**San Francisco Asthma Task Force: Recommendations for Safer Bleach Use**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td><strong>Reduce Exposure</strong></td>
<td>Use personal protective equipment (PPE)</td>
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<td></td>
<td>1) Gloves</td>
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<td>2) Safety goggles</td>
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<td>3) Aprons.</td>
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<td></td>
<td>Purchase fragrance-free bleach with 6.0% Sodium Hypochlorite</td>
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<td></td>
<td>a) Avoid industrial strength bleach that exceeds 6.15% concentration</td>
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<td>b) Avoid purchasing bleach with no concentration specified on the label.</td>
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<td></td>
<td>Use quart-size (32oz.) bottles to properly dilute bleach.</td>
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<td>Use tools for proper dilution of bleach:</td>
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<td></td>
<td>a) Calibrated dispensing pumps (no metal contact) OR</td>
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<td></td>
<td>b) Tablespoon and teaspoon.</td>
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<td></td>
<td>Keep a safe distance from the bleach when diluting.</td>
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<td>Maximize ventilation by opening windows or doors where possible.</td>
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<td>Ensure that the children are in another area/room when diluting, sanitizing,</td>
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<td></td>
<td>and disinfecting.</td>
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<td>Apply bleach solution onto surfaces while spraying away from breathing zone.</td>
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<td>Ensure that surfaces are completely dry when children are in the area after</td>
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<td></td>
<td>sanitizing and disinfecting.</td>
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<td><strong>Proper Practices</strong></td>
<td>Dilute bleach daily.</td>
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<td></td>
<td>Use bleach dilutions specified on the label for sanitizing and disinfecting</td>
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<td></td>
<td>Proper dilutions for 6.0% Sodium Hypochlorite:</td>
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<tr>
<td></td>
<td>Sanitizing: ~1 Teaspoon bleach per quart (32oz) of water</td>
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<td></td>
<td>Disinfecting: 1 Tablespoon bleach per quart (32oz) of water</td>
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<td></td>
<td>Disinfecting bodily fluid spills*: ~6 Tablespoons bleach per quart (32oz) of</td>
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<tr>
<td></td>
<td>water</td>
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<td>Label spray bottles appropriately.</td>
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<td>Pre-clean with diluted triclosan-free soap.</td>
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<td>Ensure proper contact time (2 minutes) by using digital timers.</td>
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<td></td>
<td>Rinse the surface with water after disinfecting.</td>
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<tr>
<td>**Avoid Accidents &amp; Prepare</td>
<td>Keep bleach or any products out of the reach of children.</td>
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<tr>
<td>for Emergencies**</td>
<td>Do not mix different products or chemicals.</td>
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<td>Do not recycle spray bottles from other products. Do not recycle concentrated</td>
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<tr>
<td></td>
<td>bleach bottles.</td>
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<td>Avoid using similar spray bottles for diluted bleach as those used for water</td>
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<tr>
<td></td>
<td>play.</td>
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<td></td>
<td>Purchase an Emergency Eye Wash Station.</td>
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</table>

*Per Cal-OSHA, bodily fluid spills greater than 10mL (less than one Tablespoon) require disinfection using a 1:10 dilution. In order to address outbreak situations properly, please refer to medical personnel serving the center.*

San Francisco Asthma Task Force: Bleach Exposure in Child Care Settings—Strategies for Elimination or Reduction. This project was made possible by grants from the San Francisco Foundation and Regional Asthma Management & Prevention (RAMP), and a financial contribution from a private donor.
Simple Steps for Using Bleach

**B**ottle Size: 32 Ounces (1 Quart)

**L**abel Spray Bottles:
- Soap and Water
- Sanitizing Solution
- Disinfecting Solution

**E**quipment:
- Gloves
- Protective Eyewear
- Apron
- Calibrated Dispensing Pumps
- Digital Timers

**A**ir Flow:
- Ensure Proper Ventilation

**C**oncentration
- Disinfecting
- Sanitizing
- 2 Minutes
- Ensure Children are in Another Area

**H**ands-On Training:
- Teachers/Aides
- Substitutes/Floaters
- Parents/Volunteers

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San Francisco Asthma Task Force: Recommendations for Safer Bleach Use

1) **Purge the center or classrooms of additional sanitizers and disinfectants**
Bleach meets all California Child Care Licensing requirements for sanitizing and disinfecting.

2) **Purchase practical, cost-effective tools that help reduce exposure**
   a) No metal-contact calibrated dispensing pumps for preparing sanitizing and disinfecting level solutions;
   b) Quart-size (32 ounces) spray bottles;
   c) Digital timers to ensure the proper dwell time of two minutes for bleach;
   d) Personal Protective Equipment: gloves and protective eyewear;
   e) Funnel; and
   f) Simple, linguistically appropriate instructional placards.

