter/web/pdf/report-safer-alternative-graffiti-management.pdf*
- **Anti-Graffiti.org**
- **EPA Region 9:**
  - Jessica Counts-Arnold (counts-arnold.jessica@epa.gov)
  - Sebastian Beshk (beshk.sebastian@epa.gov)

Learning More…
Resources For You



GREEN SEAL

MPI GREEN PERFORMANCE

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Buying Paint

Key Considerations for Paint

1. **V**olatile **O**rganic **C**ompounds (VOCs)
2. Chemicals of Concern
   1. antimicrobials (i.e. Triclosan)
   2. nonylphenol ethoxylates (NPEs)
3. Recycled Content

"No evidence is available to suggest that use of these [antimicrobial] products will make consumers and patients any healthier or prevent disease"
-CDC (2003)

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Purchasing Strategies

1. Low-VOC (<50 g/l for flat)
2. Avoid antimicrobials (i.e. Triclosan)
3. Water-based (latex)
4. Avoid nonylphenol ethoxylates (NPEs)
5. Avoid aerosol paint

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Third-Party Certifications

Green Seal

Non-profit that sets standards based on international environmental labeling programs

Master Paint Institute

Standards incorporate environmental safety and durability

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Questions about paint?

Contact Rory

Rory@sustainableconceptsstudio.com

or 510-685-5669

Green Purchasing Roundtable

Advance green purchasing to meet city goals and policies

- Hear directly from experts
- Share and learn with each other

http://www.acsustain.org/what/purchasing/roundtable

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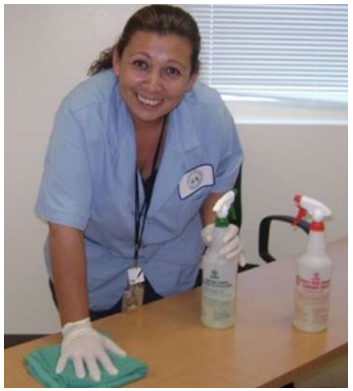
Green Purchasing Policy

- Buy products and services with **lower impacts**
  - Energy efficient
  - Recycled content
  - Non-toxic, less pollution



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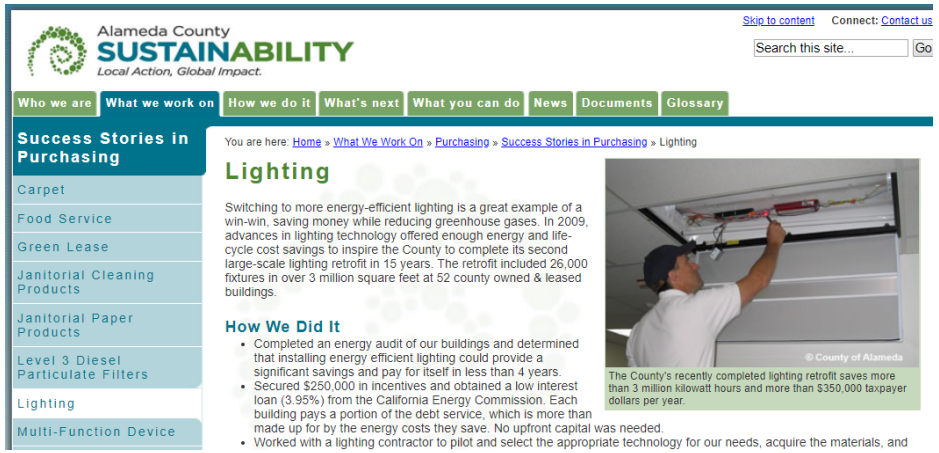
StopWaste Fact Sheets

- Parks & Rec Products
- Janitorial papers & cleaning chemicals
- Traffic control products
- **COMING SOON: Green Maintenance and Operations**

Case Studies



http://www.acsustain.org/what/purchasing/success

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Resources

ACSUSTAIN.ORG

Past Roundtable topics, case studies, bid specifications, piggybacking opportunities

http://www.acsustain.org

STOPWASTE.ORG

Product and service fact sheets, overall policy guidance

http://www.stopwaste.org

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Thank You

With green purchasing questions:

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