



Flood Recovery **ANSWERS**

SDSU Cooperative Extension Service

Decontamination of Playground Equipment Contaminated with Sewage

Protection of workers who are doing the decontamination:

- Wear closed (not open toe) footwear and clothes that can be changed out of and laundered. After decontamination, the clothes and footwear worn during decontamination should be removed for laundering, and a clean set of footwear and clothes should be put on. Also, a shower to clean body and hair is recommended after decontamination.
- Wear gloves (preferably disposable rubber) during decontamination, to protect hands from contaminated surfaces and from the oxidizing effects of bleach. Protective eyewear like goggles is important.
- Avoid hand to face contact during decontamination (including hand to mouth, hand to eye, etc.)

Steps in decontamination:

1. Wash contaminated surfaces with water flow from a hose, etc. to remove visible contaminated deposits on the equipment. This will help aid the disinfectant power of the bleach in the next step.
2. Use commercial liquid bleach (usually sold as a ~ 5.0% concentration) (with active ingredient: hypochlorite):
 - a) **For surfaces that have been massively contaminated**, use either the full strength bleach from the container, or use a solution of 1.5 cups of bleach per 1.0 gallon of water. Apply bleach with any of a variety of methods (sprayer, towels, etc.). It is very important that bleach be in contact with the surface to be decontaminated for sufficient time, at least 10 to 15 minutes. For porous materials like many woods, at least 30 minutes exposure may be best. If drying of surface occurs, re-apply bleach as needed to keep surface in contact with bleach for this time period. Small items can be submerged in a bucket of bleach for 10 to 15 minutes. If large amounts of bleach solution are needed, hypochlorite products for swimming pool use can be used, if they prove more economical than use of jugs of store-bought bleach. In general, a 25 pound pail of calcium hypochlorite mixed with about 60 gallons of water gives an approximate 4% bleach solution that can be used as described above.
 - b) **For surfaces that are not as visibly massively contaminated** can be treated with 1/2 cup of bleach added to 1.0 gallon water. All other steps are as given above.
 - c) **Undersides of playground equipment** and/or in the shade should receive special attention, to make sure they are treated as described above, since these areas will not receive the additional antimicrobial effect of sunshine.

NOTE: Bleach solution should be prepared fresh daily and kept in the dark or shade prior to use. Bleach solutions lose their potency with time.

NOTE: Do not immerse electrical or battery powered equipment in bleach solutions. Wipe the outside of these items with a disposable rag that has been soaked in the bleach solution, then allow it to dry.

NOTE: NEVER mix bleach with ammonia or products containing ammonia.

For more information contact your local extension office, or refer to the following web sites:

Decontamination: Disinfection, Antisepsis, and Sterilization

http://www.ehss.vt.edu/Programs/LSD/Biosafety/BiosafetyForLaboratoryWorkers/08_Decontamination.htm

Decontamination after Flooding

http://64.233.167.104/search?q=cache:LAWv_lqdbgAJ:198.17.175.68/OshDoc/data_Hurricane_Facts/general_decontamination_fact.pdf+sewage+decontamination+surfaces&hl=en&ct=clnk&cd=6&gl=us

Flooding and Sewage Back-ups

<http://www.mass.gov/dep/water/laws/flooding.htm>

Emergency Biological Decontamination Solutions

http://64.233.167.104/search?q=cache:HGbAJ0J2Y5oJ:www.disasters.org/dera/library/bio_decon.pdf+sewage+decontamination+surfaces&hl=en&ct=clnk&cd=139&gl=us

by Dr. Bruce Bleakley
Professor of Biology & Microbiology
South Dakota State University