3) **Training**
   **For Managers**
   a) Provide training to help understand the risks of the chemicals in sanitizers and disinfectants in order to prevent injury and illness among staff and the children in their care.
   b) Raise awareness of daily risks associated with using multiple products, and improper practices in the classroom in order to become better equipped to help eliminate such risks.
   c) Discuss communication strategies that would be most effective for classroom staff.
   d) Identify training methods to disseminate information to new staff members, substitutes, volunteers, students and interns.
   e) Educate parents: asthma education, product awareness, and proper practices.
   f) Become familiar with challenges of classroom spaces and daily routines for sanitizing and disinfecting in order to provide support and to identify obstacles for sustaining proper practice.
   g) Perform quarterly internal assessments to identify extraneous sanitizers and disinfectants in the center; outdated instructional material; and to identify areas of proper practices that need review.

   **For Classroom Staff**
   a) Raise awareness of asthma and asthma symptoms for teachers and aides.
   b) Identify teachers, aides and children with respiratory distress in order to better monitor and protect health.
   c) Provide training to define pre-cleaning, sanitizing, and disinfecting and the corresponding areas.
   d) Encourage proper practices for diluting and using bleach.
   e) Provide hands-on training to confirm that all teachers and aides have received the appropriate instructions to ensure best practices and avoid accidents.
   f) Tailor classroom environments to reduce exposure.
   g) For pre-school age groups:
      • Monitor tooth brushing and toileting for potential bodily fluid spills that require disinfecting;
      • Divert children away from areas soiled with bodily fluids by using another sink or toilet when possible; and
      • Disinfect toilets and sinks during natural breaks in the daily schedule as a best practice for infection control.

Training tools, instructional placards and bleach bottle labels are available for download on the San Francisco Asthma Task Force website.
<table>
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<tr>
<th>Active Ingredient</th>
<th>Examples of Products with these Ingredients in Child Care Settings</th>
<th>Potential Health Risks</th>
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| **Quaternary ammonium compounds**        | ❖ Lysol® Disinfectant Spray  
❖ Clorox® Disinfecting Wipes, Bleach-Free  
❖ Lysol® Brand Dual Action Disinfecting Wipes  
❖ Fantastik® Antibacterial All-Purpose Cleaner  
❖ Formula 409® Kitchen Antibacterial All Purpose Cleaner  
❖ Cling Free® Fabric Softener, Static Stopping Sheets | These compounds are listed as asthmagens in the database maintained by the Association of Occupational and Environmental Clinics (AOEC). |
| **Thymol**                               | ❖ Seventh Generation® Disinfecting Multi-Surface Cleaner  
❖ Benefect® Botanical Disinfectant  
❖ Sol-U-Guard Botanical® (Melaleuca) |                                                                                                                                                      |
| **Ethylene glycol butyl ether**          | ❖ Simple Green® All-Purpose Cleaner  
❖ Windex® Glass Cleaner Powerized Formula (institutional) | This ingredient is a possible carcinogen, and animals studies have associated 2-butoxyethanol with:  
- liver damage/cancer  
- red blood cell damage causing anemia  
- impaired fertility  
- reproductive and developmental toxicity |
| **Triclosan**                            | ❖ Ultra Dawn Dishwashing Liquid and Antibacterial Hand Soap  
❖ Dial® Antimicrobial Liquid Hand Soap  
❖ Softsoap® 2 in 1 Antibacterial Hand Soap Plus Moisturizing Lotion  
❖ Softsoap® Aquarium Antibacterial Liquid Hand Soap | Studies show there are no additional benefits using antibacterial soap containing triclosan.  
This ingredient is currently under review by the FDA as an additive.  
Animal studies suggest triclosan may enable the spread of antibiotic-resistant bacteria, and may mimic hormones resulting in possible health risks such as:  
- reproductive harm  
- developmental effects on the nervous and endocrine systems |
Resources

For more information regarding the use of USEPA registered sanitizers and disinfectants:
United States Environmental Protection Agency: Regulating Antimicrobial Pesticides
http://www.epa.gov/oppad001/

For more information regarding the USEPA sanitizer/disinfectant specific registrations:
National Pesticide Information Retrieval System
http://ppis.ceris.purdue.edu/

For more information about the Association of Occupational and Environmental Clinics’ list of asthmagens:
www.aoec.org

San Francisco Asthma Task Force
General site, http://www.sfgov/asthma

Regional Asthma Management and Prevention
www.rampasthma.org

San Francisco Child Care Planning and Advisory Council
http://sfcpac.org/resources.html