Coming Clean on Sanitizers in Organic Production

All food production involves procedures for cleaning and disinfecting to maintain healthy plants and animals, avoid contamination, and to prevent the spread of food-borne illnesses. These practices begin on the farm.

Measures to prevent the spread of crop or livestock diseases as well as pathogen contamination of products intended for human consumption involve good sanitation protocols as well as materials for disinfecting. Likewise, post-harvest handling and processing demand adherence to sanitation standard operating procedures (SSOPs), many involving sanitizers and disinfectants, with the goal being the production of finished products that are safe to eat. Although enforcement of food safety regulations is left to state and federal inspectors, we do have a vested interest in certifying safe organic foods; foods produced in properly licensed facilities. The National Organic Program agrees.

Being Certified Organic adds another layer of care and diligence to producers’ food safety efforts. Sanitizers and disinfectants must meet National Organic Standards, especially if contact with organic food occurs. Simultaneously, materials and methods approved for organic SSOPs must also satisfy state and federal food safety regulators. This always generates lots of questions. We are publishing this guidance document to provide producers with our latest understanding of selecting and using disinfectant materials in organic food production.

Chlorine Materials: Calcium hypochlorite, chlorine dioxide, sodium hypochlorite.

American households were introduced to a less concentrated version of liquid bleach by the Clorox Chemical Company way back in 1917. Clorox bleach and its kin remain popular and effective sanitizers, still killing microbes after all these years. Bleach is by far the most common sanitizer agent we see on farms and in small processing facilities in Maine. We are therefore pleased that the NOP has issued guidelines for the use of chlorine materials in organic production and handling. These new guidelines help clear up questions about the initial concentrations of chlorine in solutions for various sanitizing applications. The following is a summary of the NOP guidance that is available at http://www.ams.usda.gov/AMSv1.0/NOPProgramHandbook.

New NOP Guidance for Chlorine Materials

- For crop operations an APPROVED chlorine material may be used up to maximum-labeled rates for disinfecting and sanitizing equipment or tools. A rinse step is not necessary before sanitized equipment is used.
- For livestock operations an APPROVED chlorine material may be used up to maximum-labeled rates for sanitizing equipment or tools (including dairy pipelines and tanks). Label instructions must be followed regarding requirements for rinsing prior to the equipment’s next use.
- For food handling facilities and equipment, APPROVED chlorine materials may be used up to maximum-labeled rates for disinfecting and sanitizing food contact surfaces. Rinsing is not required unless mandated by the label. Water used as an ingredient must be potable (4ppm or less chlorine). (continued on Pg 2)
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- Water used in direct crop or food contact is permitted to contain chlorine at levels approved by the FDA or EPA (please document this in your organic system plan), however, rinsing with potable water (4ppm or less chlorine) **must** follow this step.

We have had numerous instances of certified operations using regular household bleach from the grocery store as a sanitizer. Regular household bleach contains surfactants and/or fragrances that are not allowed in organic production. We do allow Ultra Clorox Germicidal Bleach (EPA Reg. No. 67619-8), which is recommended by food safety experts at the University of Maine. It does not have these additional ingredients and it is labeled for a variety of commercial disinfecting uses. Inexpensive chlorine test strips are available which you should use to check the strength of your chlorine solution before each day’s use (this is necessary as chlorine molecules are unstable). Please contact MCS if you have any questions or concerns about the use of chlorine materials.

**Peroxyacetic Acid or Peroxy Acid Compounds or Peracetic Acid.** Like chlorine-based sanitizers, peracetic acid’s mode of microbe-killing action is through oxidation. It is a relatively new sanitizer in the US. Peracetic acid leaves no residues and readily breaks down into water, oxygen and acetic acid. This makes it a very attractive sanitizer for organic producers. Peracetic acid shows up in several places on the National List as an allowed synthetic substance for washing/rinsing/sanitizing product, seed, equipment and tools, without a rinse step. As with all material inputs, the brand name material or formulation needs to be OMRI listed or reviewed by MCS before you use it. There are peracetic acid formulations that include surfactants, making them unsuitable for organic producers.

**Quaternary Ammonium Compounds or “Quat” sanitizers or QAC.** Quats are odorless, non-corrosive, stable sanitizers that destroy a broad spectrum of pathogens and microbes. However, they are designed to leave a residual anti-microbial film on surfaces, which can then transfer to food. As you might expect, this is problematic for organic producers, as Quats are not on the list of permitted synthetic substances to be used on or in organic food. We could permit Quats in an organic SSOP if there is what we call “an intervening event,” such as a rinsing step with hot potable water that removes the film. This step is typically contrary to the label instructions on the Quat product and may not be permitted by state and federal food safety inspectors. In short, we would have to work with you and the other licensing officials involved in inspecting your operation to come up with an acceptable SSOP involving Quats.

**Where can I buy it?**

**Ultra Clorox Germicidal Bleach:** Home Depot. Staples. Sam’s Club. If not in stores, check online. ULINE.com

**Test Strips for Chlorine:** Use these inexpensive papers to check the initial concentration of your chlorine solutions (for example, a “restaurant test strip” with a 0-200 ppm total chlorine range), as well as the chlorine concentration in your final rinse water (a “residual test strip” with a 0 to 10 ppm range). **Where to buy:** SanitationTools.com, Indigo.com, Capraras Rest. Supply, Rt 202, Manchester, ME

**Peracetic Acid:**
Johnny’s Selected Seed sells SaniDate 5 Liquid Sanitizer Ecolab.com sells Tsunami 100 OxoniaActive, contact Ecolab
Check OMRI.org and type in ‘peracetic acid” for more product options.
We have reproduced part of the Ultra Clorox Germicidal Bleach label below to illustrate how to read a sanitizer label. We suggest you follow these three steps:

1. Check the percent active ingredient in the product: here the active ingredient is sodium hypochlorite and its concentration is 6.15%, yielding 5.84% of available chlorine.

2. Check the recommended dilution for your intended use. For sanitizing food contact surfaces or equipment, the label indicates a dilution of one tablespoon of the product into one gallon of water. The dilution table on the label shows that this dilution gives a chlorine concentration of 200 ppm (parts per million).

3. Follow label instructions regarding use of the diluted bleach solution. For food contact work surfaces the instructions state: Wash, rinse, wipe surface area with bleach solution for at least one minute, let air dry. For food contact utensils the instructions read: Wash and rinse. After washing soak for at least one minute in bleach solution, drain and air dry. Following these instructions means that you will meet NOP requirements for the use of this chlorine sanitizer on equipment and tools.

Please remember that different chlorine materials contain different concentrations of chlorine and will likely need a different dilution to yield an acceptable sanitizing solution. Your sanitizing protocol should include the active ingredient concentration in your solution as well as how it is used in your facility. Do not hesitate to call MCS if you have any questions.

EPA Reg. No. 67619-8