Safer Graffiti Abatement
Protecting Workers and the Environment

EPA Region 9
December 6 and 11, 2018
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

- Paint
- Markers
- Stickers
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:

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Comment</th>
<th>Better for the Environment and Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soap and Water</td>
<td></td>
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</tr>
<tr>
<td>Citrus Solvent</td>
<td>Caustic</td>
<td></td>
</tr>
<tr>
<td>Acetone</td>
<td>Evaporates quickly, non-VOC</td>
<td></td>
</tr>
<tr>
<td>Benzyl Alcohol</td>
<td>Evaporates quickly, flammable, can remove paint</td>
<td></td>
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<tr>
<td>Soy methyl esters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-methyl pyrrolidone (NMP)</td>
<td>reproductive and developmental toxin</td>
<td></td>
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<tr>
<td>Methylene Chloride</td>
<td>carcinogen</td>
<td></td>
</tr>
<tr>
<td>Chlorinated Solvents</td>
<td>toxic</td>
<td></td>
</tr>
</tbody>
</table>

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**

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

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**3. Current Approaches**

- Challenges
- Successes
- Costs
- Promising products/tools

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**3. Hands-on Testing**

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

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**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

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Resources

- **EPA Safer Choice:** information on the Safer Choice label for other cleaning products at: [www.epa.gov/saferchoice](http://www.epa.gov/saferchoice)
- **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

Buying Paint

Key Considerations for Paint

1. Volatile Organic Compounds (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)

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
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

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

Alameda County Green Purchasing Policy

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

- Parks & Rec Products
- Traffic control products
- Janitorial papers & cleaning chemicals
- Janitorial cleaning products
- Traffic control products
- Janitorial paper products
- Cleaner chemicals
- Green Maintenance and Operations

Case Studies

- 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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