

Approved Disinfectants for FMD Virus

Source: USDA, FMD Virus Disinfectants,

https://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd-virus-disinfectants.pdf

Introduction

In the U.S., the Environmental Protection Agency (EPA) regulates disinfectants (referred to as antimicrobial pesticides by the EPA) under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). This law requires that all label use directions and safety precautions be followed. The labeling for each EPA-registered disinfectant lists the disease agents it effectively inactivates. In the case of the foot and mouth disease (FMD) virus, there are only a few labeled products and only one is registered as a sanitizer on food contact surfaces. In emergencies, when EPA registered products may not be available, EPA may grant exemptions for unregistered uses of registered pesticides, or uses of unregistered pesticides, to USDA-APHIS personnel, State Departments of Agriculture personnel, or possibly farmers or individuals to use a specific pesticide for a limited time by designated personnel. USDA-APHIS has exemptions in place for the use of citric acid and sodium hypochlorite (bleach), against the FMD virus in the event that registered pesticides are not available during an outbreak.

Safety

Follow all safety precautions and use directions listed on the product label during the handling and mixing of disinfectant solutions. Wear eye and respiratory protection when mixing or spraying disinfectants. Wear gloves to avoid skin contact with caustic materials. Immediately wash off any disinfectant that contacts bare skin.

Contact Time

Before disinfecting, all surfaces must be cleaned. Disinfectants will not be effective unless the surface they are applied to remains visibly wet for the required period of time. Read label directions for this contact time. Disinfectants mixed with water are susceptible to evaporation in hot or windy conditions and in direct sunlight and thus will not be completely effective unless reapplied. Curved surfaces that cause disinfectants to run off may require reapplication to keep the surface wet for the required contact time. Since disinfectants, climates, and environmental regulations vary, work with the animal health authority for specific recommendations.

Proprietary Products

EPA registered products with a label claim to inactivate FMD virus can be found on the USDA-APHIS website at https://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd-virus-disinfectants.pdf. Any of these products may be selected and used according to their labels. For more detailed information about available products, refer to the official label currently filed by the EPA by searching (product name or registration number) on the U.S. EPA Pesticide Product Label Search website at <http://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1:1719419566286576>.

Exemptions for Use of Registered Products

USDA-APHIS has an exemption in place for the use of acetic acid, citric acid, and sodium hypochlorite (bleach) against FMD virus in the event the proprietary products are not available. As with all disinfectants, all label use directions and safety precautions must be followed. For more information, see: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants

Acetic acid (household vinegar 4-8%, commercial technical grade 80-85%, commercial glacial 100% acetic acid)

To make a 0.5% acetic acid, dissolve acetic acid in soft, moderately hard, or hard water up to 375 mg/L and mix thoroughly:

- 1 part 4% acetic acid to 7 parts water OR
- 1 part 8% acetic acid to 15 parts water OR
- 1 part 80% acetic acid to 159 parts water OR
- 1 part 85% acetic acid to 169 parts water OR
- 1 part 100% acetic acid to 199 parts water
- Acetic acid solution can be used on food and nonfood contact surfaces.
 - USDA-APHIS has an exemption for use of acetic acid against FMD virus by USDA APHIS personnel, any State Departments of Agriculture personnel, farmers, and any other individuals who need to use this disinfectant on non-porous surfaces potentially contaminated with FMD (EPA Quarantine Exemption issued to USDA, May 2018, April 2020).
- Recommended wet contact time on clean, dry surfaces
 - 10 minutes for non-porous surfaces (metal, plastic, glass and any painted or sealed material)
- The solution must be mixed fresh daily and is corrosive.
- Commercial technical and glacial acetic acid are VERY corrosive and causes irreversible eye damage. Avoid contact with eyes, exposed skin, and clothing. Personal protective equipment is recommended to protect from dermal and eye exposure. Read and follow all label recommendations.

The acetic acid section 18 exemption label contains additional information for personal protection, first aid, and proper disposal and can be found at:

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants

Citric acid (99% food grade anhydrous granular or powder)

A 3% solution is made by adding 4 ounces of citric acid powder to 1 gallon of water (or 30 grams to 1 liter of water). For larger batches, start with 13 pounds of citric acid powder and add water for a total of 50 gallons. Mix thoroughly.

- Recommended wet contact time
 - 30 minutes for porous surfaces (wood, asphalt, and pervious concrete)
 - 15 minutes for non-porous surfaces (metal, plastic, glass and any painted or sealed material)
- The solution must be mixed fresh daily and is corrosive.
- The solution must not be mixed or used with bleach, chlorinated products, or mildew stain removers.
- Citric acid solution can be used on food and nonfood contact surfaces.
 - USDA-APHIS has an exemption for use of citric acid against FMD virus by USDA APHIS personnel, any State Departments of Agriculture personnel, farmers, and any other individuals who need to use this disinfectant on surfaces potentially exposed to FMD (EPA Quarantine Exemption issued to USDA, February 2019, expires Feb 2022).
- A 3% solution is VERY corrosive and causes irreversible eye damage. Avoid contact with eyes, exposed skin, and clothing. Personal protective equipment is recommended to protect from dermal and inhalation exposure. Read and follow all label recommendations.

The citric acid section 18 exemption label contains additional information for personal protection, first aid, and proper disposal and can be found at:

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants

Sodium hypochlorite 5.25%, 8.25%, 12%, or 12.5% (concentrated household bleach)

To make a 0.3% sodium hypochlorite solution (3,000 ppm available chlorine), add:

- 1 part 5.25% sodium hypochlorite product to 16.5 parts water OR
- 1 part 8.25% sodium hypochlorite product to 26.5 parts water OR
- 1 part 12.0% sodium hypochlorite product to 39 parts water
- 1 part 12.5% sodium hypochlorite product to 40 parts water
 - NEVER add water to sodium hypochlorite
 - USDA-APHIS has an exemption for use of sodium hypochlorite against FMD virus by USDA APHIS personnel, any State Departments of Agriculture personnel, farmers, and any other individuals who need to use this disinfectant on surfaces potentially exposed to FMD (EPA Quarantine Exemption issued to USDA, September 2018, expires 2021).

Recommended wet contact time:

- 30 minutes for porous surfaces (wood, asphalt, and pervious concrete), reapplying solution when necessary. Rewet with a minimum of two applications with at least 15 minutes between the first and last application.
- 15 minutes for non-porous surfaces (metal, plastic, glass and any painted or sealed material), reapplying solution when necessary.
- The solution must be mixed fresh and is corrosive.
- No treatments are permitted on food or feed items or where food or feed are present.
- A 0.3% solution is VERY corrosive and may cause severe damage to exposed skin and eyes. Personal protective equipment is recommended to protect from dermal and inhalation exposure. Read and follow all label recommendations.

The sodium hypochlorite section 18 exemption label contains additional information for personal protection, first aid, and proper disposal and can be found at:

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_disinfectants